The Extension Messenger

Timely Notes for Farm Advisers and others from the Agricultural College, the Experiment Station, and the Extension Service

UNIVERSITY OF ILLINOIS—URBANA, ILLINOIS

Vol. VII | January 2, 1924. | No. 1

Shipping Association Schools — "Farm Advisers and shipping association directors and managers are invited to meet for one day schools to study the special problems of live stock marketing. These schools will be held during the last three weeks of February at nine points distributed over the state. The University of Illinois, Illinois Agricultural Asscciation and National Live Stock Producers' Association are uniting in this work to improve the shipping association activities. The dates and probable locations of the schools are as follows:

February 12....Olney	February 19....Springfield	February 26....Galesburg
February 13....Carbondale	February 20....Decatur	February 27....Dixon
February 14....Centralia	February 21....Gilman	February 28....Chicago

The discussions will be led by F. M. Simpson, General Manager of the Producers Association, C. A. Stewart and L. J. Quasey of the I.A.A. and V. Vaniman and E. T. Robbins of the University of Illinois. Managers Doty, Wright, Hembrough and Swanson of the Producers' Commission companies will attend the meetings in their districts and Fieldmen Grimes, Orindorff and Kelley will divide their work among the meetings. Local managers have also been secured to lead the discussion of various local problems. The detailed programs will be prepared very soon.

The dates of these schools should be marked on the calendar. Every man who is entrusted with any part in the work of cooperative live stock marketing should plan to attend one of these schools and take part in the discussions."-E.T.Robbins,U.of I.

New Farm Advisers - We are starting the New Year with several new farm advisers: D. E. Warren, formerly Asst. Adviser in Lee Co. has taken the place of G. T. Snyder in Ogle Co. who resigned November 1 and is now selling insurance.

E. C. Secor began work in Randolph Co. Nov. 1, replacing C. W. McWilliams, who resigned to go into the seed business in Jackson, Mo. Mr. Secor is a graduate of the University of Illinois, class '14, and has been farming in Greene County.

S. S. Davis, class of '17, U. of I. began work as Farm Adviser in Piatt Co. November 5, 1923, replacing J. W. Watson who resigned to accept a commercial position.

H. C. Gilkerson succeeded F. H. Kelley in Edwards County December 1. Mr. Kelley resigned to accept a position as field representative for the Livestock Producers' Association. Mr. Gilkerson was formerly a member of the Agronomy Department, U. of I. and has been farming the past five years in McHenry County.

W. A. Herrington succeeded G. F. Baumeister in Stephenson Co. Dec. 8, 1923.

J. E. Watt, Asst. Farm Adviser in Fulton County the past three years, has been appointed Farm Adviser in Kane County and began work January 1. W. B. Richards, who has been Farm Adviser there the past five years is moving to Florida.

E. A. Bierbaum, class of '18, U. of I. went to work as Farm Adviser in Pulaski Co. January 1, taking the place of W. R. Eastman who resigned to take up farming in Iowa.

E. D. Walker, class of '10, U. of I. has accepted the position of Farm Adviser in Henderson Co. to begin work Feb. 1. F. M. Bane resigned to go into commercial work.

C. C. Turner has been appointed Farm Adviser in Moultrie Co. taking the place of . L. Higgins who recently resigned. Mr. Turner is an Illinois graduate, class of '17 and will take up his new duties in Moultrie County February 1, 1924." - W. H. Smith

A Stockman's Window - "The two front windows of the Warren County Farm Bureau are beautifully decorated in Christmas colors to tell a stockman's message. One has a headline poster, 'Will calves replace older steers in cornbelt feed lots?' The display shows results with feeding steers of different ages in Nebraska. Farm Adviser, A. A. Olsen, has made round wire screen containers holding the relative amounts of feed for 100 pounds gain with little posters giving the weights. Lines of Christmas roping connect each container with the posters in the background stating the ages of steers. The amounts furnish well graded differences as follows, in feed 100 pounds gain:

	Calves	Yearlings	Two-year-olds	Three-year-olds
Corn	498	672	759	823
Alfalfa	180	266	304	338

A foreground poster gives further facts about the financial outcome of the test. One gets a complete story from either the containers of corn and alfalfa, or the posters, or both.

The other window portrays the work of the Warren County Shipping Association of which A. D. Bruington is county manager. A miniature railroad track is laid out on the show window floor just like the railway lines of Warren County. Tiny toy houses, men, hogs, cattle, sheep and stock pens complete the representation of 12 railway stations, each with its local manager sending shipments from the farms on the west side of the window space to the Chicago Producers' Commission Association on the east. A billboard at each station gives the manager's name and the number of cars shipped in the last 12 months. The total for the county is 630 cars. Nearly every one who passes stops to admire these window displays--and they carry away with them at least a part of the message." E.T.Robbins, U.ofI.

Profitable Poultry Project - Believing that profitable poultry production should be encouraged on every farm, the profitable poultry project was conducted in the county the past year. The plan was to collect monthly egg and feeding records from a few farms in each township.

The monthly summary of these records has brought out some interesting comparisons of the different breeds and the different methods of feed and care.

The purpose of this Profitable Poultry Contest was to work with these farms which make a success of the poultry business as demonstration farms to increase interest in the right kind of poultry husbandry. The seven highest to finish the full year's report are as follows:

Name	Breed	No.Hens	Eggs per hen per year	Av.value of eggs per hen.per year
Mrs. B. E. Strait	Rhode I. Red	35	191.38	$5.54
Mrs. R. M. Stevens	S.C. White Leg.	220	135.72	3.94
Miss Ora Albert	Plymouth Rock	120	132.45	3.84
Ed. L. Marshall	Buff Rock	120	109.98	3.19
Mrs. Lloyd Heckman	Mixed	140	102.58	2.97
Mrs. H. A. Bevington	Rhode I. Red	80	94.05	2.73
Robt. Kornemann	Mixed	85	92.95	2.70

When you consider that the average of the state is 50 to 60 eggs per hen per year, the above reports are very creditable. The highest record above was 191.38 eggs per hen per year as an average for the entire flock.

The success with poultry depends upon selecting the right kind of hens, putting them in a suitable house and giving the right kind of feed. A Majority of the contestants fed a ration composed largely of home grown feeds. The ration recommended by the Farm Bureau was a scratch feed of corn, oats, and wheat fed sparingly twice per day in the litter so they had to scratch for it, together with a dry mash composed of equal parts by weight of wheat bran, wheat middlings, ground corn, ground oats and meat scrap or tankage; this dry mash to be fed in self feeder, giving them all they want at all times. W. W. McLaughlin, LaSalle Co.

HAS IT PAID TO OBSERVE THE FLY FEE DATE THIS FALL? - "During the past season, owing to the fact that most farmers observed the fly free date in the Fall of 1921 and 1922, there was very little damage in Illinois from this insect during the season of 1923.

Because of the scarcity of the fly, there was a tendency in some sections to sow before the fly free date. In the main, there will not be serious damage this year where wheat was planted one or two weeks before the fly free date, but it will be sufficiently infested to aid in bringing the fly back and will probably be damaged to an extent that will decrease the yield several bushels per acre next summer. Ineone or two localities, early sown wheat will be severely damaged, and much of it will be killed. Just how well the figures taken from the fly free date has held this year is shown from the following figures taken from the Natural History Survey date of seeding fields which are scattered over the state so as to cover most of the wheat growing sections:

Percent of Wheat Plants Infested by Hessian Fly

Locality	Sown about two weeks before fly free date	Sown on about fly free date
Grand Ridge	53	0
Carbondale	0	0
Oblong	59	0
Grand Chain	44	0
Centralia	96	0
Sparta	15	0
Urbana	4	0
Virden	3	.4
La Harpe	26	2

The man who sowed early this fall is not only injuring his own crop, but is certainly far from being a good neighbor as he is doing much to injure all the wheat of farmers within several miles of his fields. Wheat may not be a good paying crop at present, and it seems probable that we should decrease our wheat acreage. If we are going to make money with this crop at any time, it will be by increasing our yields per acre and the quality of the crop, and this is not done by raising hessian fly." - W. P. Flint, U. of I.

Getting Into the Game - "Cass County Farm Bureau has maintained a farm bureau baseball team the past two years. Finances for providing suits were secured by giving the ball team the concession's right at the farm bureau picnics. The team has given a fair account of itself in games with some town teams in the county, but the boys have been interested in getting other counties to organize similar teams so that inter-county games could be played. Some of the ball team are good duck hunters and they agreed to furnish wild duck for a supper which the farm bureau gave the evening of November 27 at which time delegates from several nearby counties were invited in. The visitors present expressed condience in baseball as a farmbureau project and have agreed to try and organize teams for the purpose of playing inter-county games during 1924, probably arranging the schedule of farm bureau picnicsso that a number of the games can be played in connection with this event. Counties which have agreed to try and put teams in the field are Logan, Mason, Menard, Morgan, Sangamon, Macoupin, and Cass." - R. W. Dickenson, Cass Co.

Do You Need Any Money? - "Counties carrying on Pig Club projects and wishing to call upon the record associations for premium money in 1924 should send in their requests at once to those associations. The request should be accompanied by a statement of your local situation and the number of pigs it is probable will be placed in club work, and the approximate amount of money which will be offered by the breeders of the county and the local fair." - E. I. Pilchard, U. of I.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914, H. W. Mumford, Director

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PLANS ROUNDED OUT FOR FARMERS' WEEK

With the opening of it less than two weeks off, plans are practically complete for Farmers' Week at the College of Agriculture, University of Illinois, January 21 to 25. Combined with a program similar to that of other years are several new features that are expected to make the meeting this year an unusually attractive one for Illinois farmers and their wives.

The economic side of farming - that phase which has to do with marketing, up-to-date management of the business of farming, and the handling of the farm as a productive and economic unit - has been given first attention on the program. In line with this the general sessions on Monday afternoon and Tuesday, January 21 and 22, and the evening programs will be taken up largely with this subject. On Wednesday, Thursday and Friday mornings, January 23, 24, and 25, eight different sections, including agronomy, animal husbandry, dairy husbandry, farm management, farm mechanics, horticulture, floriculture and beekeeping, each will hold 15 class periods or 120 different classes devoted to lectures, discussions and demonstrations.

Among crop problems, that will be taken up in the agronomy section are those of crop rotation and the place of legumes. Disease of farm crops and insects also will get attention. The soils program will be given over to descriptions of soil survey work in Illinois; exhibits of soil samples and equipment used in making field tests, and discussions of peculiar soil problems which farmers have found on their own land.

In the animal husbandry section special attention will be given to profitable production. New pointers on feeding and marketing will be outlined and the problem of disease control discussed in detail. Managing and feeding the farm poultry flock to swell the income from this phase of farming will come in for special attention.

How to make dairy herds pay more will be the keynote of the dairy program. To this end the discussions will deal largely with how to breed and feed the herd for bigger profits and how to weed out boarder cows.

Questions pertaining to farm accounts, the cost of producing farm products, the relationship of production costs and prices, farm planning, tenancy and tenant contracts are listed for attention in the section of farm organization and management.

A chance to learn more about the skilled use of machinery and power, more convenient buildings, more sanitary homes and farm structures, better drainage and the prevention of soil erosion will be given in the farm mechanics section.

A section in beekeeping is to be one of the new features and in connection with this part of the program successful and practical beekeepers of national reputation will discuss the needs of beginners and the fundamentals of successful apiculture.

A wide variety of subjects will be offered for study in the horticultural section. Chief among these will be pruning and spraying, the care of both trees and small fruits, vegetable growing in the home garden and the storage of vegetables and fruit crops. Emphasis also will be given to the planting and planning of home grounds.

The Illinois Seed Grain Show, including the fourth annual Utility Corn Show, will be held during the week, while the new Agricultural Building will be dedicated Friday afternoon, January 25, and a Good Fellowship banquet held that evening as a round-up feature of the meeting.

Sweet Clover Compares Favorably with Manure as Soil Builder - Sweet clover, when used as green manure, is on a par with stable manure as a soil builder, according to comparisons made between the two during the four years from 1919 to 1922 on Northern, Central and Southern Illinois experiment fields.

The manure system of soil treatment besides being a long used one and one that is well known is reliable, while the residue system, in which the residue is made up largely of sweet clover used as a green manure, is a comparatively new one about which little is known. These two systems when used side by side in the same rotations on the experiment fields showed little difference so far as the value of crops produced was concerned.

The following table gives the four-year (1919-22) average annual acre value of crops from nine experiment fields in a rotation of wheat, corn oats, and clover.

Soil Treatment	Northern Fields	Central Fields	Southern Fields
Manure, limestone	$28.40	$25.58	$13.82
Sweet clover, residues, lime	28.12	25.27	13.42
Untreated	22.70	18.70	4.27

Prices used were: wheat $1.00, corn 50 cents, oats 30 cents, clover hay $10.00. The Northern fields were those located at Dixon, LaMoille and Mt. Morris. Central fields were those at Carthage, Clayton, and Urbana. Southern fieldswere at Ewing, Enfield, and Oblong.

In this experiment manure was applied in weight per acre equal to the total crop removed and was put on just ahead of the corn in rotation. The sweet clover for green manure was seeded in the wheat and the following spring was plowed under for corn. The green weight of this sweet clover usually amounted to many tons per acre, but the dry weight usually varied from one to two tons per acre, supplying available nitrogen sufficient for approximately 50 to 100 bushels of corn. - H. J. Snider, Agronomy Dept.

"Follow-Up" Farm Account Books - "We held three Farm Account schools during the past month. We have more farm account books out this year than ever before and those who came in to the schools seem to be very much interested in the work. I have always considered this a very important piece of Farm Bureau workbut it has been hard to get farmers to realize the importance of it. It has been my experience that in order to get farmers to keep their books up it is necessary to make a rather definite program for 'Follow Up'. I find that if you simply hand out the books and pay no more attention to them until the end of the year the majority of them fail to keep their books up and close them out." - Alfred Tate, Monroe Co.

Farm Bureau Fundamentals - "Two of the greatest assets for the development of the Farm Bureau are Community Spirit and Boys' and Girls' Club Work. Therefore, we recommend that each community perfect an organization within itself, such to hold meetings as the members may desire, and that problems of interest to the community and the individual be discussed at these gatherings; in other words, we suggest that the people learn to think in terms of the community rather than the individual.

Boys' and Girls' Club Work has a far-reaching effect, one upon which no money value can be placed. We find that active Clubs among the young people will do more to strengthen and build up a good, live interested, agricultural community than any other one project. Adults can aid in this program by volunteering their services, as local leaders, thus aiding and supporting the young people." - L.S.Foote,Union Co.

Farm Advisers to See Grain Show: The grain exhibit which will be one of the features of Farmers' Week will be kept in place the following week for inspection by the farm advisers during the week of the Agricultural Extension School. W.H.S.

Wayne County Girl Makes Good Record: "Miss Faye Courtright, has one the choice of a $100 scholarship to the University or a trip to Washington, D.C. for having the best pen of Single Comb Rhode Island Reds in the 14 counties in the contest. Besides the $100 scholarship she has won, she has sold $54.25 worth of cockerels for breeding purposes and still has $50 worth of pullets, which she intends to use in the flock management project.

The boys and girls of Wayne County have been very fortunate in the past two years with poultry club work. They have not only won the $100 scholarship both years, but three of the other eight prizes, given by the B. & O. R. R. at the district show.

The boy who won 4th prize at the district show continuedin the flock management project and won 3rd prize this year. He has sold around $70 worth of products from his 12 pullets he kept for the project work and he now has over $100 worth of stock left.

Every girl who completed her project this year has realizeda nice profit from her work. Seven of the ten are continuing the flockmanagement project which consists of keeping a daily record of the project sold and the amount of feed and other expenses. We are looking forward to some good information from this club work that can be used extensively among the breeders later." - C. T. Hufford, Wayne Co.

Cow Testing Association Reveals Facts: "Our cow testing association records are bringing to light some very interesting and important facts. The average production of 370 cows for December was 605 lbs. of milk and 25 lbs. butter fat. The best herd produced 1054 lbs. milk and 36.9 lbs. fat. The best cow produced 1860 lbs. milk and 68.8 butter fat. The herds in the association are better than average so we assume that the average herd in the county produced 12 lbs. in December which would mean about 100 to 120 lbs. butter fat per year. These facts alone should set the average dairy farmer to thinking seriously of bringing about more efficient production. The men who are making money off the dairy business in this county are those who have the higher producing cows and who raise most of the feed, especially legume hays and silage on their own farms." - H. A. deWerff, Franklin Co.

Giving Assistance to Cattle Feeders - "A cattle feeders' tour was conducted on December 14. The purpose of the tour was to give our cattle feeders the opportunity of seeing as many cattle on feed in the county as possible, to compare prices paid for the cattle of different grades and to study the method of feeding practiced and the equipment used.

The tour was a decided success. Seventy-two farmers went on the tour and they expressed themselves very favorably for the tour and favored making it an annual event.

Arrangements were made with the Ladies Aid of Kaneville to serve dinner for the crowd. At the dinner talks were made by Jim Stephens head of the cattle department of the Chicago Producers and R. B. Arendorff, Field Representative for the Producers. Both of the men accompanied us on the tour.

Twenty-five of the leading feeders in our heaviest feeding townships were visited. We have four townships where practically all the farmers feed cattle and they include some very large feeders who feed as high as 1,000 cattle each year." - W. B. Richards, Kane Co.

1924 Ton Litter Rules - "Rules governing the Ton Litter Club Project are being sent out this week. The rules are practically the same as last year. The enrollment and entry of the litters closes April 15. Litters must be officially nominated by July 1, and officially inspected before August 1. Illinois produced the largest number of Ton Litters of any state last year and it is hoped the number can be increased this year." - W. H. Smith

Printed in furtherance of the Agricultural Extension Act of May 8, 1914, H. W. Mumford, Director

County Girl Makes Good Record – "Miss Mary Courtright, has won the [illegible]
[illegible] olarship to the University [illegible] a trip to Washington, D.C. for [illegible]
[illegible] Lincoln Comb Rhode Island [illegible] in the 14 counties in the contest [illegible]
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CLOVER GROWING APT ALMOST LOST IN MANY COUNTIES

"Clover growing in many Illinois counties, particularly in the more southern sections of the state, seems to be almost a lost art. Much is heard these days about clover failures, and yet farmers are realizing as never before that the crop is absolutely an essential one. They know that without clover, yields cannot be maintained permanently. Of course, it is possible to buy commercial nitrogen, but for general farming this policy is not economically sound, at the present time at least.

Clover must be grown on about one-fourth of the tillable land of Illinois, if the productivity of the state's soils is maintained permanently, and as the necessity for this crop becomes more and more urgent, more and more will be heard about its failure.

Two causes may be assigned to the failure to successfully grow this crop; (1) soil conditions; (2) poor methods of seeding. To the lack of limestone in the soil is probably due more failures than can be attributed to any other single factor. After the soil has been limed or as the soil acidity is corrected and the soil thoroly inoculated, less and less difficulty is experienced in clover production. Thru the addition of active organic matter, by turning under farm manure and the addition of phosphorus the possibility of securing a good clover stand is increased. As an example of the effectiveness of limestone, 'in twenty-five seedings of sweet clover made on five different soil experiment fields in southern Illinois, there were only two complete failures.'

Red clover may be considered about like sweet clover in the matter of its response to limestone.

Failure to obtain a stand of clover is frequently due to a poorly prepared seed bed. Clover responds as well as any other crop to a well prepared seed bed. A safe practice is to roll the ground just before or after seeding. This is not only beneficial to the clover but also to the small grain crop in which the clover is seeded. Such practice firmly packs the soil about the small seeds and usually better germination results. Experience has shown that it is possible to obtain better stands of clover when early maturing varieties of small grain are used, due to the lighter growth of the earlier varieties and earlier harvesting as a general rule.

For a number of years the experiment station has conducted trials on the Urbana South Farm to determine which is the better time to seed, during the latter days of February or after the ground has thawed out in March. So far there seems to be little or no difference in the success from the two dates of seeding.

Inoculation has not been practiced regularly in the state of Illinois but there is a growing interest in inoculating red clover, just as for other legumes. A precaution entirely worth while at this time is to be sure to purchase home-grown seed. There is a flood of imported seed being dumped on the market in America and it has been clearly demonstrated by the Department of Agriculture that the results obtained from imported seed are very much lower than yields from home grown seed stocks." - W. L. Burlison, U. of I.

Shipping Pools Handle 20,000 Cars of Stock - "More than 20,000 cars of live stock with a gross value of $25,000,000 were shipped thru Illinois shipping associations in 1923. These associations number about 600 and serve the stockmen of 92 counties. They form the foundation of the most successful cooperative marketing enterprise ever started in Illinois. Their efficiency and economy have quickly and surely established them as the popular home agency for marketing live stock.

Some associations are handling more business and doing it better than others. The nine district shipping association schools to be held the last three weeks of February are designed to help the weaker associations elevate their business methods to the same standards as the best. Attention will be directed especially to such problems as transportation, forms of organization, local and terminal difficulties, accounts, records, reports, marking, prorating, home publicity, and county associations and federations. Managers, directors, and farm advisers will take home from these schools the best ideas developed in the operation of successful shipping associations in Illinois and adjoining states.

Every shipping association officer will find at least one of these one-day schools within easy access. The locations are Olney, Carbondale, Centralia, Springfield, Decatur, Gilman, Galesburg, Dixon and Chicago." - E. T. Robbins, U. of I.

Grain and Hay for Ewes Make Lamb Crop Pay - "Ewes which are expected to give birth to strong, vigorous lambs, and have plenty of milk for the support of those lambs should be fed some grain and hay for at least one month before lambing time. This is especially true of ewes that are to lamb early. A pregnant ewe should not be given a fattening ration but a well balanced ration that will not only put her in a good, thrifty condition, but at the same time will supply those nutrients needed for the proper development of the foetus. During January and February feeds in the fields are not only scarce but of low value and the breeding flock is best maintained on harvested feeds.

Whole oats always is suitable as a grain feed for ewes, but corn is very satisfactory when fed with a legume roughage. One-half to three-fourths of a pound a head daily, depending upon the condition of the ewes, together with three to four pounds of a legume hay is a good ration. Silage may be used to advantage and is a good feed if it is entirely free from mold or is not frozen. It is usually not advisable to feed more than three pounds a head a day. This amount may be used to replace about half of the hay allowance. Cheaper roughages such as oat straw or soybean hullings may profitably be used but like silage, they should always be fed with a palatable legume hay. Plenty of good clean drinking water and salt always should be available and their importance cannot be over emphasized." - A. K. Mackey, U. of I.

Club Work Shows Results -"Summing up the work of the 87 club members who completed their projects in Logan County for 1923, has disclosed some interesting facts. The 18 members in pig club work made a profit of $30.16 each, with a cost of $6.00 a hundred pounds for the gains made. The 19 corn club members producted 70.4 bushels of corn an acre at a cost of 37.5 cents a bushel, or $25.20 an acre. One club boy, Ray Teichman, fed three ton litters weighing 2490, 2025, and 2000 respectively, and all of the five who finished in the ton litter project were, or had been at some time, club members. The information to be obtained from the work of club members can be used to great advantage in the live stock and crop extension program of the Farm Bureau. Counties which have been doing club work are beginning to 'cash in' on it in their present county program." - E. I. Pilchard, U. of I.

A Real Swine Show - "The First State Fat Barrow and Corn Show, held the second week in December at Galesburg, was sponsored by the Knox County Farm Bureau. Twenty-eight boys and girls entered the judging contest. The Galesburg team won the silver trophy. Eighteen counties were represented in the corn division with 100 or more samples, and 150 well-fitted barrows made competition keen in the hog show." - L. R. Marchant, Knox Co.

Dairy School Well Received - "The one-day dairy school held December 27 by Prof. C. S. Rhode, of the College of Agriculture, University of Illinois, was heartily endorsed by all who were present. It resulted in the development of plans for testing the herds of eleven men who were present. Each man will take his own weights and samples. The test will be made by some one employed for the purpose, probably a high school boy, and the records will be kept at the Farm Bureau office." - Ralph E. Arnett, Tazewell Co.

Records Show Flock Efficiency - "Complete records sent to the office for 1923 on a farm flock of 125 hens in the county show the following results:

Receipts;			
Total eggs produced	- 11,584		
No. eggs per hen	- 92.5	Total returns -	$ 434.74
Expenditures:			
Total labor	$77.50		
Total feed cost	148.50	Total expenses -	$226.00
		Total Net Profit	$208.74 or

a net return of $1.66 per hen.

Cullings during June and August reduced this flock to 46 for the remainder of the year.

We think this is a good argument in favor of good care and feeding for the farm flock." - C. W. Simpson, Gallatin Co.

Corn Show Boosts Crop Improvement - "Our major project of work completed this month was our fifth annual Seed Corn and Poultry Show. Our corn exhibits were excellent and showed an improvement in the ability of our exhibitors to pick the type of corn that makes good, high yielding seed. Our bushel class consisted of 15 entries of good corn. The boys' class was well filled and the zone classes and professional class, in which ten ears constituted the exhibit, showed up exceptionally well. Mr. O. P. Tiemann, of the Illinois Seed Testing Laboratory of Bloomington, judged the show and gave a demonstration at the conclusion of his work. The noticeable progress in the seed corn work as evidenced in our five consecutive corn shows, has meant money to nearly every farmer in Grundy County as this is a project in which all are interested. The exhibit prepared by C. A. Hunt, displaying a small crib of corn with figures charted showing the average shrinkage per month of corn and the price for which it must sell to allow for shrinkage, as well as the actual market price, was an interesting feature.

The Poultry Show consisted of 300 birds, mostly from Grundy County farm flocks. Exhibitors mentioned the relative improvement of birds in this, our fifth show, over the first show. All birds were scored, which method of judging proved popular and educational to exhibitors and visitors." - F. E. Longmire, Grundy Co.

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Timely Notes for Farm Advisers and others from the
Agricultural College, the Experiment Station,
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UNIVERSITY OF ILLINOIS—URBANA, ILLINOIS

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WINTER PUTS NO BAN ON CONCRETE MAKING

Slack Time on Farm Can Be Used For Construction Work

If certain precautions are used, concrete can be made in the winter months, thus making it possible for the farmer to utilize slack time in fixing up his buildings and doing needed construction work. There is less risk in inside work, but even outside construction can be done, if handled properly.

Warm weather is best for concrete work, of course, because heat hurries the hardening process, while cold retards it. At low temperatures the hardening is quite slow and at the freezing point it stops entirely. If concrete freezes before it sets it is very apt to be injured and if there is repeated freezing and thawing before setting, the work will be destroyed. It generally is thought that concrete is out of danger of frost after 48 hours if the temperature is kept above 60 degrees, but it is better to protect it for from five to seven days.

In the fall when it starts to freeze at night, it is only necessary to protect the concrete, but when the weather gets colder the mixing water must be heated in addition. In severe weather both the water and the materials must be heated and special precautions taken to keep up the temperature of the concrete until freezing no longer would injure it.

Water can be heated in a large kettle or tank. If it is heated close to the boiling point the finished concrete will stay warm for a longer time. If the weather is extremely cold the sand and gravel must be heated also, and under no circumstances should concrete be made from sand or gravel containing frozen lumps.

A handy method for heating this material is to build a fire in a metal cylinder, such as an old smokestack or culvert pipe, and then pile the material around the cylinder. It is necessary to turn the materials often, so that those nearest the fire will not get too hot. This is important as some sands and gravel are damaged by too much heat. Steam is best for heating the materials if it can be had.

In mild weather all that is necessary is to cover the concrete after it has been placed, as there is a certain amount of heat generated in the setting process. However, in colder weather artifical heat must be supplied to keep the temperature up until the concrete has hardened out of danger of frost. It is a common practice to house the work with canvas or some other means and then heat the interior with oil stoves or coke stoves, commonly known as salamanders. - R. C. Kelleher, Farm Mechanics Department, College of Agriculture, U. of I.

Sweet Clover is Front Rank Crop - "Biennial sweet clover, at one time regarded as a roadside weed, is fast coming to be considered as one of the most important agricultural plants. It has won favor because of its ready adaptation to most rotations and because it has certain valuable characteristics in a marked degree. It has four important uses - hay, seed, pasture, and green manure.

Sown on good land in the spring with small grain it will make from a ton and a half to two and a half tons of hay in the fall of the same year, while the feeding value of sweet clover hay is almost up to the standard of alfalfa. The hay cut the following year usually is coarse, but stock that is used to it will leave surprisingly little of the stems and will thrive.

Sweet clover makes a big crop of valuable seed. However, it ripens unevenly and shatters readily. Handled properly, however, it will make from two to six and eight bushels of hulled seed to the acre. When a seed crop is to be harvested it is best to clip the clover early in the spring when it is about 12 to 18 inches high to keep the plants from getting too coarse and to make it easier to harvest the seed with less loss. In clipping the crop in the spring the sickle bar should be raised six to eight inches by using special shoes.

The crop has proved itself a fine one for pasturing. Sown in the spring by the first of August it makes an abundance of the best kind of pasture. The following spring it will start early and may be pastured heavily until August, when the spring seeding will be ready. The carrying capacity of sweet clover is perhaps greater than any other forage plant grown in the corn belt.

Next to its value as a pasture crop, sweet clover is of most importance when used as a green manure crop. Being a legume, it takes a large proportion of its nitrogen from the air. It also is a heavy feeder on phosphorous, even though this may be in a rather unavailable form. When a crop of sweet clover is turned under for corn in the spring, the plants decay quickly, leaving the nitrogen and phosphorous to the growing corn." - R. W. Stark, Crop Production Division, College of Agriculture, U. of I.

Exhibit Shows Erosion Control - A soil erosion exhibit planned by the Farm Mechanics Department to show the value of controlling soil washing as compared to letting it go unchecked has been practically completed and will be ready for the inspection of farm advisers during their coming conference, accoring to an announcement by F. P. Hanson, who designed the exhibit. The exhibit has been designed as a display that farm advisers can use in furthering the control of soil washing in their counties and can be used as an office or window display or at special meetings and fairs.

The two adjacent fields shown in the exhibit make a striking demonstration of how land can be saved through the control of soil washing. Terraces and other means used to check washing are shown in the one field, while the absence of such devices in the second field has allowed the land to be practically ruined through the formation of deep gulleys. Provision is made for water to run over both fields when the exhibit is in use to show how the terraces and other devices check the flow of water and prevent erosion.

The only charge to farm advisers for use of the exhibit will be transportation costs. Requests for it should be sent to the Farm Mechanics Department.

Illinois Favored as Fruit Section - Situated in the center of population and crisscrossed with trunk line railroads, Illinois has a decided advantage over any other fruit producing section in the United States, A. B. Leeper, of the Illinois Agricultural Association, told farmers who attended the Tuesday morning session on the Farmers' Week program.

FARMERS' WEEK GETS OFF TO GOOD START

Despite sub-zero temperatures that prevailed thruout a good share of the day, approximately 125 farmers registered during the opening day of Farmers' Week and indications are that this year's conclave of the state's farmers will be one of the most succesful that has ever been held. Registration progressed steadily during the early part of the meet and by Wednesday close to a thousand farmers are expected to be here.

Practically every section of Illinois and at least two additional states, Indiana and Missouri, were represented in the early registrations. P. B. Lenard, Vincennes, Indiana, whose farm is on the Indiana-Illinois line, was the first person to register. Among others who registered early were Bern Duffner of Desoto, Missouri, who came 250 miles to the meeting and spent twenty-one hours on the road; and L. E. Rust of Sibley, Assistant Manager of a 13,000 acre estate.

Entries in the Illinois Seed Grain Show, including the fourth annual Utility Corn Show, are practically double those of last year, there being 240 ten-ear entries and 124 single-ear entries in the corn classes alone. The small grain classes also are much better filled than last year, especially the soybean classes in which the entries are more than doubled. The increase in the number of entries sent to the show has been general thruout the state, no one section having come forward with a big increase over last year. Awards in the show probably will be announced late Wednesday.

The program for the week got under way at 1:30 o'clock Monday afternoon in the auditorium on the University campus when Dean H. W. Mumford of the College of Agriculture called the session to order to hear John C. Watson of the Illinois Agricultural Association, Chicago, and Frank I. Mann, Gilman, discuss the subject, "The Farmers' Interest in Taxation".

The premier agricultural machine in the world today is the farm family, Dr. Warren H. Wilson, of the Columbia University Teachers' College, New York, declared in the main address of the opening day delivered at 7:30 o'clock Monday night in the auditorium. He spoke on "The Contribution of the Rural Church to Agriculture".

The influences that hold people on the land are love of land, of marriage and of kinship and all three of these are motivated by religion, he pointed out in setting a high place in American agriculture for the farm family. It is true that some phases of agriculture have passed out of the farm-family type to become capitalized, but in the main, substantial agriculture has its foundation in the farm family, he added.

"We hear a great deal these days about the low income of the farmer and the faulty educational systems that draw his boys and girls away from the farm, but over against these I stand the love of land, of kinship and of marriage, all motivated by religion," he said.

Continuing he said, "Agriculture is hereditary, farming cannot be profitable unless it is continued for two or three generations. The church contributes in a large measure to this necessary continuity. The business of the church is to prepare for the unknown and the unbearable and agriculture comes nearest to being mysterious."

Leaders in Illinois marketing organizations had the center of the stage during the second day of the meeting. The entire program during the morning was given over to discussions dealing with recent progress and a forward look in marketing organizations, while the afternoon was devoted to a discussion of those factors involved in packing, handling and transporting perishable crops, and the loading of cars with livestock and grain. This was in line with the plans to give the economic side of farming an important place on the program.

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84 COUNTIES REPRESENTED AT ANNUAL FARMERS' WEEK

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Knox County Man Wins Grain Show Honors

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Operators of 190,574 acres of land in 84 Illinois counties, seven other states and Canada attended the recent annual Farmers' Week at the College of Agriculture, University of Illinois, according to a tabulation which has just been made of the week's attendance records. Dedication of the New Agricultural Building and a record seed grain show featured the meeting.

Champaign was the best represented county with 56 persons present, while 25 registered from Cook, 17 from McLean, 11 from Ford, 10 from Vermilion, 9 from each Tazewell and Iroquois, 8 from Piatt and 7 from each Macon and Livingston counties. Other counties in practically every section of the state were represented in the attendance.

High honors of the seed grain show again went to J. L. McKeighan, Yates City, Knox County, who duplicated his feat of last year in winning the grand sweepstakes in the 10-ear classes with an exhibit of Reid's Yellow Dent that scored85.2 points. Central Illinois took high sectional honors with three of the major awards of the show.

Addresses by Eugene Davenport, Dean and Professor Emeritus of the College of Agriculture, and H. W. Mumford, present Dean of the College, marked the dedication of the New Agricultural Building to the state's farming interests. This event came at the close of a program made up largely of 120 class periods given over to lectures, discussions and demonstrations bearing on dairying, animal husbandry, soils and crops, farm mechanics, farm management, horticulture, floriculture and beekeeping.

Speaking on the subject, "Making Headway in Scientific Agriculture", Dr. Davenport pointed out that agriculture and its foster sister-home economics - both have advanced beyond the boundaries of colleges and are now serving not only farmers and their wives, but also all mankind on the farm, in the home, in the high school and even in the grades. This is an extension of the idea of industrial education as revolutionary as it was inevitable, he said.

Dean Mumford stressed the need for reliable information that will help the farmer reduce the economic risks of his business to the minimum. He spoke on "The Influence of Education and Research in Scientific Agriculture" and went into detail on almost a score of farm questions and problems that need careful and thorough study and investigation.

Duroc Association Posts Ton Litter Prizes - The National Duroc Jersey Record Association again is cooperating with the College of Agriculture in furthering Illinois Ton Litter Club work by offering $250 in cash premiums for county and state winners this year. The different prizes and the conditions under which they will be awarded follow:

(1) $50 to apply on expenses of a trip to Farmers' Week at the University of Illinois, if the heaviest litter in the state is sired by a registered Duroc-Jersey boar. This premium will not be awarded unless used for the purpose specified, by the person winning it or his son sixteen years old or over.

(2) $20 in cash to each of the ten heaviest Duroc litters in the state, exclusive of the champion litter, that win the county championships in their respective counties. If the state winner does not qualify then the county offer will apply in 12 counties in the state.

(3) To qualify for either state or county prizes, litters must be sired by registered Duroc boars and weigh at least a ton in 180 days.

(4) Rules governing the contest as approved by the state leader of the Illinois Ton-Litter Club must be complied with fully.

(5) Photographs of the winning ton litters at finishing time will be required together with a report giving the record number of the sire in every case.

(6) Premiums will be paid at the conclusion of the contest as soon as all records are received.

(7) Notice of the acceptance of premium offers herein mentioned must be sent by the county club leader to the National Duroc Record Association, J. R. Pfander, Secretary, Peoria, Illinois.

W. H. Smith.

Shipping Association School Schedule; "The exact schedule of shipping association schools has been completed as at first announced excepting that the one for Thursday, February 14, will be held at St. Louis instead of Centralia.

The program will include: "Transportation Problems", L. J. Quasey, I.A.A., Chicago; "Accounting, Prorating and Reports", J. C. Spitler and V. Vaniman, University of Illinois, Urbana; "Difficulties in Marking and Handling Cooperative Shipments", by a commission company manager; "Shipping Associations as a Farm Bureau Project", C. A. Stewart, I.A.A., Chicago; "Local Manager's Problems", by a local or county manager; and "Round Table Discussion of Problems", by all members of the school.

Olney, Tuesday, February 12, Convention Hall, Courthouse.
Carbondale, Wednesday, February 13, Zetetic Hall, Normal School.
St. Louis, Thursday, February 14, Hotel Statler.

Springfield, Tuesday, February 19, St. Nicholas Hotel.
Decatur, Wednesday, February 20, Farm Bureau Building.
Gilman, Thursday, February 21, Forrester's Hall.

Galesburg, Tuesday, February 26, Hotel Broadview.
Dixon, Wednesday, February27, Circuit Court Room Courthouse.
Chicago, Thursday, February 28, Indian Room, Fort Dearborn Hotel.

-E. T. Robbins, Animal Husbandry Department, College of Agriculture, U. of I.

Soybeans Prove Worth in Lamb Fattening: Soybeans are almost on a par with some of the better known lamb feeds and can be used with profit in the ration for fattening lambs, animal husbandrymen of the College of Agriculture, University of Illinois told visitors at the recent Farmers' Week at the close of the second year's work in a test made to compare the relative value of soybeans with that of other feeds commonly used in fattening lambs. The experiment ended during the week of the meeting, making it possible for the visiting farmers to study the experiment, inspect the six lots of animals that were fed the different rations and look over a representative carcass from each of the lots to see the finish made on the different feeds. The experiment started on October 29, 1923.

Shelled corn and soybean hay proved almost as good a fattening ration as shelled corn and alfalfa, the ration with which all others were compared, while soybean straw fed along with corn and soybean oil meal gave slightly better gains and returns than oats straw fed along with the same feeds. The test showed that there is little difference in the value of soybean oil meal, whole soybeans and linseed oil meal as supplementary feeds for fattening lambs.

Lambs in lot I were fed shelled corn and alfalfa hay and returned $2.06 above feed costs; those in lot 2 were fed shelled corn and soybean hay and returned $2.03 a head above feed costs; those in lot 3 shelled corn, whole soybeans and soybean straw and returned $1.48 a head above feed costs; those in lot 4 on shelled corn, soybean oil meal and oat straw and returned 91 cents above feed costs; those in lot 5 on shelled corn, soybean oil meal and soybean hay and returned $1.50 a head above feed costs, and those in lot 6 on shelled corn, linseed oil meal and soybean straw and returned $1.29 a head above feed costs.

The day the experiment ended lambs in lot I were valued at $14.00 a hundred, those in lot 2 at $13.90 a hundred, lot 3 at $13.75 a hundred, lot 4 at $13.25 a hundred, lot 5 at $13.60 a hundred and those in lot 6 at $13.50 a hundred.

Feed prices used in determining the worth of the various rations were: corn, 65 cents a bushel; linseed oil meal, $55 a ton; soybean oil meal, $50 a ton; soybeans, $1.50 a bushel; alfalfa hay $20 a ton; soybean hay, $15 a ton; soybean straw, $5 a ton, and oat straw, $8. a ton.

Lambs that received shelled corn and alfalfa hay made the biggest gains, a total of 26.8 pounds each or just a shade less than a third of a pound a day. However, the lambs that were fed shelled corn and soybean hay were a close second with an average total gain for each lamb of 25.7 pounds or almost a third of a pound a day for the entire experiment.

Linseed oil meal, soybean oil meal and whole soybeans each fed along with shelled corn and soybean straw in three different rations all produced practically the same gains, but the lambs that got shelled corn, soybean oil meal and soybean straw and those that got shelled corn, whole soybeans and soybean straw returned more a head above feed costs that did those that got shelled corn, linseed oil meal and soybean straw, largely due to the fact that the lambs in this latter lot had less finish and were valued lower.

Soybean straw when fed along with shelled corn and soybean oil meal produced better gains than did oats straw fed along with the same feeds, while the lambs in the soybean straw lot returned $1.50 a head compared to 91 cents returned by the lambs in the oats straw lot.

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AGRICULTURAL EXTENSION SCHOOL SUCCESSFULLY INAUGURATED

150 Workers Attend Sessions of First School

An Agricultural Extension School, which is expected to be held annually over a period of several years to give Illinois extension workers first hand information on subjects of special interest and importance to them, was successfully inaugurated during the week just past with the holding of the first school at the College of Agriculture, University of Illinois. Eighty-three of the ninety-three farm advisers in the state, eleven assistant advisers and about fifty other extension workers and members of the staff attended the school which opened Monday morning and continued until Saturday noon.

The school's first program, which will be changed each year to meet the demands and needs of the workers, was built around a series of ten lectures on economics and marketing by Dr. Theodore Macklin, a member of the Economics Department of the University of Wisconsin. In addition, public speaking, physical training, the psychology of extension teaching, journalism and extension teaching, visual instruction, the use of demonstrations in extension teaching, and organization, administration and relationships had a place on the week's program.

Worth while living through efficient marketing and profitable farming was the theme of the ten lectures by Dr. Macklin. Country living does not start until efficient marketing and profitable farming have returned the farmer a profit. Economical production and efficient disposal of the farm's products, therefore, are only means to the end of worth while living and not the end themselves, he explained.

Throughout the series of lectures he stressed the fact that the law of supply and demand is still a reality and that the price at any time is the result of supply and demand at that particular time. In substantiating this statement he spent the greater part of one lecture period quoting statements made by officials of many successful cooperatives to the effect that their prices were set by that age-old law of supply and demand. Many charts also were shown to illustrate how prices of commodities handled by successful cooperatives have gone down when production was high and mounted when production was low.

The three chief forms of cooperatives - the federated, centralized, and hybrid, were explained in detail by Dr. Macklin who stressed the fact that there is no one best form of cooperative organization to fit all conditions and needs.

Farm advisers and extension workers as men of ability and training are facing a new era in agriculture, President David Kinley, of the University of Illinois, said in one of the closing talks of the school's session. He added that the University profits by having a group such as farm advisers come to the institution and expressed satisfaction over the hearty response of extension workers in attending the meetings.

"We must all appreciate our responsibility to agriculture", Dean H. W. Mumford of the College of Agriculture said in the final talk of the meeting. "The fact that you are farm advisers does not relieve you of your responsibility to the community." He stressed the need for wholesome respect for the truth and in closing gave a short history of the school and outlined its aims and purposes.

C. E. Hay, Christian County Farm Adviser, was elected president of the Illinois Association of Farm Advisers for the coming year at a businessmeeting of the organization held in connection with the school. J. F. Hedgcock, Will County, was made vice-president; L. S. Griffith, Lee County, secretary, and F. A. Fisher, Wabash County, treasurer; E. W. Rusk, Macoupin County; J. H. Lloyd, Hancock County; and Harrison Fahrnkopf, McLean County were named to serve with the newly elected officers as directors of the association.

Merits of Alfalfa Varieties for Illinois Being Tested - Illinois farmers are showing considerable interest in the relative merits of different varieties and strains of alfalfa when grown under Illinois conditions and to meet the demand for information of this kind the Agronomy Department of the College of Agriculture, University of Illinois, has a project under way in which eight representative varieties of this legume are being grown and compared.

Varieties that have been planted include Grimm and Cossack to represent the hybrid strains, South Dakota No. 12 to represent the common purple-flowered alfalfa grown in the northwest, common, Kansas grown, common irrigated, Idaho grown and Argentine grown seed.

Domestic strains of common purple-flowered alfalfa seed are referred to by the trade by such terms as common, Kansas grown or common and Montana grown, indicating their source. Seed of western and southwestern strains are considered less resistant to severe winters than are those produced in the northwest. Seed grown in the arid sections is known as "Dry Land", "non-irrigated" or "irrigated", depending upon the conditions under which it is produced. Popular opinion, though unconfirmed, regards dry land alfalfa as more resistant to drouth than irrigated.

In addition to the purple-flowered strains of alfalfa, there is being produced a considerable quantity of seed of the hardy hybrid strains such as Grim, Baltic, and more recently Cossack. These are natural hybrids resulting from a cross of the purple-flowered and yellow-flowered varieties. They are very resistant to winter killing.

The demand for alfalfa seed has resulted in considerable quantities being imported. Last year large shipments were said to have been received from the Argentine. Imported seed is of doubtful value. R. W. Stark.

New Specialist in Vegetable Extension - "The Horticultural Department has added to its extension force Mr. G. O. Randall, who comes to Illinois from Iowa State College. Mr. Randall acted in the position of Graduate Assistant in Truck Crops at that institution and at the expiration of his appointment there received the degree of Master of Science in Agriculture." - W. S. Brock.

Lack of Legumes Shrinks Milk Yield - Northern Illinois dairymen this past season learned what the lack of legumes can cost the milk producer. There was a drouth over much of that territory, pastures therefore were short and many herds did not get enough feed. Fall rains made the pastures grow rapidly and luxuriantly, but at the same time the grass was washy and non-nutritious. Because of the seeming abundance of pastures, many farmers thought the cows had better feed than they actually got and as a result of this a big percentage of the herds went into the barns at the beginning of the present winter in too thin a condition to give the maximum amount of milk.

What made the situation worse was the fact that much alfalfa and clover killed out last winter, leaving only timothy for hay, and even this crop was cut short because of the dry weather. The result was that many dairymen had to feed lots of corn silage, corn stover and corn meal, without being able to balance them properly with legume hay or protein concentrates. The cows were unable to give a full flow of milk on these unbalanced rations, no matter how much of them were fed.

To prevent a repetition of these difficulties, it is wise to grow sweet clover for pasture and alfalfa for hay because these crops are more drouth resistant. Even though the soil must be limed in order to grow them successfully, the cost of liming would not equal the loss in this winter's milk production alone on many farms, and one application of ground limestone will last for ten or a dozen years.

This winter lack of legume hay not only cuts the protein supply short but also the minerals, especially calcium. This lack of minerals is undoubtedly the cause of many breeding difficulties, abortion and weak calves. A well-nourished animal will not so readily succumb to tuberulosis as one not fed a balanced ration.

These facts are strong arguments for growing an abundance of sweet clover pasture and alfalfa hay, which is the most economical way to supply not only an abundance of feed, but also a balanced ration throughout the whole year. - Professor Wilbur J. Fraser, Dairy Department, College of Agriculture, U. of I.

The "Why?" and "How?" of Legume Inoculation - It has been shown that in order to get a successful crop of clover, soybeans, alfalfa, sweet clover, or any other legume, there must be present in the soil certain organisms called legume bacteria. Because of these bacteria the legume plants develop nodules or tubercules on their roots. In these nodules, enormous numbers of bacteria live. It is here that they change the nitrogen of the air so that the plants can use it in their growth.

Legume inoculation is the transfer of these bacteria from a source of plenty to a place of scarcity or total absence. They may be transferred to the seed before it is planted or to the field where the crop is to be put. All standard methods of legume inoculation are effective when carried out correctly.

A better understanding of the nature and growth of these little organisms will assist materially in successful inoculation. It must be understood that these organisms are alive and must be kept under conditions which will support life. They are more or less sensitive to sunlight, excessive heat, and acid condition of the soil. Where soil is the source of the inoculating material, it is recommended that they be secured from a rich soil rather than a poor one.

Bacteria are very small and can be seen only with difficulty by the use of a high power microscope. If the soil or whatever material is used to carry the organism is well supplied with them, only a small amount is necessary for inoculation. A pint to a quart of soil, selected from a field which is growing or has recently grown the kind of legume in question, is enough to inoculate a bushel of seed.

Under good conditions bacterial multiply very rapidly so that their number is increased many fold in a short while. - John Pieper, Agronomy Department, College of Agriculture, U. of I.

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WIDE RANGE IN LIME NEEDS OF LEGUMES ON ACID SOILS

One Group Even Does Best On Acid Land

The value of legumes in building up and maintaining soil fertility long hasbeen recognized but in growing these crops an important prerequisite has to be observed and that is the correction of acid conditions in the soil.

> However, there is another factor of importance in this respect. It is the lime requirements of the plants, or the amount of acidity that they will tolerate and still make a normal growth. This factor is of particular importance to farmers who find it very difficult, if not impossible, to get limestone.

Legumes vary a great deal in the amount of acid they will withstand. First there is a group that has a very high limestone requirement, alfalfa and sweet clover being the only common ones to fall in this class. This means that they will not do well when the soil shows even slight traces of acidity.

The second group takes in those whose lime requirements are high, but not as extremely so as alfalfa and sweet clover. Red clover, garden peas and field peas come in this group and measures should be taken to correct acid conditions in the soil before an attempt is made to grow any of these, although they will make some growth on slightly acid soils.

The third group is made up of the legumes with a medium lime requirement and includes mammoth clover, soybeans and peanuts. Lime still is required for the best growth of this group but some soil acidity will be tolerated if it is not too great.

The fourth group includes alsike clover, crimson clover, lespedeza or Japan clover and serradella; legumes whose lime requirements are medium to low. Any of this group can be grown on acid soils without the use of lime, but the best success cannot be expected unless some limestone is used. If the soil shows only slight acidity, they may do well without limestone.

In the fifth group comes white clover, common beans, cowpeas and the vetches. The lime requirement of this group is low and they will do well on acid soils. Generally it is not profitable to use limestone on these crops unless the soil shows a high acidity.

In the sixth and last group there is but one common legume, the lupines. Lupines are often classed as acid-loving plants and seem to do better on soils showing acid conditions than on soils containing limestone.

By a study of these groups, it is apparent that a great deal may be accomplished by a wise choice of leguminous crops, this being a particular advantage when difficulties prevent the proper correction of acid conditions in the soil.

J. M. Gibson, Agronomy Department, College of Agriculture, U. of I.

Pig Feeding Questions Answered in New Bulletin - Many of the questions bearing on the feeding of pigs on pasture are answered in a new bulletin just being issued by the Experiment Station of the College of Agriculture to give results of eight years of experimental work at this institution on this phase of pork production.

Among other things, the tests brought out that pigs which are pushed for an early market by being full-fed and kept on pasture until they are sold make pork with less of the high-priced concentrated feeds and usually sell on a higher market than do pigs that are carried on pasture with a medium feed of corn and finished off later.

> On the other hand, there is one big advantage in carrying pigs over for a late finish in that more than half the corn they use in reaching a marketable weight comes from the new crop, thus making it possible for the farmer to turn his new corn into pork quickly, according to the bulletin.

Either the quick or the late finish of pigs must pay best depending upon variations in the prices of corn and hogs, the bulletin points out.

Other questions dealing with the feeding of different amounts of corn and supplements, the carrying of fall pigs through the summer on pasture and the relative merits of one and two pasture crops for pigs are taken up in detail in the publication.

Soybeans Score as Horse and Mule Feed - Recent experiences of Illinois farmers in the feeding of soybeans have established this legume as a horse and mule feed, according to a new circular entitled, "Soybeans for Horses and Mules", which is being issued by the College of Agriculture, University of Illinois.

A number of farmers in Central Illinois have found rations of soybean hay and corn or soybean hay, corn and oats Al feeds for work horses, according to the new publication. The amount of oats fed generally has been less than the amount of corn and in no case has it been more than half the grain ration.

"Soybean straw has been found to be a fine roughage for wintering idle work horses and mules", the publication continues, and adds, "Other straws may be fed with it and also a little grain, if conditions necessitate.

"A small amount of beans fed in the spring aid in getting a horse's hair smooth and sleek."

"Soybean hay has been found to be an excellent roughage for fattening mules, animals fed on this hay finishing with exceptionally smooth coats of hair. Fattening mules also gained well on soybean pasture."

No bad results have been reported to the College from the feeding of soybeans in any form to horses and mules, the new publication points out.

The circular was written by J. L. Edmonds, Chief in horse husbandry at the College, and C. W. Crawford, an associate in the same work.

Half Acre in Garden Worth Ten in Corn - Farmers overlook the actual value of the farm vegetable garden in a great many instances, despite the fact that half an acre of vegetables, properly planted and cared for, will yield a larger net return than ten acres of corn, according to a new garden circular just published by the College of Agriculture, University of Illinois

It gives a detailed plan for a farm garden for a family of six and two sketches showing how to make hotbeds. In addition it contains a detailed discussion of the garden plan, the method of starting plants under glass, the cooperative growing of plants for transplanting and the varieties and amounts of seed recommended for a farm home vegetable garden 130 by 200 feet.

IN THE FIELD WITH
THE FARM ADVISERS

Shipping Pools Compare Expenses

"During January, eight annual meetings of local shipping associations were attended. At several of these meetings we had a representative from the Producer's Livestock Commission Company. An annual meeting of all the associations of the county was held at the farm bureau office at which C. A. Stewart of the I. A. A. was present and discussed livestock marketing. Free discussion was entered into and much good came from the meeting. A constitution was presented with a hope of having a uniform constitution used by all associations. The local manager of each association makes a monthly report to the farm bureau office where they are summarized and sent back to managers and directors. This gives the associations a chance to compare costs, shrinks, etc. An annual report of business done by all the associations was prepared from the monthly reports and presented at the annual meeting."

L. W. Wise, Iroquois County.

Woodford Farmers Close Account Books

"To date we have closed 73 of our account books and indications are that we will have about 100 again when we have finished with this work. We started a little earlier this year and as a result the books were a little slow coming in, some of the men not getting the time to get their books in shape by the time of the meetings."

P. E. Johnston, Woodford County

Horticultural School Boosts Work

"The horticultural school at Carbondale was a great help to us in planning and carrying out our horticultural projects this year. These special subject matter conferences are worth a great deal to farm bureau work."

H. A. deWerff, Franklin County

Legumes are Best Source of Organic Matter - Organic matter makes up only from two to six percent by weight of the surface soil in the predominant soil types of the state, but the importance of this material far exceeds its actual percentage. Organic matter present in or incorporated in a soil has a helpful physical effect; it is a source of plant food elements for following crops and furnishes food and energy to soil organisms. Organic matter is so important that the black and brown colors caused by its presence usually are a practical means of estimating the land's productivity and value.

The ultimate source of any additions of organic matter to soils must be from two great plant groups; legumes or non-legumes. One reason for the value of legumes in rotations is the fixation of atmospheric nitrogen by organisms which grow on legume roots. In the case of non-leguminous crops, all their nitrogen is taken from the soil.

Then, too, organic material from legumes is usually more rapidly decomposed in the soil. Exception must of course be made for such material as sweet clover, which has reached the excessively woody stage. The chief value of organic matter lies in its decomposition. Only in this way may all the plant-food elements be liberated for following crops; this makes for easier feeding and better growth of those crops. The soil organisms may get their energy more rapidly and more activity results. Even better physical soil conditions of tilth and moisture content depend largely upon the breaking down and incorporation of the organic matter. If the use of commercial nitrogenous fertilizers as a source of nitrogen for the general farm crops is barred because of cost, the increase of legume acreage in this state seems a necessary step for the production of profitable crops. - M. B. Harland, Agronomy Department, College of Agriculture, U. of I.

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Timely Notes for Farm Advisers and others from the
Agricultural College, the Experiment Station,
and the Extension Service

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UNIVERSITY OF ILLINOIS—URBANA, ILLINOIS

PAYING YIELDS POSSIBLE ON BIG AREA OF SANDY LAND IN ILLINOIS

About Nine Per Cent of State's Improved Land in Sandy Class

Treating Dune Sand Adds 22 Bushels to Acre Yield of Corn

Nearly nine per cent, or two and one-half million acres of the improved area of Illinois is made up of sandy loam, swamp sand and dune, or "blow sand". Two plans may be used in solving the complicated problem of farming these soils. On waste land unfit for farming, the planting of trees is the first step. Locust, poplar, cottonwood, pine or willow give good results, the locust being especially valuable because it is a legume. Manure may be needed with non-legume trees to get a good stand of grass. On sandy soils not so rolling the plan often is used of incorporating all the available organic matter in the soil. Rotations used on these soils should include at least one legume, since the incorporation of a legume adds to the nitrogen in the soil.

One of the most successful rotations being used by the Illinois Experiment Station on the dune sand area runs for five years. Alfalfa is left on one field for six years, while the other five fields are rotated with corn, soybeans, wheat, sweet clover and rye (with sweet clover as a catch crop).

As the sandy land area most generally is acid, four tons of limestone an acre are used before alfalfa and sweet clover growing is attempted. In addition to the organic matter obtained by turning under the sweet clover, provision must be made to conserve all the crop residues, such as soybean chaff, wheat and rye straw and corn stalks, as well as to make use of all manures produced on the farm.

Results obtained at Oquawka on dune sand show that such a plan pays big returns on sands of the poorer type. During the last five years corn on untreated sand averaged 20.8 bushels an acre, but the yield jumped to 36 bushels when manure equal to the weight of the crops grown was returned and four tons of limestone an acre used. The average yield was 42.7 bushels an acre when the sand was treated with the combination of residues, sweet clover and lime. This yield was four bushels bigger than the general average in Illinois during the same period and nearly 10 bushels bigger than the five-year average yield in the United States.

Rye on the untreated acre made a five-year average yield of 11.1 bushels, but this was increased to 24.6 bushels on manure and limestone treated soil and 24.2 bushels on limestone, residue and clover ground. In other words the moderate use of limestone, clover and residues or manure made the yield 34 per cent bigger than the average yield in the state for the past five years and 43 per cent greater than the five-year average for the United States. Alfalfa made practically nothing on the untreated land, but responded to lime and residues ormanure with yields of more than 1.75 tons an acre as a five-year average and a yield of three and a half tons in 1923. - R. W. Scanlan, Agronomy Department, College of Agriculture, U. of I.

Veterinarians To Meet At University February 25 and 26.

Programs have just been mailed out from the College of Agriculture to the 800 or more graduate veterinarians of the state for their fifth annual conference to be held at the University February 25 and 26. Problems bearing on the control of poultry and swine diseases will be headliners at the meeting, although a number of other subjects are listed for discussion.

Officials of the State Department of Agriculture, leaders in various lines of disease eradication work, workers from other state institutions, practicing veterinarians and practical farmers and poultrymen will join with animal pathology and disease specialists of the College in giving the visiting veterinarians a full program of up-to-date information on swine and poultry diseases during the two-day conclave.

All meetings of the conference will be held in the animal pathology and hygiene laboratory on the University campus.

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Boone County School Children Enlisted in T. B. Drive

By means of an essay contest put on in schools of the county, the support of Boone County boys and girls and school teachers has been enrolled in the drive being made against tuberculosis in cattle herds in that section of the state, Farm Adviser J. C. Kline reports. Sixty teachers cooperated in staging the project, while approximately 600 pupils wrote essays. Final awards are just being made in the contest.

A total of $155 in cash prizes was offered to students in the fifth to eighth grades for the best essays on the subject, "Why Tuberculosis Should Be Eradicated from the Cattle Herds of Boone County". Each teacherin the various schools appointed three judges to go over the essays and pick the three best ones which were then sent to the countyfarm bureau office where county judges will award the premiums on a township basis. More than 200essays came to the farm bureau office to compete for the township prizes.

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Jo Daviess Apple Show Scores Success

High quality exhibits and a large number of entries marked the recent two-day apple show held at Galena through the cooperation of the JoDaviess County Horticultural Society and the county farm bureau, according to a report of Farm Adviser V. J. Banter. More than 100 exhibits of apples representing most of the good varieties of late fall and winter apples suitable for that section were made at the show while the quality of the displays ranked with that seen at some of the larger shows held in the state in the past year.

Up-to-date methods of setting out and caring for orchards were discussed and proper methods of pruning demonstrated in connection with the show, which was attended by approximately 150 persons.

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Purebreds Gain Ground in Franklin County

Fourteen purebred dairy sires with official production records back of them have been brought into Franklin County in the last two months, according to a report of Farm Adviser H. A. deWerff. The latest addition to the ranks of purebred in the county is a Holstein bull whose owner also has bought several fine purebred Holstein heifers and cows.

Will County Clover Day Boosts Legumes

Clover recently had its day in Will County when close to 100 interested persons turnedout for an all-day meeting at Joliet during which 20 minutes were allowedfor discussion on every different clover represented in the county. Dr. F. C. Bauer, a member of the Agronomy Department of the College of Agriculture, and Frank I. Mann, Gilman, were the principal speakers at the meeting.

Nine different kinds of clover or legumes came in for attention during the meeting according to Farm Adviser J. Franklin Hedgcock. These included alsike, medium red,mammoth, biennial sweet clover, Hubam clover, alfalfa and soybeans. Farm Adviser Hedgcock believes that the meeting went a long way toward boosting clover growing in the county.

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Clark Shipping Associations Plan Joint Meeting

Representatives of the five shipping associations in Clark County are to get together in a joint meeting in the near future to work out methods for more efficient operation of the organizations and closer relationships between them and the producers' commission associations, according to plans for the meeting outlined in a report of Farm Adviser Worth W. Merritt.

Arrangements will be made to handle the publicity of all the associations through one office and to get a uniform charge through all associations in the count;

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To Use Radio in Fight on Bacillary White Diarrhea

Special effort is being made to have farmers and poultrymen who are owners of radio outfits tune in on WRM, the University broadcasting station, at 8:30 o'clock Tuesday night, February 26, at which time members of the animal pathology and hygiene division of the College of Agriculture will put radio to work in the fight being waged on bacillary white diarrhea, one of the worst poultry diseases in the state. Dr. I. B. Boughton, associate in the College animal pathology and hygiene division, will broadcast a lecture on the prevention and control of the disease and discuss the plan of accrediting flocks that are free of it.

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Southern Illinois Beekeepers Meet

Southern Illinois Beekeepers are holding a meeting at Carbondale, Wednesday and Thursday of this week under the direction of the College of Agriculture and the Illinois State Beekeepers' Association. A number of representatives from the College, workers from the U. S. Department of Agriculture, officials of the Southern Normal University and several farm advisers in that section of the state took part in the meeting, which was given over to lectures and discussions dealing with the care and management of bees and the control of bee diseases.

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Farm Account Schools Encourage Business Methods

Ford County farmers are showing an interest in sound business methods as a result of recent farm account schools held in Gibson City, Piper City, Melvin, and Paxton, a report from Farm AdviserGeorge T. Swaim says. Forty-seven men started books at these schools while other farmers in the county already arekeeping accurate records on their farming operations. Farm Adviser Swaim sees book and record keeping as a fundamental practice in profitable farming and one of the best that thinking farmers can adopt.

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UNIVERSITY OF ILLINOIS—URBANA, ILLINOIS

INCREASED DEMANDS AND UNSUPPLIED HOME MARKETS CALL FOR COMEBACK IN ILLINOIS GRAPE GROWING

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More grapes can and should be grown in Illinois. The state has the soil, the climate, the varieties and the markets. All that is needed is intelligent effort in practicing the best and most up-to-date cultural methods in growing the crop.

Grapes eaten out of hand please both the eye and the taste and are among the most healthful and nourishing of foods. Grape juice has no competitor as a pure food drink. The by-products possible after the juice is extracted help to pay for the labor in that operation and add to the profit.

There has been big improvement in the quality of varieties offered for home use recently. Several such as Hubbard (black), Caco (red) and Ontario (white) have better quality than European varieties as we find them on the market.

If grapes are grown for home use the surplus finds a ready market at good prices ranging from five to 15 cents a pound. A fair average yield varies from three to six tons an acre. It is possible to grow quality varieties ripening from August 1 to October 10 and if the bunches are bagged when the berries are the size of peas, the season may be extended a month longer. Many of our best grapes will keep in common storage until Thanksgiving and quality varieties like Brighton, Delaware, Vergennes, Caco, Wilder, Catawba and Agawam have been kept in excellent condition in cold storage at the Urbana Station until as late as early February.

Grapes are adapted to a wide diversity of soils and climates. Wild grapes of different species are found all over Illinois. According to the census of 1918, however, cultivated varieties are found on. 36 percent of the farms of the state.

The census also shows that the number of bearing grape vines in Illinois has decreased from approximately 2,100,000 to 1,600,000 in the last decade. The crop decreased from 16,000,000 to 10,000,000 pounds during the same period, but the value of it increased from $426,000 to $620,000. The prospect is good for a price that will pay a good profit on the investment for some time to come.

The demand for grapes is on the increase. We should be self-sustaining in supplying our markets with home grown grapes, keep transportation costs down to a great extent and save that item to add to our profits. In 1922 Michigan alone shipped 1275 car loads of grapes into Illinois.

Some of the limiting factors in grape culture in Illinois will be discussed and recommendations made in other articles to follow. - Dr. A. S. Colby, Horticultural Department, College of Agriculture, U. of I.

SEED CORN SITUATION IS WORST SINCE 1918

Tests just completed at the College of Agriculture, University of Illinois on 16,844 kernels of corn representing 166 different lots of seed sent in by farm advisers from 44 counties of the state indicate that more than one-sixth of the average seed corn in the state this spring is worthless as seed. This is the worst seed corn situation since 1918, according to J. C. Hackleman, Crops Extension Specialist, under whose direction the tests were made.

Seventeen and a half per cent of the kernels proved to be dead, while in some lots the amount of good strong germinating seed ran as low as eight percent and the weak or dead as high as 65 per cent, the remainder of the kernels being classed as medium on the vigor of their germination.

Provided it is located immediately, there is a good supply of Illinois-grown seed corn available that may be large enough to meet the demand from farmers who find themselves without seed, Mr. Hackleman believes. This supply includes that which was sack-picked early and dried out quickly, that which was selected at husking time and dried out as rapidly as possible, that from an occasional field which matured early and therefore was fairly dry before the freezing weather struck it, and finally, a small amount of old corn.

Results of the test show that farmers who sack-picked their seed early from the standing stalks and stored it where it would dry out quickly and then cared for it during the remainder of the season, have corn that will germinate better than 90 per cent, Mr. Hackleman said. Other lots of seed picked at husking time and dried out rapidly either by being stored in well ventilated places or fire dried, in most cases will make good seed.

In all cases where little or no effort was made to hasten the drying out of seed, or where it was stored in tight or poorly ventilated buildings, the results from it are apt to be disappointing.

> Farmers in central and southern Illinois have little chance of finding good seed in their cribbed corn this spring and no farmer in southern Illinois can go to his crib and pick seed with any assurance that it will come up. Individual ear testing to make sure that the kernels on every ear will come up will be more important this year than since 1918, Mr. Hackleman said.

--- M ---

Ogle County Cows Set Pace for State

Four purebred Holsteins from the Rock River Farm, Byron, Ogle County, owned by Senator Medill McCormack, set the pace in January milk and butter fat production for the 9,000 cows in the 21 Illinois county cow testing associations according to a list of high producing cows and herds for the month, announced by C. S. Rhode, Dairy Extension Specialist of the College, who has charge of this work in the state.

Their respective productions were 2,220 pounds of milk and 91.1 pounds of fat, 1,922 pounds of milk and 90.3 pounds of fat, 2,523 pounds of milk and 88.3 pounds of fat, and 2,316 pounds of milk and 87.9 pounds of fat.

George Morhman, Morrison, Whiteside County, was owner of the highest producing herd for the month, his grade Holsteins having averaged 1,505 pounds of milk and 55.5 pounds of butterfat each during January.

---SPECIAL EXTENSION TRAIN TO MAKE 14 TOWNS---

Fourteen towns in five southern Illinois counties will be reached by a special extension train to be operated through that section next week by the College of Agriculture, University of Illinois and the Clover Leaf Division of the Nickel-Plate Railroad, cooperating, to boost better dairying backed up by sound soil and crop practices. The train will leave Herrick, Shelby County, March 3 at 8:25 o'clock in the morning and wind up its schedule at Fruit, Madison County, March 7 at 12:15 o'clock. During the run thru Shelby, Fayette, Montgomery, Bond, and Madison counties, stops of about two hours each will be made at Herrick, Dresser, Ramsay, Bayle City, Bingham, Fillmore, Chapman, Coffeen, Donnellson, Sorento, New Douglas, Alhambra, Coffman, and Fruit.

One of the special attractions being planned for each of the stops is a cow selection demonstration by C. S. Rhode, Dairy Extension Specialist of the institution in which he will use cattle from the College herds to show farmers how to pick out the high producing type of cow. In addition, F. C. Bauer of the Agronomy Department will tell how to fit land for dairying; W. P. Flint of the State Natural History Survey, who is cooperating with the College, will discuss insects that trouble the dairy farmer; J. C. Hackleman, also of the Agronomy Department, will stress the need for legumes on every farm. Mr. Rhode will explain the proper care and management of the dairy herd, and H. A. Ruehe, Head of the Dairy Department, will tell what dairying means to the farmer. Insects also will be identified for farmers at each of the stops and soils tested for acidity.

--- M ---

Committeemen Bring Neighbors to Meetings

More farmers should attend future community meetings in Marshall-Putnam County, if plans being worked out by Farm Adviser F. E. Fuller and the farm bureau materialize. Under the new plan half a dozen or so of the leading men in the community involved are made responsible for seeing that a certain number of their neighbors get out to the meeting.

The new plan is to have the township director call a committee meeting of half a dozen leading men at which time plans are laid for the meeting in that particular community or township. Each man then is responsible for a certain number of his own neighbors. Two articles in the newspapers, direct notices and telephone calls will bring the people out to see what it is all about, Farm Adviser Fuller believes.

--- M ---

Champaign Takes County Honors at Corn Show

Champaign County took high honors over six other counties that had ten samples entered in the 10-ear classes at the recent annual Illinois Seed Grain Show held in connection with the annual Farmers' Week at the College of Agriculture, University of Illinois, according to final scores compiled by G. H. Ittner, assistant in crop production. The total score of ten samples from the winning county was 756.5.

Grundy was second with a score of 755.25, while Tazewell was third with 745.05. Bureau, Ford, Piatt, and Wabash counties ranked in the order named.

--- M ---

---100 VETERINARIANS ATTEND FIFTH ANNUAL CONFERENCE---

Approximately 100 graduate veterinarians from all parts of the state attended the fifth annual university conference for these workers held Monday and Tuesday at the College of Agriculture. The meeting was devoted largely to discussing the latest information bearing on the control of swine and poultry diseases.

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Timely Notes for Farm Advisers and others from the Agricultural College, the Experiment Station, and the Extension Service

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UNIVERSITY OF ILLINOIS—URBANA, ILLINOIS

--- BIG DROP IN PRODUCTION OF ILLINOIS' MOST IMPORTANT SMALL FRUIT ---

Strawberry Growing Slumps

Could Double The Yields Easily

Despite the fact that the strawberry is the most important small fruit grown in Illinois, the acreage of this crop has dropped steadily in the last thirty years. There was a time when southern Illinois shipped out hundreds of cars every year. However, it is not as easy to grow strawberries now as it was then. Only the growers following up-to-date methods in berry culture are in the business and making money. The best varieties, a favorable site for the strawberry plantation, and correct cultural practices easily will double the average yield of berries in the home and market gardens of the state.

The strawberry is easy to grow, it is comparatively free from insects and diseases, adaptable to a great variety of soil and climatic conditions, and, if carefully handled, brings good and quick returns at a comparatively small outlay of time and money. The strawberry business often is a family one, utilizing to advantage the help of members of the family. Then too, by keeping the interest of the boys and girls it helps to keep them on the farm. Growers in widely scattered sections of the state report average yields of from 600 to 1,600 gallons an acre, with a gross profit of from $300 to $500 an acre. Considering everything involved, few farm products are more profitable.

In addition to profit, intelligent strawberry growing means also good health and pleasure. Strawberries come on the market when practically no other fresh fruit is to be had. Everybody likes strawberries and local markets seldom are oversupplied. By a wise selection of varieties, fresh strawberries and cream and strawberry short cake may be a part of the menu nearly all summer, while the everbearing varieties will do their part until November. There is no more delicious fruit than preserved strawberries during winter months. Fruit juices made from strawberries are increasing in popularity. Ice cream factories also are utilizing berries more and more. There is never a glut on the market with fancy fruit.

Moisture is one of the limiting factors in strawberry growing, especially during the latter part of the fruiting season and in the summer months immediately following the renovation of the beds. If there is plenty of moisture in the ground, the last pickings will be of good size and quality. These quality berries will tend to prevent a glut on the market and will keep prices up until the end of the season.

Suggestions for establishing and maintaining strawberry plantings are given in Circular 254, "Strawberry Growing", published by the Experiment Station. - Dr. A. S. Colby, Horticultural Department, College of Agriculture, U. of I.

The Extension Messenger

Timely Notes for [illegible] Advisers [illegible]
Agricultural College [illegible]
and [illegible]

March 5, [illegible]

UNIVERSITY OF ILLINOIS—URBANA, ILLINOIS

BIG DROP IN PRODUCTION OF ILLINOIS [illegible]

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Suggestions for establishing and maintaining strawberry [illegible]

----- "OPEN HOUSE" JUNE 16 to 21 -----

Dates for five important events on the June calendar of the College of Agriculture have been announced by Dean H. W. Mumford. Chief of these is the annual agricultural "open house" which this year will be held during the week of June 16 to 21. It is designed to give farmers, their wives and families first-hand information on some of the things that are being done in the feed lots, experimental plots, orchards and laboratories of the institution in the interests of better farming. In past years several thousand have taken advantage of the opportunity for an annual trip to the Agricultural College.

Other events on the calendar and the dates for them follow:

June 10, 11 and 12 - County farm and home advisers' conference
June 12 and 13 - Boys' and girls' club tour
June 23 and 24 - State judging contest for high school students
June 25 to 28 - State conference of vocational high school teachers.

The fifty-third annual commencement of the University will take place June 9 the day before the opening of the advisers' conference, while registration for the University summer session will be the following Monday.

-M-

559 Attend Shipping Association Schools

A total of 559 officials of cooperative livestock marketing organizations and farm advisers attended the nine one-day schools just held at as many different points in the state under direction of the College of Agriculture to give officers and managers of the organizations new pointers on claims, transportation, accounts, records, pro-rating, marking, publicity, incorporation, organization and the special problems of local managers and of agencies at central markets. The schools were held at Olney, Carbondale, Centralia, Springfield, Decatur, Gilman, Galesburg, Dixon and Chicago.

Lee J. Quasey, director of the transportation department of the I. A. A., discussed the matter of railway claims; V. Vaniman and J. C. Spitler, both of the College staff, stressed the need for carefully kept records; and C. A. Stewart, of the I. A. A., and E. T. Robbins, of the College staff, explained the different forms of county organization.

-M-

College Studying Illinois Nut Growing

Believing that the opportunities for nut growing in Illinois are not generally appreciated and have not as yet been properly presented, the Horticultural Department of the College of Agriculture has started experimental and demonstrational work in nut growing. Among other things a study is being made of the adaptation of the kinds and varieties now found in Illinois to different sections of the state. Work on breeding and the selection and propagation of promising new individuals also is under way.

The project is in charge of Dr. A. S. Colby, Associate Chief of Pomology, who hopes that the Horticultural Department may act as a clearing house of the latest authoritative information on nut culture in Illinois. He is working for the cooperation of growers and other agencies to that end.

-M-

------"AG" STUDENTS REPRESENT 94 COUNTIES------

Students are enrolled in the College of Agriculture this year from all but eight of the 102 counties in Illinois. This gives 92 per cent of the counties in the state one or more representatives in the group of young men and women who are studying various lines of farming and home making. The eight counties not represented are Calhoun, Hamilton, Hardin, Henderson, Jefferson, McDonough, Mercer and Scott.

Fifty-three counties have from one to five students registered in the Agricultural College, 38 have from six to 16, and three have more than 16. Champaign is the leading county in the registration with 100 students enrolled, while Cook has 85 and Vermilion 24.

Pike County has 15, McLean 14, Edgar, Iroquois, and Kane 12 each, Bureau, Henry and Shelby 11 each, and Crawford, LaSalle and Will nine each. The remainder of the 94 counties represented in the enrollment are represented by from one to nine students.

- M -

Wayne Farmers Have Poultry Flocks Inspected

Fourteen Wayne County farmers recently had their purebred flocks inspected so that they might sell eggs to accredited hatcheries, while four of the 14 also had their flocks tested for bacillary white diarrhea, according to a report of Farm Adviser C. T. Hufford. All those who had their flocks inspected are enthusiastic over the results and are convinced that it pays to have flocks inspected. One man sold $40 worth of eggs in February to hatcheries and to farmers for hatching. He has only 100 hens in his flock and believes that the inspection was a profitable move for him.

> Testing the flocks for bacillary white diarrhea has proved especially valuable not only because it has shown up the disease in some of the flocks, but also because it has given the farmers definite proof as to whether or not the disease is present in their birds. One farmer found that 16 percent of his flock reacted, but the test has been even more valuable to farmers who found that their flocks were free of the disease.

"Last year there was considerable loss in the county from baby chicks dying and white diarrhea was suspected", Farm Adviser Hufford said in the report. "The people who bought eggs fromthese flocks, as well as the owners of the flocks, lost chicks. In fact, they had almost become discouraged with the poultry business on account of their losing so many of their baby chicks. Throwing out the reactors in their flocks is a big step toward raising many of the chicks that otherwise might be lost."

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Vol. VII Urbana, Illinois - March 12, 1924 No. 11

BRIGHT PROSPECTS FOR RASPBERRY GROWERS WHO FOLLOW UP-TO-DATE METHODS

By Dr. A. S. Colby - Department of Horticulture

Raspberries, the second most important of all small fruits grown in Illinois are adapted to all sections of the state and have been extensively grown up until the last few years. Partly due to an increasing prevalence of certain diseases quite hard to control, the complaint has been general that raspberries are running out and their culture even has been discontinued in some sections of the state. However, problems of disease control are now being worked out and with markets for this crop increasing, the future is bright for raspberry growers who start with disease free plants on new ground and take proper care of their plantations.

Of the small fruits the raspberry is second only to the strawberry in Illinois. Its ripening season comes just after that of strawberries, thus supplying the finest of fresh fruit before tree fruits come on the market. By a wise choice of varieties of red, black and purple types, fresh berries may be picked over a period of at least seven weeks in June and July. Everbearing raspberries, if given special attention, will produce a crop in the fall.

Black Raspberries Best

Of the three types of raspberries grown in Illinois, the black, red and purple rank in the order named. The latter is a cross between the red and black. Most of the cultivated varieties now being grown are selections from chance seedlings found in the wild, which when removed to the garden and given better care, produce bigger crops of better berries.

Yields of this fruit vary according to the grower and the variety. Some of the best black raspberry growers in the state report a yield up to 3,000 quarts an acre. This is better than the average yield taken the country over, but could be swelled to at least 4,000 quarts by the exercise of better cultural practices. At an average price of from $3 to $6 for a 24-quart crate of black raspberries, depending on whether the berries are shipped or sold locally, gross returns of from $375 to $750 an acre a year can be obtained. Raspberries begin to bear the second year and a plantation will continue highly productive at least six years if properly managed.

Red Raspberries Sell Best Locally

Red raspberries are not as productive as the blacks, it costs more to pick them and they do not ship as well. However, they sell locally for a much higher price and bring an average return greater than the black caps.

Purple raspberries are of much more recent introduction than the reds and blacks. Being hybrids of the older types, they partake of the nature of both. Varieties are now on the market more resistant to disease than either of the parents and which promise higher yields. The individual fruits are larger and as good or better in quality than that of the parents. Their only disadvantage is in their rather dark colored fruit.

Success in raspberry growing requires the selection of a favorable site with enough air and water drainage, preferably with a northern exposure and with a soil suited to the kind of berry to be grown; the selection of the kinds and varieties adapted to the locality; the use of vigorous and disease-free stock, and correct cultural practices.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director*.

--- ILLINOIS' COTTON PLANTINGS MAY JUMP TO 30,000 ACRES ---

Cotton growing is on the increase in Illinois and it is not unlikely that the 1,000 acres or more grown in the southern part of the state last year will be multiplied to twenty or thirty thousand acres by this year's planting, according to a new circular entitled, "Cotton Growing in Illinois", which has just come off the press at the College of Agriculture.

Cotton growing is a new enterprise in this state, but the 1,000 or more acres grown in the five southernmost counties of the state last year made an average crop of about a half bale an acre. At prevailing prices this was perhaps the best paying crop ever grown on these lands, with the result that a lively interest has been stirred up in the growing of this crop, according to the circular.

The new publication is designed to answer the questions that inexperienced growers may ask and includes the best information available that is thought to apply to conditions in southern Illinois. It was written by A. J. Evans, Assistant Chief in cooperative extension work of the federal department of agriculture, J. C. Hackleman, chief in crops extension at the College of Agriculture, and F. C. Bauer, chief in soils extension at the institution.

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New Circular Aims at Fruit Disease and Insect Control

Detailed directions for checking the insects and fungous diseases attacking fruits in Illinois are given in a newly revised circular "Directions for Spraying Fruits in Illinois", which has just been issued by the College of Agriculture. It is an extensive revision of Circular 266 of the same title and among other things discusses the various insect pests, the fungous diseases, the amount of spray needed in controlling them, detailed spray schedules for the more important fruits grown in the state, and the making and mixing of the standard sprays. It was prepared by the Department of Horticulture and the Illinois Natural History Survey.

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Kercher Transfers to Vermilion County

Otis Kercher, former farm adviser of Pike County, has taken up his work as the new farm adviser of Vermilion County, which position formerly was held by Arthur Lumbrick, who resigned last June. Mr. Kercher is a graduate of the University of Illinois and has been farm adviser in Pike County for the last four years. His position there has been taken by Frank Barrett, who has served for three years as assistant farm adviser in the county. He was graduated from the University of Illinois and for two years was engaged in junior agricultural club work in Kentucky.

W. P. Miller has taken the advisers' position in Brown County and succeeds A. E. Davidson, who was forced to give up the work because of a nervous breakdown. Mr. Miller has been farming in Peoria County since his graduation from the University of Illinois. Mr. Davidson is now located in Webber, Kansas, and writes that he is gradually regaining his health.

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Banquet Welds City and Country

Another big step toward bringing city and country closer together in Warren County recently was taken with the holding of the annual farmers' Banquet by the Monmouth Chamber of Commerce in cooperation with Farm Adviser A. A. Olsen. Approximately 1,000 farmers attended the event which was held in the Monmouth Armory. The program for the evening included music, a speech by William E. D. Rummel, of the Orange Judd Farmer, and stunts by local athletes.

--- HOLDS 15 MEETINGS TO BOOST COMMUNITY PROGRAMS ---

Farm Adviser V. J. Banter, of JoDaviess County, has just completed a series of 15 meetings held at as many different points in the county to center the attention of farmers on the programs of work for their respective communities during the coming year and get them thinking about definite lines of work which can be carried out to put farming on a better basis in the various sections of the county.

While the meetings brought out the fact that there is a wide range in the variety of subjects in which the various communities are interested, it developed during the series of meetings that the matter of limestone and alfalfa was of general interest to all the communities. In several sections the big need is for some plan whereby limestone crushing outfits can be bought and put to work in the community, according to Farm Adviser Banter. Definite steps have been taken in this direction by two communities, both of which probably will have stone crushers before the season is over, he says.

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--- LEADING FARMERS ENLISTED IN BETTER SEED CORN DRIVE ---

One leading farmer from each of 11 communities in the county formed the nucleus ofor a seed corn testing school recently held in Effingham County under direction of Farm Adviser F. W. Wascher and R. W. Scanlan, Soils Extension Specialist from the College of Agriculture. Each of the farmers brought along a sample of corn for testing and judging.

The county meeting attended by the leading farmer from each of 11 communities is to be followed by similar meetings in the various communities. One of the attractions at each of these meetings will be the showing of motion pictures of corn root rots. The farmer from each community who attended the county meeting will germinate corn to be used at the various meetings. Two of these meetings already have been held with good results, Farm Adviser Wascher reports.

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--- MCLEAN STOCKMEN STAGE GET-TOGETHER ---

Leaders in McLean County's live stock interests and boys' and girls' club work recently held another successful annual stockmen's get-together and banquet, according to a report of Farm Adviser Harrison Fahrnkopf. Representatives of the McLean County Swine Breeders' Association, McLean County Live Stock Shipping Association, McLean County Percheron Breeders' Society, and boys' and girls' club leaders held separate sessions in the morning which were followed by a joint dinner at noon. One of the features of the meeting was a report and talk by those who had succeeded as members of the Illinois Ton Litter Club in 1923 and had turnedout a ton or more of pork from a single litter of pigs in 180 days. These reports included pointers and facts on the breed used and the way the litter was cared for, handled and fed thruout the six-months period.

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Ogle County Plans Calf Club

The agricultural committee of the Rochelle Chamber of Commerce and the various banks in that district are cooperating with Farm Adviser D. E. Warren, Ogle County, in a movement to organize a dairy calf club for the Rochelle and Creston communities.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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EXTENSION TRAIN REACHES 2,114 IN FIVE SOUTHERN ILLINOIS COUNTIES

Dairy and agronomy specialists of the College of Agriculture succeeded in reaching a total of 2,114 people with a message of better dairying and sound soil and crop practices by means of the special extension train recently operated through Shelby, Fayette, Madison, Bond and Montgomery counties by the Clover Leaf Railroad and the Agricultural College, cooperating. This was approximately 600 more persons than were reached the year previous by a similar train operated through the same section. Lessons taught from the train last year led to the use of close to 100 cars of limestone by farmers in that section to build up their land for bigger crops, better pastures and more profitable dairying and equally as good results are expected from the train this year.

The train made 14 stops in the five counties and at each place a definite program of agronomy and dairy subjects was given by speakers from the Agricultural College. Farmers along the line brought 118 samples of soil to the train to have them tested for acidity. Speakers from the college who took part in the program at the 14 stops were: C. S. Rhode, Dairy Extension Specialist; R. W. Scanlan, C. M. Linsley, and J. C. Hackleman, all of the Agronomy Department; W. P. Flint, of the Illinois Natural History Survey, and Dr. H. A. Ruehe, Head of the Dairy Department.

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HEALTHY MIND AND BODY GUARANTEES OF SUCCESS - Stafford

George T. Stafford, a member of the University Physical Education Department, has put forward six questions as a reminder of the discussions on physical education during the recent Agricultural Extension School and the good intentions framed at that time by those who took the exercise course. The questions are: Are you maintaining correct posture? Are you walking with your feet parallel? Have you had a thorough medical examination this year? Have you stopped worrying over things that never happen? Are you trying to secure health? Are you really living?

In fairness to his work and to his future every agricultural extension worker should be able to answer "yes" to each of the questions, Mr. Stafford pointed out, and added, "No man can produce great things who is not thoroughly sincere in dealing with himself." Visualize the better work that comes from mental and physical well being and make the effort to really live, he said.

"When a man is healthy in mind and body and is happy in his work and associations he need not fear for his success in life. Unchecked diseases involving the kidneys, heart, and blood vessels are prevalent in the man who allows the present complex social fabric to disturb the proper proportion of physical and mental work. A gradual deterioration of the body results, and failure is imminent.

"The proper time to prepare for tomorrow is today, to detect the first sign of disorder at a time when it is still amenable to cure, and so prevent the development of the disease. Modern thought stresses the importance of preventive measures and good hygiene. If a person cannot make a success in his work without neglecting his health, he will be happier at fifty with moderate success."

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CAREFULLY PLANNED SEED CORN PROJECT REACHES 908 CHAMPAIGN COUNTY FARMERS

A series of 24 seed corn meetings recently held throughout Champaign County by Farm Adviser C. C. Burns and the local farm bureau of that county served to teach 908 farmers new seed corn pointers and otherwise advance the cause of good seed for the most important crop in the county, according to a report of the project by J. D. Pils torrow, assistant state leader of farm advisers. Aside from the large number who attended the meetings, a total of 530 bushels of corn was brought in for selection and culling by those who attended, 145 of the 908 farmers attending the meetings agreed to start individual seed improvement plots of their own, and 45 community plots also were started. The project was launched last fall as one of the main ones of the Champaign County Farm Bureau when the seriousness of the seed corn situation became known.

The first step in carrying out the project was a series of 32 field selection meetings held last fall which were attended by 362 farmers. Following this, a seed corn selection school was held early in January in Champaign. This meeting was attended by 65 representatives from the various townships in the county who were taught the principles of seed selection, the method of detecting various corn diseases and the best method of staging local seed corn selection schools in their respective communities.

These 65 farmers who had received instruction at the county school were grouped into committees and put in charge of community seed corn selection schools back in their own sections of the county, a total of 24 of these schools with an attendance of 908 being held during January, February and March. Farm bureau members brought samples of corn to be selected and culled to the various meetings, which also were thrown open to prospective members. Stories in the local newspapers about the meetings and free use of the telephone by the committee members in charge of the various meetings contributed toward boosting the attendance.

This was about the procedure at each of the meetings: The lots of corn as brought in were spread on tables and culled on the basis of weight, color, starchiness and indications of disease. A brief discussion was given by the farm adviser as to the essentials of good seed. In this connection the principles of visual instruction were used to good advantage by means of colored charts showing good and poor kernels, tables showing variations in yield and the effect of early and late planting with healthy and diseased seed. Preserved exhibit material showing the root growth of healthy and diseased plants also was used.

After the corn brought in by the various farmers had been culled for disease and the type indicating the most resistance had been selected, the best ears were picked from the various lots. Germination tests of all seed selected at the schools will be made at home by the individual members, while seed for the community plots will be germinated by the farm adviser.

Two seed corn project leaders were selected for each community. These men will be called in for a school of instruction, March 22, to get plans and methods to be used in planting community plots. Summer and fall demonstration meetings will be held at the community plots under direction of the local project leaders.

Tarbel Leaves Bond County

Charles Tarbel, farm adviser of Bond County for four years, has resigned his position to go with a motor tool specialty company of Chicago. His successor has not been named.

PEAT LANDS NEED POTASSIUM TO MAKE BIGGER CORN YIELDS

By E. E. DeTurk - Agronomy Department

Use of potassium fertilizers for corn on peat land will be profitable in almost all cases where the peat is two feet or more thick, while the use of such fertilizers is second only to adequate drainage in getting reasonably large grain crops on deep peat. The oats crop also will respond as a rule to potassium, but the low money value of this crop makes the use of potassium fertilizers of doubtful economy. The deficiency of practically all peat soils in potassium, as well as the general response of crops to potash fertilizers on this type of soil, is too well known to need comment.

Peat soils in which the peat extends to a depth greater than 30 inches are known as deep peat. In such soils the underlying soil material, which may be fairly rich in potassium, is too deep to be reached effectively by the roots of crop plants. In the case of medium and shallow peat, the need for potassium fertilizers will depend upon the depth of the peat and the character of the subsoil as to potassium content. Some medium and shallow peats lie upon a clay subsoil which is quite rich in potassium and which may supply considerable amounts of this element to crops, while other areas lie upon sand which is but little better supplied with potassium than the peat itself. It is thus obvious that an intimate knowledge of the character of one's soil is of immediate benefit in determining the best procedure in soil management.

Sources of Potassium

Muriate (chloride) of potash, sulfate of potash and kainit are the three commercial salts most commonly used as potassium fertilizers.

Muriate of potash, having a purity of 80 per cent, contains 50.5 per cent of "potash", which is the same as 41.9 per cent of potassium, the element which the crop needs. Another commercial grade is 95 per cent pure. This contains 60 per cent "potash" which is the same as 49.8 per cent of potassium.

There are usually two grades of sulfate of potash on the market. These are 90 and 96 per cent pure, respectively. They contain, respectively, 47 and 52.7 per cent of "potash" or 39 and 43.7 per cent of potassium.

Kainit is a crude salt, or rather a mixture of several salts, containing only from 10 to 14 per cent of "potash", equivalent to 9.1 to 11.6 per cent of potassium.

These materials are usually sold on the basis of their potash content, and this, of course, is the thing which determines their fertilizing value for the crop. The choice as to which of these forms to purchase should, therefore, depend not upon the cost a ton, but upon the cost a pound of "potash" or of potassium. Thus, if muriate 95 per cent pure, containing 60 per cent of "potash" can be bought for $45.00 per ton, each pound of "potash" costs 3 3/4 cents. Ninety per cent pure sulfate of potash, containing 47 per cent "potash", to be an equally good buy should cost 3 3/4 cents for each of its 940 pounds of potash. This would amount to $35.25 a ton. Kainit, containing 14 per cent "potash" or 280 pounds a ton, should therefore be bought at $10.50 a ton, laid down, in order to be an equally economical purchase.

These calculations do not take into account the difference in cost of hauling and spreading materials of varying concentrations with regard to "potash" content.

Under average conditions, an application of 100 to 125 pounds an acre of muriate of potash, or its equivalent, should give satisfactory returns when put on for the corn crop. These materials should be spread broadcast and thoroly worked into the surface soil before the corn is planted.

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DEFINITE HERD IMPROVEMENT IN MANY COUNTIES FOLLOWS WINTER DAIRY SCHOOLS

The Dairy Department has just completed a highly successful series of one-day winter dairy schools which paved the way for definite herd improvement work, some of which already is well under way in a number of counties, according to C. S. Rhode, Dairy Extension Specialist of the College of Agriculture, who had charge of them. The schools were held in 28 different counties through the cooperation of farm advisers and were attended by approximately 2,000 farmers and dairymen who were given first-hand information on breeding, feeding and management practices that make dairying pay.

In Champaign, Moultrie and Monroe counties cooperative purebred bull associations already have been formed among farmers to bring the use of topnotch dairy sires within reach of even the smallest dairymen, while plans for similar associations have been laid in Wabash, Crawford and St. Clair counties, as a result of the schools.

In Winnebago, Hancock and Peoria counties, farmers cooperating with the farm advisers in these counties have made a start toward organizing cow testing associations, as a result of the things they learned at the schools about the value of having definite records on every cow in the herd, while record keeping under a herd improvement project being promoted by the college has been started in Tazewell, Woodford and Henry counties, according to Mr. Rhode. Reports also are coming to the college that feeding practices in the various counties have been put on a better basis since the schools were held.

The schools were held in Will, Champaign, Moultrie, Tazewell, Peoria, Shelby, St. Clair, Monroe, Stephenson, Winnebago, Henry, Whiteside, Boone, Hancock, Adams, Clark, Crawford, Wabash, Wayne, Jefferson, Marion, Cumberland, Du Page, Saline, Gallatin, Williamson, Grundy and Effingham counties.

College Exhibit to Represent Illinois at Second World's Poultry Congress

Members of the Poultry Department of the College of Agriculture have just prepared and shipped an educational exhibit which will represent Illinois at the second World's Poultry Congress to be held at Barcelona, Spain, May 10 to 16.

The college exhibit, which was prepared by Dr. L. E. Card, Head of the Poultry Division, is made up of two panels, one of which contains graphs showing how chickens grow and the other a series of tables showing the growth of White Plymouth Rock chickens. The graphs will show the live weight and the weights of the empty gizzard, the flesh on the carcass, the blood, testicles and bones of chickens at different ages, while the tables on the second panel will show what percentage of the live weight of White Plymouth Rock cockerels, pullets and capons is made up of the picked weight, the bones, the flesh on the carcass and the legs above the hocks. Approximately 100 chickens, selected as needed from a flock of about 1,000, were used in working out the information contained on the panels.

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RECORDS SHOW INCREASE IN OATS PRODUCTION COSTS

Figures just compiled by the Farm Organization and Management Department from records kept by Champaign and Piatt county farmers in cooperation with the College of Agriculture show that the cost of producing oats in Illinois in 1923 was $23.30 an acre, or about $2.50 more than in 1922. Interest on the investment in land was the biggest single item in the cost, this amounting to $13. Man labor costs came to $1.94; horse labor to $2.73; tractor labor, 10 cents; seed $1.21; twine, 27 cents; fuel, 10 cents; machinery, 61 cents; threshing, 84 cents; general farm expense, $1.34, and taxes, $1.66. With the cost of producing oats at almost $24 an acre and the price of this grain at 40 cents a bushel, farmers would have to get 60 bushels an acre to pay for the cost of growing the crop. The average yield on the farms keeping records in 1923 was 33 bushels an acre.

However, as shown by the itemized costs, interest on the investment in land and taxes made up $14.66 of the total cost, leaving the actual expense of operation at $9.14 an acre, members of the Farm Management Department explain. While oats in themselves show a profit only in an occasional year, they take less labor than most any other crop and fit into corn belt rotation in a way that gives a better distribution of man and horse labor. They also provide a nurse crop for clover and grass seedings. Since rotations in the corn belt are built around the corn crop, the place of oats in the rotation is measured by this crop's effect on the profit from the entire rotation rather than from the profit realized on the oat crop alone.

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Ogle County Cow Sets February Pace in Cow Testing Association Work

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Ogle County took high honors over all other counties of the state for February milk and butterfat production among the 9,000 cows in the 21 Illinois county cow testing associations, according to records compiled by C. S. Rhode, Dairy Extension Specialist of the College of Agriculture, who has charge of this work in the state. A purebred Holstein from the Rock River Farm, Byron, owned by Senator Medill McCormick, headed the list of high producers for the month with a production of 2,166 pounds of milk and 93.1 pounds of fat. The Rock River Farm also had the highest producer for January.

Whiteside County placed the highest producing herd for the month when 12 grade Holsteins owned by George Mohrman, Morrison, made an average of slightly more than 46 pounds of fat and 1,305 pounds of milk each during the month. Kane led all other counties of the state in the number of high producing individuals for the month with a total of four on the list of the ten highest producing cows. Ogle County had three in this list, DuPage County two and McLean County one. Ogle and DuPage shared first honors for the largest number of high producing herds with three each among the ten high ones. Whiteside, Warren, McHenry and Kane counties each had one herd in the list of the ten highest producing ones.

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Ask Extension Workers' Support for National Music Week, May 4 to 10

Word has just been received at the College of Agriculture from C. M. Tremaine, Secretary of the National Music Week Committee, announcing the week of May 4 to 10 as National Music Week and calling on farm and home advisers and other extension workers for their cooperation in supporting the event. Those interested in getting a copy of the Music Week Guide can do so free of charge by addressing Mr. Tremaine at 105 West 40th Street, New York City. Music rendered a great service during the war and is needed to even a greater extent in these days of readjustment and discord of conflicting thoughts and interests, the announcement says.

The Blackberry - A Profitable Fruit for Local Consumption

Very few people really know how delicious a fruit the blackberry is, or realize the place it can fill in our midsummer diet. They know blackberries only as the half-ripe, hard, sour, juiceless, partly red fruits commonly available on the market. The blackberry deteriorates very quickly after picking and will not stand shipment long distances. If it is to have the quality and flavor to which it is justly entitled it must be picked dead ripe and eaten at once. The place for the blackberry is in the home garden or in a commercial patch within easy trucking distance of a local market. There are many such places in Illinois unsupplied with quality fruit

The fact that blackberries grow wild so commonly in Illinois has probably prevented the more general planting of better varieties while the offering of such inferior fruit for sale has prejudiced the housewife against the berry as a strictly dessert fruit.

Blackberries yield better than other small fruits, a fair average yield over the country being 3,000 to 6,000 quarts to the acre. Some of the best growers in Illinois, however, report a yield of only 2400 quarts with the average for the state far below this figure.

There seem to be three important limiting factors in the raising of blackberries in Illinois; one is the low price which sometimes prevails when there are competing crops of other fruits, another is the disease and insect factor, and the third is the effect of dry weather. Regarding the first difficulty, the proper selection of varieties with fruit well grown, properly ripened and presented attractively, will result in good prices. There is big money in growing quality blackberries. Prices range from $4 to $6 a 24-quart crate.

The disease factor is a serious one in some sections. Crown gall, orange rust, anthracnose and leaf spot are common in neglected plantations and spread by infected nursery stock into new areas. Stock of such character should be rejected and infected plants in the plantation should be dug up and burned, not allowed to lie on the ground, at the first appearance of these diseases in spring. Anthracnose and leaf spot can be controlled by spraying, as can also the few insects which occasionally work on the foliage.

The most important need in the successful plantation is in lessening the effects of dry weather, since the blackberry is largely water and ripens at the hottest season of the year. This trouble can be almost wholly avoided, first through proper selection of a site that does not suffer quickly from drought and second through the practice of correct cultural methods.

The site should have a northern or northeastern exposure. The soil should be deep and mellow. An important requisite is an abundance of humus. Water drainage, natural or artificial, must also be provided. Dead canes and the surplus plants must be pruned out and the laterals of those remaining headed in. Success or failure, however, depends finally upon the treatment of the soil. If manure or leguminous plants plowed under furnish part of the humus content of the soil, other fertilizers will probably not be needed until the plantation is in full bearing. Moisture conservation is the important need. Mulching with strawy manure is practicable in small plantations. This mulch should be put on in winter, not in late spring. Where cultivation is practiced, it must be early, often and shallow and must not under any circumstances be neglected. It is the price of success. It has been said that quality varieties given quality care will result in quality fruit. This statement is especially true of the blackberry. - Dr. A. S. Colby, Department of Horticulture.

Very few people really know [illegible] fruit the blackberry is, [illegible] the place it can fill in our [illegible]. They [illegible] the [illegible], hard, sour, [illegible]ness, [illegible]. The blackberry [illegible] long distances. If it is to [illegible] must be picked [illegible] ripe [illegible]erry is in the [illegible] common[illegible] local market. There are many such places [illegible]

The fact that blackberries [illegible] in Illinois [illegible] more [illegible] fruit for [illegible]

Blackberries [illegible] than other small fruit [illegible] the country being [illegible] Illinois, however, [illegible] state far below this figure.

There seem to be three important [illegible] factors in the [illegible] in Illinois: one is the [illegible] crops of other fruits [illegible] is the effect of dry [illegible] of varieties with fruit [illegible] will result in good [illegible] from [illegible]

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The most important [illegible] dry [illegible] of the year. [illegible] proper selection of [illegible] through the practice of [illegible]

The site should have [illegible] and mellow. An important [illegible] artificial [illegible] -out and the [illegible] depends finally upon the treatment [illegible] under [illegible] not be needed [illegible] important need. [illegible] This mulch should be put on in [illegible] practiced; it must be early, [illegible] [illegible]ected. It is the price of success [illegible]

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

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BANKERS SHOWN CLOSE-UP OF EXTENSION SERVICE WORK FOR BETTER FARMS AND HOMES

Members of the agricultural committee of the Illinois Bankers Association who attended the one-day conference here this week with officials of the College of Agriculture to map out a program for the agricultural activities of the association were shown a cross section of what the Extension Service of the Agricultural College is doing toward better farming and home making in practically every county of the state when Dean H. W. Mumford presented a complete report of a typical day's work in the service.

His picture of a representative day's work by the 94 county farm advisers, the score of home advisers and the 30 specialists and administrative officers who make up the Extension Service showed that the 94 farm advisers had 1,155 office calls, wrote 1,174 letters, distributed 11,440 circulars on various agricultural subjects, wrote 59 articles for publication, made 99 farm visits and held 40 conferences with a total attendance of 429 farmers, 33 meetings with a total attendance of 5,153, and 36 demonstrations with a total attendance of 244.

On the same day, 15 of the extension specialists were in the field advancing different lines of work in more than a dozen different counties, while the remainder of the specialists were in the office attending to routine matters.

This is believed to be the first time that a state agricultural extension service has obtained and compiled reports that could be set up and the statement made:"Here is what was accomplished in a single day - a typical one in the service for better farming and home making". February 13, the day used for making the cross section of the work, was picked at random and reports collected from all members of the Extension Service for that particular day. These then were compiled and the kind, distribution and amount of work shown to the bankers by means of a large outline map of the state and colored labels.

Farm advisers in each of the 94 counties reported that they had office calls during the day, the number varying from one to 95, the latter number being reported from Warren County. Eighty-four farm advisers reported letters written, Union County being the leading one with 84 reported; 26 wrote articles for publication, Lake County leading with seven; 39 reported the distribution of circulars, Cook County leading with 1,500 distributed; 34 reported farm visits, Monroe County leading with a total of nine; 26 reported conferences, McHenry County leading with a total of six; 29 reported meetings, DeKalb County leading with two and a total attendance of 1,075; while 17 reported demonstrations held, Monroe County leading with nine.

"The agricultural extension work of the College of Agriculture aims at the improvement of farm practices in Illinois," Dean Mumford told the bankers. "This improvement frequently involves changing the system of farming, better organization of the farm business, more and better livestock, increases in the acreage devoted to other than grain crops, better seed, more attention to markets and marketing and an almost endless variety of other details which go to make up a successful farm enterprise."

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director*.

Ninety-four Farm Account Schools Lead 1,300 Farmers to Adopt Bookkeeping

As a result of 94 farm account schools held in 49 counties of the state during the past winter months under direction of the College of Agriculture, close to 1,300 Illinois farmers in those counties have been given a start toward keeping books on their farming operations in the farm account book prepared by farm management specialists of the College. The books are being kept as a part of a definite farm management project being advanced throughout the state by the College and farm advisers to help farmers keep definite accounts on their business and get some idea of the steps they can take to put their farming operations on a better paying basis. M. L. Mosher, Extension Specialist in the Department of Farm Organization and Management, had charge of the winter farm account schools.

Macoupin and Woodford are the leading counties of the state in the account keeping project, 140 farmers in each county having started the farm account books. Jersey has 45 enrolled and McLean 44. Other counties represented in the project are: Will, Effingham, Ford, Wabash, Champaign, Stephenson, LaSalle, Greene, Mercer, McDonough, Randolph, Henry, Shelby, Douglas, Macon, Coles, Whiteside, Gallatin, Monroe, Jackson, Logan, Iroquois, Edwards, Jefferson, Marion, Adams, Tazewell, Clark, Moultrie, Hancock, Kane, Jo Daviess, DuPage, Lawrence, Rock Island, Ogle, Saline, Clinton, Union, Marshall, Putnam, Pope, Crawford, Morgan, Richland and Lee.

The project under which the accounts are being kept is designed to enable farmers to find out how their ability to manage their farms on a paying basis compares with that of other farmers under similar conditions; help them to find the weak points in their farming operations and stop the leaks through which their profits seep away, and give them an opportunity to study the methods of other men whose records show that they are more successful along different lines of farming.

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New Itinerary Being Made Up For Farm Mechanics Soil Erosion Exhibit

A new schedule of counties in which the soil erosion exhibit prepared by the Farm Mechanics Department of the College of Agriculture will be shown during the coming months is being made up and farm advisers who wish to obtain the display for use at county fairs or other events in their counties can get on the itinerary by getting in touch with F. P. Hanson. The story that is told by the exhibit should be of interest in many counties, in view of the fact that soil erosion is one of the greatest economic losses on many Illinois farms, Mr. Hanson said. The exhibit as sent out from the College is complete with the exception of electricity and a few gallons of water to run the sprinkling system.

The model used in the exhibit is approximately 36 by 72 inches and represents two fields of equal area. On one field soil erosion is controlled by terraces, a soil saving dam and cover cropping, while on the other field there has been no effort to control erosion with the results that the land is ready to be abandoned. The sprinkling system is used to represent rainfall and demonstrates how surface run-off is cared for on fields where terraces and other mechanical means are and are not used.

Three large panels of printed matter describe the exhibit and stress the importance of soil erosion control in Illinois. The only expense in using the exhibit is transportation charges. The exhibit weighs approximately 685 pounds when boxed. Requests for the use of the exhibit at county fairs should be sent in at once, Mr. Hanson said.

1922 Seed Corn May Be As Poor As That From 1923 Crop, Hackleman Warns

Farmers who plan to solve their seed corn problems this spring by using seed grown in 1922 instead of that from last year's crop, which was badly damaged by the combination of wet weather and abnormally low temperatures during the fall and winter, are apt to find that much seed from the 1922 crop is as poor in germination as that from the 1923 crop and are running the risk of getting poor stands or no stands at all if they use such seed without testing every ear, according to J. C. Hackleman, Crops Extension Specialist of the College of Agriculture. Many farmers believe that if they can get old corn from the 1922 crop they will have safe seed and that the only test they need to apply is to make sure of the year in which it is grown, but germination tests in a number of counties have shown the danger in this practice.

More and more farmers are finding themselves face to face with the question of where they are going to get their seed corn, and as the time for planting draws nearer, the seriousness of the seed corn situation this year, which tests at the College of Agriculture have shown is the most serious since 1918, becomes more and more apparent, Mr. Hackleman said. For a time many farmers felt so positive that the corn they selected last fall at husking time, either from the stalk as they gathered or at the dump as they were cribbing, would make first class seed that they have not bothered to test. However, reports coming from farmers and farm bureaus all over the state indicate the dangers of using such seed and the absolute necessity of a whirlwind finish in the "know your seed corn" campaign which has been on in the state since the first of the year, he added.

"Germination tests in Warren, DeWitt and other counties have furnished positive proof that seed corn is not safe just because it was grown in 1922. Warren County alone has tested representative lots from a large number of cribs and the average test for 17 cribs of 1922 seed showed that 32 per cent of the corn was dead, while the highest test made by any one crib was 94 per cent good seed. Thirteen cribs of new corn were tested at the same time and 30 per cent of the corn found dead. The highest single test obtained on this new corn was 98 per cent good. In DeWitt County eight lots of old corn were tested and an average of 18 per cent of each lot found dead. Seventeen lots of new corn tested at the same time contained 17 per cent dead seed.

"Both of these tests merely confirm the statement previously made that no corn which was not early field selected and carefully fire dried is safe for seed corn. This applies to old corn as well as new. There are occasional lots of seed and cribs of corn which matured early or have been carefully stored that can be used, but in no case should farmers be satisfied without actually individual-ear testing the seed they expect to use. Even then only the ears that test out strong and vigorous should be used, as weak testing kernels are likely to weaken or even die by the time the planting season is here."

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Vol. VII Urbana, Illinois - April 9,1924 No. 15

RECORDS BEING KEPT BY 400 POULTRYMEN TO SHOW MERITS OF RECOMMENDED PRACTICES

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Illinois this year has approximately 400 farm poultry flock demonstrations being conducted by farmers in 37 counties in cooperation with the College of Agriculture and farm advisers to show the worth of up-to-date and practical methods of poultry production, according to Dr. L. E. Card, Head of the College Poultry Division. This is the second year that similar records have been kept by poultrymen of the state.

Crawford County has come to the front in this project with 30 poultry raisers keeping records on their flocks under direction of Farm Adviser H. F. Crosby and the College. Jefferson and Livingston counties each have 25 record keepers and demonstration flocks, while Will has 21 and Kendall 20. Other counties represented in the project are: Union, Gallatin, Pike, Hancock, Knox, Macoupin, Henry, DeWitt, Pope, Jersey, McDonough, Lawrence, Wabash, Richland, Shelby, LaSalle, Johnson, Christian, Scott, Clay, Schuyler, Douglas, Clark, Wayne, Jo Daviess, Jackson, Cass, Mercer, Ford and Monroe.

Records being kept by the various demonstrators include an inventory of the farm poultry plant, a daily egg record, a monthly flock record showing the number of eggs received, the number of hens and the amount of labor spent on the flock, and a detailed monthly expense and income record. Among other things the records are expected to give a picture of seasonal egg production by farm flocks and indicate the importance of this factor in determining profits. They also will furnish definite information as to the feed and labor costs of taking care of farm poultry and the cost of producing a dozen eggs under farm conditions. What is most important of all, perhaps, is the fact that they will point out to the various flock owners just what they can do in the way of breeding, feeding, and management to swell the incomes from their flocks.

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University Station Broadcasts Radio Programs Every Tuesday And Thursday Night

Regular programs are being broadcasted from the University of Illinois radio broadcasting station every Tuesday and Thursday evening. It is a 500-watt station that is maintained and operated by the Electrical Engineering Department of the institution. Broadcasting is done on a wave length of nearly 360 meters. The station is WRM.

From 7 until 8 o'clock each Tuesday evening a musical program by students or faculty of the University School of Music is broadcasted, following which a lecture by some member of the University staff is broadcasted between 8 and 9:30 o'clock. This is followed by news of the institution.

The Thursday night program is given over almost entirely to music and consists chiefly of a recital by a member of the faculty of the School of Music. This is followed by news of the University. The progress of athletic events and scores, as well as unannounced programs, also are given from time to time.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

Winnebago Farm Bureau Head Misses Only One Meeting In Four Year's Service

E. F. Derwent, president of the reorganized Winnebago County Farm Bureau from June 12, 1920, until March 15, 1924, brought an outstanding record of community and farm bureau service to an end when he retired as president of the organization at the recent annual meeting of the bureau. A single measure of Mr. Derwent's record is the fact that during the period of almost four years in which he served as president of his county farm bureau he missed only one regular or called meeting of the organization.

Mr. Derwent's record has not been rendered without sacrifice, according to the story of his activities in the county as told by J. D. Bilsborrow, assistant state leader of farm advisers. He farms a half section of land 15 miles from Rockford and was compelled to travel a good share of the distance from his home to the county seat over dirt roads.

Mr. Derwent is recognized as a clear thinker on agricultural problems, his engineering training at college being reflected in the clear analysis which he makes of every problem he goes into, according to Mr. Bilsborrow.

At the district conference for farm advisers in Rockford in October, 1920, Mr. Derwent made the outstanding contribution during the evening program with his discussion on, "The Economic Outlook from the Standpoint of the Farmer."

Previous to the reorganization of the farm bureau in his county, Mr. Derwent was little known outside of his own community. His worthwhile contributions and the fine service he has rendered mark him as a striking example of the many potential leaders who are located and developed by the farm bureau and agricultural extension movements.

George Tullock, widely known farmer in the agricultural circles of the state, succeeded Mr. Derwent.

-M-

State Crop Improvement Association Expands Its Program For Better Farm Seeds

The Illinois Crop Improvement Association has completed plans for carrying on its seed grain inspection program on a more extensive scale than ever before, according to an announcement by J. C. Hackleman, crops extension specialist of the college and secretary of the organization. Two clovers - alsike and sweet clover - have been added to the list of crops on which inspection service will be available to farmers and seed growers. The seed grain inspection, which was started by the association in 1922 and which is one of the organization's main activities, is aimed at better farm seeds.

The list of crops on which the association will offer inspection service this year includes wheat, oats, soybeans, seed corn and red, alsike, mammoth and sweet clover, according to Mr. Hackleman. Farmers who wish to apply for wheat, oats and clover seed inspection must do so before June 1, while applications for soybean and seed corn inspection must be in before August 1, he said.

The inspection service is designed to provide a supply of home grown, superior quality seed of varieties which are known to be the best ones for farmers of this state. The association inspects no variety of grain which has not been tested out fully by the Agricultural College and found worthy of propogation because of its superior yielding qualities.

-M-

Use Of Seed Plot Is Step Beyond Fanning Mill In Getting Good Seed

The simplest and easiest way to improve on the fanning mill as an aid in getting good seed is to conduct a seed plot, according to C. M. Woodworth, a member of the Agronomy Department of the College of Agriculture. The importance of good seed in small grain production is less generally recognized than it should be, as shown by the fact that many farmers who give special attention to their seed corn do not hesitate to use any kind of wheat or oats for seed, he said.

"Good seed is sound, bright, well filled, free from disease, germinates well and is true to variety type. Grain as it comes from the threshing machine ordinarily is not what would be called good seed; however, the use of the fanning mill aids greatly in making it so. This machine takes out the trash and the weed seeds as well as undeveloped, shriveled and immature grains, most, if not all of which, produce weak and unproductive plants. Valuable as the fanning mill is in cleaning seed, it is not discriminating enough to discard the inherently poor yielding strains in a variety or those strains that are off-type. The grower himself must do this because it is far from being a mechanical operation; it requires a knowledge of the variety type.

"The simplest and easiest way to improve on the results secured with the fanning mill is to conduct a seed plot. This plot may be an acre or more in size and may just as well be a corner of the general field. Seed for it should be obtained by selecting a large number of good heads or panicles, typical of the variety, from the general field just before harvest. These should be threshed together by hand and at the next seeding time sown in the seed plot. It is best, at least at the beginning, to leave a strip from one to two feet wide between every six or eight drill rows so that one can easily walk through the plot and rogue out mixtures and weak, unproductive or diseased plants. When the large grain drills are used, such an unsown strip can be provided for by (1) plugging up the middle two holes and (2) by setting the marker to run a foot or so beyond the center. It usually is necessary to go over the plot more than once in order to do a thorough job of rogueing.

"While the rogueing is being done, or afterwards, the best heads should be selected for a similar plot the following year. The remainder of the plot is then harvested and the seed used to plant the general field. This procedure is repeated every year. By this plan, trueness to type will be attained relatively soon, but it will take years to eliminate the inherently poor yielding types. The plan works best if the seed plot is large enough to produce seed for another seed plot and for the general field as well, for then the seed used to plant the general field is only one generation removed from the hand-selected seed.

"The best results will of course be attained by conducting a seed plot every year. However, if time and facilities do not permit this, two, three or even four years may elapse between seed plots. Even this would result in marked improvement and would be quite worth while."

-M-

Warren County Banks Offer $200 In Cash Prizes For 43 Calf Club Members

Four Warren County banks have posted a total of $200 in prizes for the beef calf club in that county and indications are the local Kiwanis club will come forward with additional support for the project by furnishing the prize for the grand champion county winner in the club, according to Farm Adviser A. S. Olsen. Forty-three boys and girls are enrolled in the project.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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SOYBEAN TITLE WILL STAY IN ILLINOIS

Illinois this year will very probably strengthen its position as the leading soybean producing state of the country, according to J. C. Hackleman, Crops Extension Specialist of the College of Agriculture. The need for a good legume forage on many farms, the shortage of good seed corn, the shortage of old and new native clover seed, the favorable price for soybeans during the past year and the general trend toward more legumes on Illinois farms all are combined this year and no doubt will boost the acreage of beans grown. The acreage of this legume for hay and seed has been multiplied 14 times in Illinois since 1919, while last year the state had a total acreage equivalent to 442,000 acres, almost 200,000 acres more than any other state.

-M-

COLLEGE INCREASES INCUBATOR CAPACITY

The incubating capacity of the College of Agriculture poultry plant has been increased to about 7,500 eggs with the installation and operation this year of a new 4,600-egg incubator. Although not comparing with some of the 50,000-egg baby chick factories, the new machine represents the latest in medium sized commercial incubators. Its installation marks another step in the College's program to expand its poultry department and equipment with the view to getting new information on various poultry topics and solving some of the problems facing chicken raisers of the state. The new machine is being run under only part capacity this spring, but when the new poultry plant is completed it will be put to full use.

-M-

CANNING TESTS ARE WELL UNDER WAY

Nine hundred cases of sweet corn and 6,000 gallons of tomato pulp were canned last year in the new horticultural field laboratory of the College of Agriculture, as a result of the first year's work done in the new building toward solving some of the more important canning and fruit packing problems. Each of the 900 cases of sweet corn contained 24 No.2 cans. The laboratory also packed a small quantity of tomato juice, or puree, suitable for use as a sauce for other canning products. The products of the plant are stored in the cold storage space of the field laboratory.

-M-

WAYNE STOCK SHIPPERS HANDLE 217 CARS

Two hundred seventeen carloads of livestock which netted the members more than $246,000 were handled by the Wayne County Livestock Shipping Association during the past year, according to a report of Farm Adviser C. T. Hufford. The association recently held its second annual meeting with 150 members present. Careful record keeping is steadily coming in for more attention - much more so than was the case during the association's first year, according to Farm Adviser Hufford. Plans mapped out at the annual meeting are for each manager to keep his own records this year instead of leaving this work to the board of directors.

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Vol. VII [illegible] Urbana, Illinois April [illegible]

SOYBEAN TITLE [illegible] IN ILLINOIS

Illinois this year will very probably [illegible] the position as the leading soybean producing state of the country, according to [illegible] Extension Specialist of the College of Agriculture. The use of [illegible] forage on many farms, the shortage of good seed [illegible] native clover seed, the favorable price of soybeans [illegible] general trend toward more legumes on Illinois farms [illegible] no doubt will boost the acreage of beans [illegible]. The acreage [illegible] and seed has been multiplied 14 times in Illinois since [illegible]. Last year the state had a total acreage equivalent to 940,000 [illegible], [illegible] 100,000 acres more than any other state.

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COLLEGE INCREASES INCUBATOR [illegible]

The incubating capacity of the College of Agriculture [illegible] has been increased to about 7,500 eggs with the installation of [illegible] a new 4,600-egg incubator. [illegible] although not [illegible] of the [illegible] chick hatcheries, the new machine represents the latest [illegible] incubators. Its installation marks another step in [illegible] its poultry department and equipment [illegible] important poultry center [illegible] in the state. The [illegible] when the new poultry plant [illegible] completed [illegible].

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[illegible]

Nine hundred cases of [illegible] gallons of tomato [illegible] canned last year at the new [illegible] of the College of Agriculture, as a result of the first year [illegible] building became one of the more important [illegible]. Much of the [illegible] of sweet corn [illegible]. The [illegible] quantity of tomato juice [illegible] as a [illegible], other [illegible] products. The products of the [illegible] stored in the cold storage [illegible] laboratory.

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[illegible] STOCK [illegible] HANDLE [illegible]

Two hundred seventeen carloads of livestock [illegible] valued at [illegible] than $246,000 were handled by the [illegible] Livestock Shipping Association during the past year, according to a report of farm [illegible] Association, recently held its second [illegible]

Doubles Wheat Yield with Limestone and Sweet Clover

After doubling the yield of wheat on an impoverished 10-acre field through the use of limestone and sweet clover, Charles H. Snyder, president of the Brown County Farm Bureau, has become a supporter of this combination and is convinced that the poorest soils in the county can be redeemed. In relating his experiences in the county farm bureau news letter he said,

"I bought a 60-acre farm on the Mt. Sterling-Ripley Road in February, 1920 Ten acres of this farm were badly impoverished by constant cropping. I was told that the field had not had a crop of clover on it for 30 years. I began to restore the fertility to this piece of land in the spring of 1920 by double disking both ways and sowing a mixture of sweet clover, red clover and alsike. The sweet clover was inoculated. This attempt met with complete failure, the apparent cause of failure being acid condition of the soil and lack of plant food.

"The following August this field was plowed and dragged preparatory to sowing wheat. I decided to apply limestone at the rate of about four tons an acre. The next spring (1921) sweet clover was seeded again, securing a rather thin stand, but at threshing time I decided that it would probably be enough to do the ground some good. Well, the stuff surely exceeded my expectations, for the following summer (1922) although it was not a very good stand, it grew to such proportions that it covered the ground with a growth higher than a man's head. I allowed this growth to mature seed then plowed under and sowed wheat. The benefits were reflected in this crop of wheat, doubling the yield of grain and straw.

"In conclusion I would say that I am convinced by this experience that it is possible to redeem the poorest soils in Brown County. I am planning to turn under the clover that came voluntarily from the seed plowed under in 1922 and plant corn this spring. This will be the seed stalk growth and I expect to plow it under about the middle of May. Anyone wishing to watch results may do so by visiting this farm which is situated about 5½ miles northeast of Mt. Sterling on the Mt. Sterling and Ripley Road."

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Soybeans Yield the Same Drilled Close or Wide

Soybeans can be drilled in rows almost any width between seven and 32 inches without causing any big difference in the yield of the crop, according to S. S. Carney, a member of the Agronomy Department of the College of Agriculture. Both the close and wide methods of drilling have their advantages and the one to use will be determined by the use to which the crop is to be put, the experience of the grower and the equipment at hand. Some experienced farmers who have their land free from weeds prefer close drilling, especially where the crop is to be used for hay. It is best, however, for the man who is just beginning to grow soybeans to use 38-inch rows and cultivate the crop. The extra cost of cultivation will be paid for by the better quality of beans, cleaner fields and the smaller cost for initial seed.

The rate for soybean seeding is especially important since the varieties vary so much in size. Soybeans are classed as large, of which Ohio 9035 is an example; medium, such as Manchu, and small, such as Ebony. In a peck of each class the beans would be in the proportion of three large, four medium and six small. For rows 28 inches apart and from one and a half to two inches between seeds in the row, the correct rate of seeding is 36 pounds of large beans an acre, 27 pounds of the medium ones and 18 pounds of the small ones. About twice these amounts would have to be used for close drilling.

Tests Show Superiority of Seed Corn Selected on Basis of Physical Characters

Members of the plant breeding division of the College of Agriculture have just completed an experiment which answers in the affirmative the question: Are ears of corn which are selected on the basis of physical characters any better seed ears than those which are discarded?

In using physical characters as the basis for getting good seed corn, selection is practiced at three points: the field, the ear and the germinator. Briefly this method of selection consists of going through the field of corn early in the fall and marking all ears that are desirable, these being left in the field until they are well matured. After the ears have been harvested, stored and dried, they are gone over in January and February and a second selection made on the basis of certain physical characters which are thought to be desirable and which are believed to be associated with disease resistance and indicative of strong vitality and vigor. The ears which are selected in this way are then tested on the limestone germinator, ten kernels from each ear being used. The seedlings are classed as strong, medium or weak, according to their vitality and vigor. Fusarium, diplodia and scutellum rot are recorded. If the seed stock is large enough, only those ears which show 100 per cent strong seedlings and freedom from the above mentioned diseases are saved. This final selection furnishes the seed for the next crop.

The experiment which has just been concluded was designed to show whether or not it was possible to select seed corn by this three-part method which had a higher vitality and vigor and was more free from disease than the general run of seed from which it was selected. Illinois non-pedigree corn was used in the work and four classes of ears - first choice, second choice, poorest and medium - were made on the basis of ear characters alone. The medium class was the corn left after that for the remaining three classes had been selected. About 700 ears were inspected, 117 being put in the first class, 130 in the second and 86 in the poorest class. These classes, together with 87 ears chosen at random from the medium class were tested and the vitality and vigor of the seedlings and the kind of disease present were recorded.

The results did not indicate a significant difference between successive classes in every case in the matter of vitality, vigor and disease, but when seed in the first two classes was taken as a unit and compared with that in the last two choices a significant difference was found in favor of the first group in every case except that of scutellum rot. About the same amount of it occurred in both groups.

An average of 82.35 per cent of the seed in the first two choices, or in the selected seed, was strong, while an average of less than 71 per cent of that in the last two choices, or in the discarded seed, was strong. An average of only 17.6 per cent of the seed in the selected group was weak compared to an average of 25.9 per cent weak in the discarded group. As for dead kernels an average of only .3 per cent of the seed in the selected group was dead, while an average of 3.2 per cent of that in the discarded group was dead.

In the case of diseases, the selected seed showed an average of only 1.74 per cent diplodia, while the discarded group had 6.4 per cent, the selected group had only 1.42 per cent fusarium, while the discarded group had an average of 4.744 per cent. The fact that both groups showed about the same amount of scutellum may be due to the fact that this rot was recorded only when external symptoms indicated its presence.

In the final classification of the ears 74.3 per cent of those in the selected group fell into class 1, 16.3 per cent of them into class 2 and only 9.4 per cent of them into class 3. On the other hand only 30.7 per cent of those in the discarded group fell into class 1, 27.7 per cent of them into class 2 and 41.7 per cent of them into class 3.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Vaniman On Three Months Leave With I.A.A.

V. Vaniman, assistant state leader of farm advisers at the College of Agriculture, has left on a three months leave of absence from the University during which time he will assist the Illinois Agricultural Association in organizing an auditing, accounting and business advisory service for cooperative agricultural organizations in the state. This organization will be under control of the cooperatives themselves and will have the services of a consulting accountant so that all the efficiencies which may be had through adequate accounting and auditing will be available to the cooperatives.

Mr. Vaniman was graduated from the College of Agriculture, University of Illinois after completing a two-year accounting and business course at McPherson College, McPherson, Kansas. He has been in the Agricultural Extension Service for five years and always has been interested in farmers' organizations. In his home town of Virden he has been secretary of the Virden Creamery Company, vice-president of a mutual fire and lightning insurance company, secretary-treasurer of a threshing ring for four years, interested in a mutual telephone company and secretary of the Virden Grain Company since 1909.

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Seven Soil Field Meets Will Be Held Soon

Spring field meetings this year will be held on seven of the 33 soil experiment fields which the College of Agriculture is maintaining in different parts of the state to work out paying soil building practices and cropping systems, according to an announcement by F. C. Bauer, chief of the soil experiment fields. As in former years the meetings this spring will be designed to show farmers the relative merits of different systems of soil improvement and acquaint them with the possibilities for building up their land for higher yields.

A meeting will be held at Sparta, Randolph County, April 29; DuBois, Washington County, April 30; Enfield, White County, May 1; Palestine, Crawford County, May 2; Mt. Morris, Ogle County, May 6; Dixon, Lee County, May 7, and Hartsburg, Logan County, May 9.

The meetings are being held just at this time in order that farmers may have an opportunity to study the value of sweet clover as a green manure crop. An attempt is being made to establish the practice of using the crop for this purpose on Illinois farms and soil workers of the College are especially anxious for farmers to see the sweet clover growing on the fields and study its merits and value before it is turned under in preparation for the corn crop. Since limestone usually is important in connection with the successful growing of sweet clover, its use and value will be discussed at each of the meetings.

A program including an inspection of the fields and a number of short talks has been arranged for each of the meetings.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

"Seal" On Eggs Broken When They Are Washed

Washing an egg or wiping it with a damp cloth breaks the "seal" and exposes the original "sealed package" breakfast food to evaporation and contamination, according to G. W. McIlroy, Poultry Extension Specialist of the College of Agriculture. Scores of poultrymen are still following the practice of washing eggs in order to sell clean ones, thereby lowering the quality of their product, he said. Keeping the eggs clean from the time they are laid instead of letting them get dirty and then washing them, is the only satisfactory solution of the problem and guarantees a better quality product.

When an egg is laid the shell is sealed with a protective coat known as the bloom which may be compared to a coat of fine cement put over rough concrete, in that it fills up the spaces between the coarse particles. This bloom helps prevent evaporation from the egg and the development of moulds and at the same time keeps out destructive bacteria.

Muddy feet of the hens probably cause more dirty eggs than all other factors combined. These muddy feet in turn are caused by muddy yards with poor drainage. If the nests are put across the house from the door the hens will have a chance to clean their feet by walking over, or perhaps scratching in, the litter of straw on the floor. Dirty nests also cause a large number of dirty eggs, but this trouble may be largely eliminated by keeping clean straw in the nests. Too few nests for the number of hens in the flock may be another cause of dirty eggs. It is a good plan to have one nest for every five hens. When two, or perhaps three, hens crowd on one nest and break an egg its contents may be smeared over the straw and over other eggs laid there.

There generally are few dirty eggs laid daily on any one farm, probably not more than are used at home. Perhaps one way to solve the problem of dirty eggs is to use them at home and sell only the clean ones, thereby getting a higher price for them than would be the case if both clean and dirty eggs were sold together.

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High Producing Cows Need Grain On Pasture

Most dairy herds will be turned out to pasture within the next few weeks, according to C. S. Rhode, Dairy Extension Specialist of the College of Agriculture. Too often farmers are compelled to turn their cows out before pastures have a good start, due to a lack of silage and hay, and any who had to contend with this problem during the past year should make plans now to avoid a short feed supply during the coming winter, he said.

"The cows should be given their usual morning feed the day they are turned on pasture. It also is best to leave them on pasture only a short time during the first day and gradually lengthen the pasture feeding period until they are out all day, at the same time giving them whatever portion of their regular feeds they care for. This practice will keep them from scouring out as badly as they sometimes do when they are first turned on pasture. It is a good idea to feed high producing cows some grain to supplement even good pasture. However, cows that are giving only a small amount of milk will need little if any grain while the pastures are good. For the highest producing cows one pound of grain a day should be fed for every five or six pounds of milk they are giving. A grain mixture made of two parts of ground corn or barley and one part of ground oats or bran will be satisfactory. If the cows appear to be loose some cottonseed meal may be added."

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Carburetor Adjustment Often Overdone

There probably would be little need for carburetor adjustment during the life of an engine if it was the perfect mechanism its maker often would have us believe, always operating at approximately the same temperature regardless of load or atmospheric conditions, never leaking any air around worn inlet valves and always maintaining the compression it had when new. Unfortunately, operating conditions change and all too often one is tempted to try to meet these changing conditions by varying the mixture fed to the engine. Even the expert, although he may emphatically warn not to do it, probably will try changing the carburetor before he has gone very far in an effort to make an engine operate more satisfactorily. If it does become necessary to adjust the carburetor it will be well to keep a few elementary rules in mind. Some of these are as follows:

1. Have the engine at operating temperature when adjusting the carburetor. It is just as important to keep an engine at the proper temperature in the summer as at any other time. Contrive to keep the temperature of the cooling liquid just below the boiling point regardless of operating conditions and the majority of carburetion troubles will disappear.

2. It is to be doubted if a carburetor ever was made that would give the best mixtures for all loads at all speeds with the same setting. In other words, the sort of work the engine is doing most of the time must be taken into consideration and the carburetor set to meet this condition. The setting that gives an engine some especially spectacular sort of performance is not necessarily the best, and 99 times out of 100 is not an economical one.

3. By all means avoid the habit of changing the carburetor setting every time a start is made with a cold motor. Correct seasonal setting is difficult enough and he is indeed foolish who thinks he can do it every half day. Always have the motor warm before asking it to pull a load.

4. Use the proper grade of oil and not just any kind that can be had. It would likewise help considerably if about the same grade of fuel could be used, at least throughout a season.

5. Remember that there is no better way of saving fuel than to keep the engine in fair mechanical condition. Trying to counteract poor compression or poor timing by changing the carburetor is always a costly process. - A. L. Young, Farm Mechanics Department, College of Agriculture, University of Illinois.

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Many Aphis Hatching, But Nearly All Harmless

Up to the present time there has been a considerable hatch of aphis on apple trees throughout the southern two-thirds of the state, but examination of these insects on the leaves has shown that they were nearly all the apple grain aphis, a species which does not injure fruit, according to entomologists of the State Natural History Survey. A few rosy and green aphis have been found, but up to the present time they are not numerous enough to cause injury. Examinations throughout southern Illinois would indicate that all aphis on apple trees are being held in check by their insect enemies, which are present in considerable numbers.

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38-Inch Rows Are Too Wide For Soybeans

In the Messengerof April 16 the statement was made in the soybean story on Page 2 that, "It is best, however, for the man who is just beginning to grow soybeans to use 38-inch rows and cultivate the crop". This width of row was a mistake and should have been "28 or 32-inch rows".

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Quiets Foot, Mouth Disease Fears

Although Illinois was the heaviest sufferer in the last outbreak of the foot and mouth disease, breeders and stock raisers in this state need have little fear that the present California outbreak will be duplicated here or sweep through any one state or the country, livestock disease specialists at the College of Agriculture say.

The presence of the disease in any part of the country is, of course, a threat to the nation's livestock industry, the specialists admit, but at the same time they point out that the rigid federal and state quarantine regulations that have been framed to keep the disease in check once it appears and the experiences that have been gained in putting down other outbreaks of it in this country are enough to quiet any anxiety which Illinois breeders may have at this time relative to the introduction of the disease in this state.

The California outbreak is the seventh one in this country, the others having occurred in 1870, 1880, 1884, 1902, 1908 and 1914, according to Dr. Robert Graham Head of the Animal Pathology and Hygiene Division of the College. The disease, which is caused by a filtrable virus, originally was brought from European countries to New York, New Jersey and New England and from there spread to the middle west. The last outbreak of the disease before the one in California lasted from 1914 until 1916 and affected 22 states and the District of Columbia. Illinois stood the heaviest loss in this outbreak with more than $3,000,000 worth of cattle destroyed and other losses suffered by livestock raisers because of the restriction of trade.

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Ogle Cow Has Best March Record

High honors for milk and butterfat production during March among the 9,000 or more cows in the 21 county cow testing associations of the state went to a purebred Holstein in the herd of the Rock River Farm, Byron, Ogle County, owned by Senator Medill McCormick, according to records compiled by C. S. Rhode, Dairy Extension Specialist of the College of Agriculture. The Ogle County cow has had the lead among the state's high producers for the last three months. Her March production was 2,294 pounds of milk and 98.6 pounds of fat. George Mohrman, Morrison, Whiteside County, had the highest producing herd for the month. His herd of 11 purebred and grade Holsteins averaged 1,351 pounds of milk and 48.1 pounds of fat.

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District Meets Set For October

Dates for the four fall district conferences of farm advisers, as announced by [illegible] H. Smith, State Leader, are: Centralia, October 21 and 22; Decatur, October 23 and 24; Chicago, October 27 and 28; and Galesburg, October 29 and 30. The dates have been set early this year in order to avoid any conflicts which advisers might have in making Farmers' Institute or other engagements.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director.*

Corn Borer Threatens Illinois

Illinois is threatened with an invasion of the corn borer, the "boll weevil" of the corn belt, which probably will reach this state within the next few years, if it continues its present rate of spread, according to J. C. Hackleman, Crops Extension Specialist of the College of Agriculture, and W. P. Flint, Entomologist of the State Natural History Survey, who attended the recent meeting and conference of state and federal officials held at Toledo to further a cleanup drive against the insect in that territory.

The meeting, which was held in the region of what is now the worst borer infestation in the corn belt, was in charge of authorities from the Federal Department of Agriculture and the Ohio State University, and was designed chiefly to show workers from other corn belt states the necessary steps in a cleanup drive against the pest.

The borer is now less than a day's ride in an automobile from the Illinois line, the closest known infestation of the insect in Ohio being about 200 miles from the eastern border of this state, Mr. Hackleman reported.

Some idea of the rapidity with which the insect spreads can be gained from the fact that it first appeared in northeastern Ohio in 1921 and at that time the best trained federal scouts could find only one or two borers in a day's scouting. Last year, after but two breeding seasons from the time the insect was first found, it was estimated that one per cent of the corn in the infested townships in 11 counties of northeastern Ohio was damaged, with the damage in some fields running as high as 10 to 1/ per cent of the corn plants, according to Mr. Flint.

Farmers throughout Illinois have been asked to be on watch for the borer and to send any insect which looks suspicious to the state entomologist in order that centers of infestation may be discovered early and proper measures taken to prevent their spread. In the worm stage the borer is about an inch long and bores into all parts of the stalk, ear and tassel of the corn plant and to some extent feeds on the leaves. It does not work in the roots or below the surface of the ground.

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Summer Neglect Stunts Calves

Many dairy heifers are slow in developing into paying milk producers or fail to do so entirely because of being neglected during the summer months and left to make all their growth on pasture alone, dairymen at the College of Agriculture, say. Heifers under a year old should get some grain in addition to pasture and calves less than six months old should have both skimmilk and grain along with pasture. Twenty parts of ground corn, 30 parts of ground oats, 30 parts of wheat bran and 10 parts of oil meal make a good grain mixture for calves. A good quality legume hay makes a fine roughage for growing animals, since it contains relatively large amounts of protein and lime. Many dairymen find it worthwhile to have cool, darkened quarters during the hot weather where the calves can get protection from the heat and flies. Care should be exercised to see that heifers are not bred until they are old enough.

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McHenry Farmers Boost Legumes

McHenry County farmers are giving legumes a more important place in their cropping systems, according to a report of Farm Adviser A. J. Galfke. The acreage of alfalfa and sweet clover sown in the county this year will be increased from 40 to 50 per cent more than it was last year, he says.

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Chickens Thrive On Soybeans

Many farmers who have soybeans on hand that are not of high enough quality for seed may use them to good advantage in rations for their hens or young chickens. It has been demonstrated quite conclusively that soybean protein is a valuable nitrogenous food. However, when it is used for poultry it is necessary that it be supplemented with suitable minerals, all of which are easy to get. Calcium carbonate, one of the supplements required, can best be supplied in the form of oyster shell or ground limestone. Calcium phosphate can be supplied by means of steamed bone meal. The other needed supplement is common salt.

These minerals are needed in very small amounts, but if they are not in the ration chicks will not be able to utilize the soybean protein to advantage. A safe rule is to use two pounds of ground limestone or oyster shell, two pounds of steamed bone meal and one pound of salt in each 100 pounds of mash mixture when ground soybeans constitute the chief source of protein and when no milk or meat scrap is to be fed.

Ground soybeans or soybean oil meal may be used for about ten per cent of the mash mixture for laying hens, replacing about half the meat scrap and thereby lowering the cost of the ration considerably. Under certain conditions it may be desirable to use soybeans to the entire exclusion of meat scrap, but this practice cannot be recommended generally. - Dr. L. E. Card, Poultry Division, College of Agriculture, University of Illinois.

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Flag Smut Will Show Up Soon

The foothold that flag smut, the newest and probably one of the serious wheat diseases, has obtained in Illinois can be determined within the next few weeks according to Dr. W. L. Burlison, Head of the Agronomy Department of the College of Agriculture, who says that the disease makes itsappearance just before the grain heads out. Farmers have been asked to be on watch for it and report its presence to the Agricultural College or the State Department of Agriculture.

Flag smut was first discovered in the United States in 1919 near Granite City. It appears mainly on the leaves of the plants and shows up as black streaks or lines that run lengthwise in the top leaf blades. To some extent the stems also are infected, the black lines being due to the formation of spores by the smut fungus. Infected stalks usually are dwarfed and do not grow more than one-half to two-thirds the size of healthy plants. They rarely head out or produce seed.

As far as is known, the disease in Illinois is now confined to an area about 50 miles long and from five to 15 miles wide in Madison, St. Clair, Monroe and Jersey counties. Heavy annual losses are apt to be caused wheat growers of this country if the disease becomes established here, according to Dr. Burlison.

Field experiments made by the Agricultural College in testing nearly 200 varieties and strains of wheat for susceptibility to flag smut show that the disease can be checked to some extent by the use of resistant varieties. Fourteen varieties or strains have proved to be immune and 41 others highly resistant. Among the immune varieties adapted to the conditions existing in the infested area are Beechwood, Fulcaster (Marvelous or Stoner), Imperial Amber, Red May (Early Harvest), Red Rock and Shepherd. The most desirable of the beardless varieties from the local farmers' standpoint are Beechwood, Early Harvest and Shepherd, while Fulcaster is perhaps the most desirable bearded variety.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Progress Marked By New "Open House" Attractions

Farmers and their wives who come here for the annual "Open House" at the College of Agriculture June 16 to 21 to review the work of the institution during the past year will see at least five marks of progress in the way of new attractions, each of which shows a distinct step in the development of the school's program for improved agriculture.

Chief among the new attractions which guides will point out to sightseers and visitors during the tour over the thousand acres of the college plant and farm will be the new horticultural field laboratory operating at practically full capacity, the completed new agricultural building housing the administrative offices and class rooms of the College, the new imported Percheron sire, Urometre, which heads the band of approximately 40 mares kept on the farm, a new gas engine laboratory, and the new poultry plant which will be in the process of expansion and remodelling and which when completed will accommodate 3,000 head of mature stock and provide space for the rearing of from 5,000 to 6,000 chickens annually.

The many other attractions in the orchards, feed lots, laboratories and experimental plots which have held the attention and interest of farmers year after year also will have their full share of time on the itinerary of the tour. Approximately seven miles are traveled in making the route over the college grounds to the main points of interest. Visiting farmers and their wives are divided into groups and the trip made in automobile under direction of guides who are well acquainted with the various attractions and different lines of work.

The old agricultural building is still made the start of the trip. It houses a number of the College offices and a commercial dairy plant where milk is handled and butter, ice cream, condensed milk, cheese and cultured buttermilk drinks are manufactured.

Early in the tour the visitors see the Morrow and the Davenport experimental plots, the former being the oldest experimental plots in the United States. They were established in 1879 and since then the results that have been obtained on them have brought out in a striking way the effect of different cropping systems on crop yields. Before the seven mile trip is over the visitors see all the main buildings and their equipment, all of the college flocks and herds, the orchards and gardens and the experimental plots and fields.

Illinois is Leading Flower State of the Country

Illinois is the leading floricultural state of the country with 17,957,178 square feet, or 412.2 acres of glass devoted to the production of flowers and plants according to an article written by S. W. Hall, a member of the College of Agriculture floricultural staff, for the last issue of the Illinois Agriculturist, a monthly publication by students in the Agricultural College. The first greenhouse in the state, a 50-foot "lean-to", was built in 1845 in the block where the post office now stands in Chicago. That city is now the leading flower market in the country.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director.*

Plans for Club Tour Promise Record Meeting

Two full days of sightseeing, demonstrations, field contests and other attractions have been provided for Illinois's farm boys and girls when they gather at the College of Agriculture June 12 and 13 for the annual Junior Club University Tour. There will be no lull in the entertainment that is being planned for the young visitors from the time they start registering at 3 o'clock Wednesday afternoon, June 11, until the last demonstration is completed at 3:30 o'clock two days later, according to the completed program now being distributed for the event.

Last year 600 junior agricultural club members from 20 counties accompanied by their local leaders, took part in the University tour. Unlike previous tours, the one arranged for this year will last two days. Plans are being made for a larger delegation of the state's farm boys and girls than has attended any previous tour.

Although separate programs have been arranged for the boys and girls during the two days, a number of general sessions have been scheduled which will be attended by both boys and girls. Chief of these joint sessions will be the 4-H Supper to be held in the Wesley Foundation at 6 o'clock Thursday evening, June 12. The get-acquainted party to be held at 7 o'clock on the campus quadrangle the night of June 11 also is to be a general session while joint sessions have been scheduled for the hour from 8 to 9 o'clock each morning. The formal program for the tour will be opened with the first of these general sessions Thursday morning, June 22, at 8 o'clock at which time Dean H. W. Mumford of the Agricultural College, and Miss Ruth A. Wardell, Head of the Home Economics Department, will speak to the boys and girls.

The attention of the boys for the two days will be centered largely on the inspection of the Hampshires, Oxfords, Shropshires, Southdowns, Rambouillets and Corriedales in the college flock of 175 sheep; the beef herd of more than 100 Shorthorns, Aberdeen Angus and Hereford cattle and the beef cattle feeding plant; the band of about 40 Percherons headed by the imported sire, Urometre; the herd of 30 purebred Poland China, Duroc Jersey, Hampshire, Chester White and Berkshire hogs; the 120 Holsteins, Guernseys, Jerseys and Ayrshires in the dairy herd, and the college poultry plant which when completed will accommodate more than 3,000 head of mature stock and provide space for the rearing of from 5,000 to 6,000 chickens annually.

Other attractions on the program for the boys will be visits to the gardens orchards and plots on the college farm where the different lines of work that are being carried on will be explained to them. Special attention will be paid to the agronomy fields where the merits of different soil building practices and cropping systems are being compared.

Among the features on the girls' program will be contests in the judging of bread, canning and clothing and team demonstrations on food, clothing and shoes. Personal hygiene, posture, shoes and care of the feet, adequate diet for the school girl, the pressure cooker and its uses, and house furnishings, also will come in for attention.

Plans already are under way in a number of counties for sending delegates to the tour. In McLean County approximately eight communities are making arrangements to send one delegate each, while one club in the county will use two touring cars in bringing its delegation.

Accommodations in the way of rooms and board for the visiting boys and girls are being arranged for by junior agricultural club workers of the College.

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New Crop Pathologist Will Start Work June 15

Benjamin Koehler, who has practically completed his work for a doctor's degree in plant pathology at the University of Wisconsin, has been made Associate in Crop Pathology on the staff of the College of Agriculture and will take up his new duties June 15, according to an announcement by Dr. W. L. Burlison, head of the College Agronomy Department. Mr. Koehler will give special attention to the diseases of corn and wheat.

Mr. Koehler was born on a Wisconsin farm near Mishicot and lived there until 18 years old. Later he attended Illinois Wesleyan Academy at Bloomington, Illinois Wesleyan University, and Lawrence College, Appleton, Wisconsin, where he received the bachelor of science degree in 1917. After a year of teaching at Benzonia Academy he accepted a position with the War Department as inspector of wood to be used for airplane construction and after the close of the war studied at the University of Wisconsin until May 15 of the following year. On that date he joined the staff of the cereal office in the federal department of agriculture to make a special study of wheat scab in seven Mississippi valley states. The following September he returned for another year at the University of Wisconsin and in 1920 received his master's degree. Following this he spent three and a half years at Bloomington, Illinois, on a second appointment from the cereal office working with Dr. J. G. Dickson and J. R. Holbert on wheat scab and corn root-rot problems. He returned to the University of Wisconsin in the fall of 1923 to take up his studies for a doctor's degree in plant pathology and will report for his new work here soon after the close of the present school year.

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Balanced Farming Pays Kane Farmer 6.9 Per Cent

Bigger returns which they obtained from each $100 they had invested in livestock and the fact that they kept their expenses low for each $100 of their gross incomes played the leading part in helping the three most efficient farmers in a representative group of nine from Kane County earn 5.5 more on their average capital investment last year than was earned by the three least efficient farmers in the group, according to a summary just made by M. L. Mosher, Farm Management Specialist of the College of Agriculture, of the farm business records which each of the nine farmers kept in cooperation with the College and the county farm bureau.

The three most efficient farmers in the group of nine earned an average of 6.9 per cent on their capital investment, while the three least efficient realized only 1.4 per cent. This difference of 5.5 per cent in the rate of earning added about $2,200 to the average net income of the three most efficient farmers. The income earned by the entire group of nine farmers averaged 4.6 per cent on a capital investment of $40,220.

The three farmers who made the highest average rate on their investment received a return of $145.44 from each $100 they had invested in livestock, while the three farmers who earned the lowest rate received only $117.68 from this source. Furthermore, the three most efficient farmers kept down their expenses to only $51.71 for each $100 of their gross income, while the expenses of the three least efficient farmers totalled $86.84 for each $100 of their gross income.

The three farms which returned the highest rate of earnings were either superior to or else almost on a par with the general average of nine farms in point of crop yields, returns from livestock investments, the proportion of returns from livestock, the efficient use of man and horse labor and expenses in proportion to income, according to Mr. Mosher. These items are the ones that must be watched in efficient farming. Profits are apt to dwindle when the farming operations are allowed to slump on any one of these points, he added.

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Boosts Returns $100 A Month By Testing Cows

Joining a cow testing association has netted Julian Larson, a Boone County farmer living near Capron, $100 a month and saved him the feed of seven boarder cows which he sold to the butcher within three months after he joined the organization, according to H. E. Jamison, Dairy Extension Specialist of the College of Agriculture, who assists in the organization and direction of these associations. Mr. Larson is now realizing $400 a month from 15 cows whereas his herd of 22 cows returned him only $300 a month before he joined the association.

When first asked to join the association Mr. Larson was skeptical about the benefits which farmers could derive from a membership. However, after he had been visited three times by Farm Adviser J. C. Kline he became convinced that joining the association would be a big step toward helping him put his herd on a better paying basis. The association started operation in January 1923 and at the end of three months the records which the tester had obtained on Mr. Larson's herd were so striking that seven of the 22 cows immediately were sold because the figures showed them to be poor producers and unprofitable. The herd was further reduced to seven cows when eight more were sold after the tuberculin test had been applied.

Instead of being discouraged Mr. Larson took the indemnity and the returns from the eight reactors and two monthly milk checks of $300 each that his entire 22 cows had netted him in previous months and bought eight purebred Holsteins in Wisconsin.

Mr. Larson is now getting a monthly milk check of $400 from 15 cows and is thoroughly awakened to the value of testing cows both for production and for tuberculosis. Farm Adviser Kline, who cites this accomplishment as a sample of what many farmers in any county could get from cow testing association work, says that no effort was required this year in getting Mr. Larson to renew his membership in the association.

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Will, Knox, To Send 25 Club Tourists

Will and Knox Counties, neither of which was represented at the University club tour last year, will send approximately 25 delegates to the event this year, June 12 and 13, according to E. I. Pilchard, Club Work Specialist, who is in charge of the tour. Eleven different clubs in Will County each will send delegates, while Knox County is to be represented by three automobile loads of club members, according to present plans.

James McKee, Knox County farm bureau director, is one of the active supporters of the tour and feels that it is a banner event for farm boys and girls of the state. He is encouraging all Knox County boys and girls who can possibly make the trip to take advantage of their opportunity to visit the University and join in the events which have been planned.

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"Open House" To Feature Oldest Soil Plots

The oldest experimental plots in the United States - the Morrow plots at the College of Agriculture, University of Illinois - have been scheduled as one of the main attractions on the seven mile trip which is being planned for farmers and their wives who come to the Agricultural College June 16 to 21 for the school's annual "Open House." The plots were laid out in 1879 by Professor George Morrow, then dean of the Agricultural College, as his first step in making a study of the effect which different systems of cropping have on crop yields.

Because of the length of time which they have been in operation and the striking results which have been obtained on them, the plots take on a new interest for corn belt farmers every year and are visited by thousands who are interested in practical and successful methods of saving and building soil. The results being obtained on the plots and the system under which they are operated will be explained in detail to visitors who come during the "Open House" to review the school's work and study the progress that is being made in the different departments in the interest of better farming.

Of the original cropping systems started by Professor Morrow in 1879 three are left. On one of these corn is being grown year after year on the same ground, on another a rotation of corn and oats is being practiced and on the third a rotation of corn, oats, and clover is being used. Originally the last named rotation was a six-year combination of corn for two years followed by oats and then a clover-timothy meadow for three years. However, when the Agricultural Experiment Station was established in 1888, this rotation was changed to a more simple three-year one.

Formerly no soil treatment of any kind was used on any of the rotations, but in 1904 the plots were rearranged and subdivided so that half of each one could be treated with manure, legumes, limestone and phosphates.

Unfortunately, no records are available for the crop yields on plots previous to the time the Experiment Station was established in 1888. Careful records, however, have been kept since that time and these now show results that are of great importance to farmers of Illinois.

The most interesting figures from these old experiments are those pertaining to the yields of corn grown year after year on the same land without treatment. The yield for the last 36 years has slumped gradually until the ten-year average is now less than 25 bushels an acre.

However, in the two-year rotation the yield of corn for the last ten years has averaged slightly more than 35 bushels an acre, while the yield of oats has averaged 35 bushels. In the corn, oats, and clover rotation the yield of corn has averaged slightly more than 43 bushels an acre, the yield of oats more than 53 bushels an acre and the clover hay almost two tons an acre.

Where the corn has been grown year after year on the same plots and the soil treated with manure, legumes, limestone and phosphate, the average yield has been almost 44 bushels an acre, compared to less than 25 bushels an acre when no soil treatment are given. In the two-year rotation of corn and oats the corn has made an average of almost 60 bushels and the oats almost 53 bushels an acre when the land was treated, whereas the yields from this rotation without treatment averaged slightly more than 35 bushels of corn and 35 bushels of oats. The average yield of corn has been almost 58 bushels, of oats more than 70 bushels and of clover hay almost three tons in the three-year rotation with soil treatment, or an increase of almost 16 bushels of corn, more than 17 bushels of oats and almost a ton of hay an acre over and above the yields obtained without soil treatment.

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Soil Organisms Play Important Role In Crop Production

The general recommendations given to a farmer or to a land-owner who has asked for advice upon the question of soil fertility do not, as a rule, include any reference to the biological life of the soil. This is not due to any undervaluation of the part played by micro-organisms in soil fertility, but rather to the fact that when the soil is so treated as to produce better crops, one will at the same time have made conditions within the soil favorable for the rapid development of the biological life of the soil. It is well that such is the result of proper soil treatment, but a better understanding of the fact that the soil is full of living organisms that only need favorable conditions to be established in order to go to work and help in crop production would be without question a great aid to many farmers. When one understands the fundamental fact that the living, as well as the inert part of the soil, must be given proper care, then he will be able to approach maximum crop production with the minimum of expense.

Soil is made up of a thin layer of rock fragments and decaying organic matter and serves as a support for the growing plant. As a result of the complex reactions always going on in the soil between the mineral andorganic portions of the mixture, plant food elements are liberated and used by the growing plant. The nature of many of these reactions going on within the soil is beyond our present knowledge, and in fact may never be worked out and understood, as they involve the living organisms and their life products. Unless these complicated and little understood reactions are allowed to proceed between the organic and inorganic constituents of the soil, the mixture will be unable to support a growing crop. It is therefore important that students of soil fertility should become acquainted with the best known methods for the intelligent encouragement of the biological life of the soil.

One of the most important duties performed by the micro-organisms of the soil is the decomposition of organic matter returned to, or left upon the field as green manures, animal manures, and crop residues. That such material does decompose when it is incorporated with the soil is well known, but the reasons for its disappearance and the changes brought about by its decomposition should be more fully known, for it will be found that when soil conditions are made favorable for the greatest activity of the micro-organisms we will also have favorable conditions for crop production. When organic matter is added to the soil, it is at once a source of energy for many kinds of micro-organisms and the cellulose of the cell walls is soon broken down and used. Large quantities of carbon dioxide are liberated during the breaking down of organic matter and it is the solvent action of this liberated carbon dioxide combining with the soil solution that gives the growing crop a continuous supply of plant food elements. If the carbon dioxide content of the soil atmosphere can be maintained at a relatively high content, even two percent, then with proper soil moisture, we will have a continuous attack upon the relatively insoluble inorganic mineral compounds present in the soil, or added to it, with the liberation of calcium, phosphorus, potassium, and the other elements in a form available to the growing plant.

At the same time that the cellulose of the organic matter is being broken down, we find that the nitrogenous compounds are also being attacked, and the nitrogen changed by the combined action of several different groups of bacteria from organic nitrogen, as found in organic matter to nitrate nitrogen, the form in which nitrogen must be present for successful crop production, with the exception of legumes, and a few non-legumes. This process of the transformation of unavailable nitrogen into nitrate nitrogen is known as nitrification, and we find that it is helped by such farm practices as liming, drainage, cultivation, and the maintenance of a favorable soil structure. In an acid soil, we find that twice as much organic matter must be broken down to furnish the growing crop with the same amount of available nitrogen as would be required if the soil were well supplied with bases. - T. E. Richmond, Agronomy Department, College of Agriculture, U. of I.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Vol. VII Urbana, Illinois, May 21, 1924. No. 21

Whiteside Dairy Judging Team Sails June 7

The junior championship dairy cattle judging team of the United States, composed of three Whiteside County boys' club members, will sail from Montreal, June 7, to take a two months tour of Europe and enter an international judging contest to be held in England the week of June 22 under auspices of the London Daily Mail, according to final plans which have been made for the trip. Members of the team include Elwyn Folkers and Donald Williams, of Sterling, and Harold Caulrapp, of Rock Falls. They will be accompanied by L. O. Wise, Whiteside County Farm Adviser, and C. S. Rhode, Dairy Extension Specialist of the College of Agriculture. All expenses of the quintet for the trip are being paid by dairy manufacturers, breeders, individuals and other interested concerns. The party will return about August 1.

Among the special events that are being planned for the trip is a stopover in Washington where the team will be introduced to President Coolidge and give a demonstration of cattle judging before the President and his cabinet on the White House lawn.

The international contest, which will last about a week, will be held just previous to the Royal Agricultural Show at Leicester and will take the young Americans to a number of the most prominent breeding herds in England where they will compete with teams from other countries for the gold cup offered as a trophy to the highest scoring team of dairy cattle judges. Following the close of the contest the American quintet will visit the royal show where the winners of the contest will be announced.

During the course of the two months tour the quintet will visit some of the prominent breeding establishments in England, Scotland, the islands of Guernsey and Jersey, Switzerland, Holland and Denmark. Mr. Rhode, who will assist Farm Adviser Wise in coaching and training the team also will make a study of dairy marketing in Denmark and will investigate various dairy conditions in other countries. He also plans to attend a dairy cattle breeders meeting in Edinburgh.

The Whiteside County team won the right to represent the United States in the international contest by defeating 20 other teams for first honors in the junior judging contest at the National Dairy Show last October. The three boys previously had won the state championship at the Aurora Fair. They already have a start in the dairy cattle game, all of them being members of the dairy calf club project outlined by the Agricultural College.

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Club Work May Reach Goal of 10,000 Members

One of the goals set for Illinois club work this year - 10,000 members - will be reached if county and local leaders finish up the enrollment in the various communities of their counties between now and June 1, according to E. I. Pilchard, club work specialist. The first goal - club work in 80 counties - already has been reached, he said in his appeal for a strong finish in the enrollment work.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director.*

Southern Illinois Cream Will Be Graded

Cream buying on a quality basis will be put into effect for the first time on a large scale in Illinois next week when approximately 325 cream stations in 28 southern Illinois counties start buying on the four-day plan, according to an announcement by Dr. H. A. Ruehe, Head of the Dairy Department of the College of Agriculture. The four-day system of grading will be used after May 22, but the price differential that is to be paid under the plan will not go into effect until May 26.

The plan which will be used was worked out by dairymen of the Agricultural College, the Illinois Butter Manufacturers Improvement Association and the Illinois Agricultural Association. The system will be given a thorough trial in southern Illinois in an effort to improve the quality of cream and thereby raise the standard of Illinois butter.

All cream brought in by farmers and dairymen which is clean in flavor and not more than four days old will be graded as premium cream and bought for three cents a pound of butterfat more than the ordinary run of cream which is more than four days old. Cream flavored with wild onions or garlic will be penalized five cents a pound of butterfat, since it cannot be handled profitably in buttermaking.

All counties south of the northern border of St. Clair, Clinton, Marion, Clay, Richland and Lawrence counties will be included in the new system. This territory has been selected because it is one section where improvement in cream quality is most needed and a district where most of the cream is marketed through cream stations. If the plan works out satisfactorily in southern Illinois, it no doubt will be adopted generally throughout the state.

The new system works no hardship on the cream producer in the way of added expense for new equipment or extra facilities for handling his product, Dr. Ruehe pointed out. All that it requires is a four-day delivery. When the farmer delivers cream to the cream station his can is tagged with a dated tag which shows the station operator at the time the next full can is brought in just when the last delivery was made.

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Bankers Get Story of Agricultural College Work

Work being advanced by the College of Agriculture, its experiment station and extension service in the interests of a more successful and profitable system of agriculture in Illinois is being explained to bankers of the state by Dean H. W. Mumford in a series of ten meetings being held in connection with the running of the Illinois Bankers' Association annual "Group Special". Five of the group meetings are being held this week and the remaining five will be held the first week in June.

Improved farming practices have been established in practically every section of the state and the way paved for better farming as a result of the work being done, according to the material being presented to the bankers by Dean Mumford in the form of charts, pictures and statistics. Special attention is being given to the extension service in the talks, since it is this phase of the college work with which the bankers come in contact most often.

This is the schedule of the meetings: Group 9, Salem, May 19; Group 10, Harrisburg, May 20; Group 6, Mattoon, May 21; Group 7, Pana, May 22; Group 5, Kankakee, May 23; Group 3, Savanna, June 2; Group 8, Carthage, June 3; Group 1, Aledo, June 4; Group 2, Peoria, June 5; Group 4, Elgin, June 6.

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New Light Thrown On T. B. Eradication Problem

Results of experiments concluded this spring at the College of Agriculture refute the old theory that avian tuberculosis - the type found in chickens and birds - is not related to swine tuberculosis and may ultimately modify the present methods being used in ridding swine of the disease, according to Dr. Robert Graham, Chief of the Animal Pathology and Hygiene Division of the College of Agriculture.

Heretofore, animal disease workers have held to the belief that 95 per cent of the tuberculosis in swine was the bovine type and therefore that if the disease was eradicated in cattle herds, swine automatically would be freed of the plague. However, the problem has not worked out this way as shown by the fact that swine tuberculosis has increased at a rapid rate while bovine tuberculosis has decreased and even been completely wiped out in some sections, due to the intensive campaign being waged against it.

In view of the significance of the evidence which the College has collected, the State Department of Agriculture has appointed seven veterinary inspectors who have just been given special instruction at the College and sent out into the field to follow up the lead of the laboratory investigators and find out if possible just what part, if any, avian tuberculosis is playing in the increasing amount of swine tuberculosis. These inspectors will make a survey of 200 farms in the next few months where it appears that avian tuberculosis may be affecting swine.

The experiments concluded by the College this spring were started in 1921 and show that swine may be infected with avian tuberculosis by four methods. Two of these methods are experimental but the other two might enter into an outbreak of swine tuberculosis on any farm where chickens with the disease are kept. These two methods, which are of particular interest to the farmer, are the eating of tuberculous fowl organs by hogs and the eating of grain mixed with the droppings of tuberculous fowls.

As soon as the College animal pathologists had proved that the avian type of tuberculosis could be communicated to swine, they immediately became suspicious that the increased amount of tuberculosis in hogs might be related to the avian type of the disease. An investigation of this phase of the problem is now in progress. Through the cooperation of Homer R. Davison, livestock commissioner at the Chicago Livestock Exchange, selected glands of hogs slaughtered on the Chicago market are sent here to be examined for the type of tuberculosis. Although this phase of the investigation has just been started it already has brought out the fact that hogs on certain Illinois farms are infected with the avian type of the disease.

The veterinary inpsectors appointed by the State Department of Agriculture to continue this phase of the investigation in the field are Drs. D. S. Jaffray, Chicago; A. E. Dickerson, Springfield; A. C. Tillman, Earlville; C. F. Behner, Marshall; R. W. Merriman, Auburn; W. C. Ekley, Galesburg and D. A. Cahill, Champaign. They were given three days of special instruction by the College animal pathologists in order that they might become familiar with the details of swine and avian tuberculosis and make a study of the problem on various farms.

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Barrows bred, fitted and shown by the Agricultural College have won 15 championships, 35 first, 35 second and 34 third prizes at the Chicago International Livestock Exposition since 1915. There are approximately 300 purebred Poland Chinas, Duroc-Jerseys, Hampshires, Chester Whites and Berkshires in the herd which will be one of the main attractions during the annual "Open House" at the College, June 16-21.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Vol VII | Urbana, Illinois, May 28, 1924 | No. 22

Dr. Graham to Organize Disease Control in Haiti

Dr. Robert Graham, chief of the animal pathology and hygiene division of the College of Agriculture for the last seven years, will sail from New York, June 5, for Port-au-Prince, Haiti, on a year's leave of absence during which he will take charge of and organize animal disease control work in that republic. Dr. I. B. Boughton assistant in the division, will be acting chief during Dr. Graham's absence.

During the year that he serves in Haiti, Dr. Graham will study tropical diseases, make a survey of the animal diseases existing in the republic and outline measures for their prevention and control. He also will consult with Director-General George Freeman, of the Service Technique, as to buildings and equipment needed for the prevention and control of animal diseases.

Dr. Graham has been prominent in animal disease control work for a number of years, having perfected the antitoxin which was used for the first time in natural outbreaks of botulism, or food poisoning, in animals and humans. He was the first to point out that botulism, primarily recognized in humans, also occurs in animals, and it was from this discovery that the antitoxin was developed against the fatal poisoning and used in the treatment of the disease in humans. A third strain of the botulism organism which produces a fatal paralytic disease in poultry and cattle also has been discovered in the animal pathology and hygiene laboratories here.

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Lake County Cow Takes Lead In April Production

A purebred Brown Swiss cow in the herd of the Hawthorn Farm, Area, Lake County, took the lead in April milk and butterfat production among the 9,000 or more Illinois cows in the 21 county cow testing associations of the state, according to records announced by C. S. Rhode, Dairy Extension Specialist of the College of Agriculture, University of Illinois, who has charge of this work. She produced 3,003 pounds of milk and slightly more than 96 pounds of butterfat during the month. Rock River Farm, Byron, Ogle County, owned by Senator Medill McCormick, which has had the highest producing individual for the past three months, placed the second highest producer in the list for April. C. E. Warford & Son, Maple Park, Kane County, had the highest producing herd for the month, their 12 purebred Holsteins having averaged 1,432 pounds of milk and slightly more than 50 pounds of butterfat each during the month.

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Three-Reel Movie of University Views Available

A three-reel picture, "A Day at Illinois", is available for the use of farm advisers at meetings and other events in their counties. The picture is a record of a visit to the various colleges, buildings and other points of interest at the University of Illinois. There is no charge for the picture, the only requirements being that the reels be rewound after they have been shown, any breaks repaired and the postage or express charges paid back to the University or to the next place on the picture's schedule. Requests for the picture should be sent to Josef F. Wright, University of Illinois.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director.*

Calcium Cyanide May Be Control For Chinch Bugs

Calcium cyanide, a chemical which gives off a deadly gas when exposed to moisture, gives promise of being an effective control for chinch bugs and already has shown enough merits in extensive tests made during the last two years in Illinois to warrant its being given a trial by farmers in their attempts to check this pest which annually causes heavy damage to corn and other crops, according to a new bulletin, "Calcium Cyanide for Chinch Bug Control", which is ready for distribution at the College of Agriculture. Best results with the chemical have been obtained by using it in combination with either creosote or coal-tar barriers. The use of the chemical in the Illinois tests marks the first time that it has been used in attempts to control the chinch bug.

Six-inch strips of the cyanide, requiring about one ounce to a strip, laid at right angles every two rods to a barrier of creosote or coal-tar, under favorable conditions killed from 75 to 95 per cent of the bugs as they moved along the line of the barrier. The chemical also was very effective when dusted along the line of a coal-tar or creosote barrier, the bulletin adds.

Fair to good results have been obtained by dusting calcium cyanide in trap strips of crops sown between fields of small grain and corn, the publication continues. However, only one year's data have been obtained with trap crops.

Barriers of calcium cyanide alone were not as effective as the other methods and at the same time cost more, according to the bulletin. Farmers cannot count on maintaining an effective barrier of calcium cyanide alone for the season at less than $70 to $75 for each quarter of a mile. This is nearly three times the expense of killing the bugs with a combination of creosote and calcium cyanide or nearly ten times the cost of maintaining a creosote barrier.

The new bulletin compares the different methods of using the cyanide for chinch bug control and gives complete directions for the use of the chemical. It also explains the construction of coal-tar and creosote barriers. It was written by W. P. Flint, Entomologist of the State Natural History Survey, and W. V. Balduff, Assistant Professor of Entomology at the University.

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Lambs Finished Earlier if Fed Grain on Grass

Lambs which are born early and are expected to be ready for market at weaning time should be fed grain from the time they will begin to nibble at it until they are to be shipped, according to sheep specialists at the College of Agriculture. If fed grain while they are on grass, lambs make quicker and larger gains and are in a more desirable market condition than those fed on grass alone.

If the ewe and lambs are to be kept on pasture and not returned to the barn or sheds at feeding time, creeps should be provided at a high and dry part of the field where the flock rests. When lambs are turned on grass they eat much less grain and if the grain is not kept clean and the creep located where the lambs can eat while their mothers are resting they may cease eating grain altogether. Salt should be available near the creep.

In case the lambs are born late and turned on grass shortly after birth it is difficult to teach them to eat grain because their mothers' milk and the tender grass seem to satisfy all demands. However, they cannot be finished until fall and it hardly seems advisable to attempt to feed them grain at such an early age. Lambs on pasture need shade of some sort and if natural is not available some form of artificial shade should be provided, such as an improvised shed built near the creep.

Winning Calves Produced By Attention to Details

Attention to details is the basis of success in livestock feeding. No show steer or heifer worthy of the name has ever been developed by providence and an indifferent caretaker. The boy who wins the honors in the fall, is one who has overlooked no opportunity to insure the comfort of his calf during the previous months.

The ration on which the calf is fed should be made up largely of concentrated feeds. It should be palatable and balanced to meet all requirements. The grain mixture may be simple but it should have some variety. Enough linseed or cottonseed meal, preferably the former, should be included so that the calf gets from one to two pounds daily, varying with his size. The other grains may consist largely, but not entirely, of corn. A part of the mixture should be of lighter feeds. Oats and bran serve well for this purpose. If either wheat or barley is available, part of the corn may well be replaced by one or both. The corn should be shelled and all grains crushed but not finely ground. Spoiled or inferior feeds have no place in the mixture. Roughage should consist only of good hay. However, with the use of good pasture at night little if any is needed, once full feed has been reached.

Feed may be given only twice a day but if it is at all convenient to do so three times is to be preferred. While considerable roughage may be used in the early part of the feeding period, by this time it should be used very sparingly in order that the most grain will be consumed. At this time all the grain should be fed that the calf will clean up readily in about half an hour. The feeder must watch closely to see that the proper amount is being fed. If the feed is eaten quickly and the calf still appears hungry the amount may be slowly increased, on the other hand the caretaker should not be too slow to reduce the amount when there are signs of a loss of appetite or illness.

The feed may be given moist if the calf prefers it so. In case the consumption is not large enough to give the desired results, a small amount of brown sugar or molasses may be added to each feed. The manger or feed box must be kept scrupulously clean. Salt and clean fresh water should be kept before the calf at all times.

A good small blue grass pasture where the calf may be turned at night with a few others of the same age is desirable. If the grass is abundant it will furnish the needed roughages, and sufficient exercise and healthful conditions are insured. A steer should not be run with heifers, and in no case should the calf be turned out to wander over a large pasture with the farm livestock.

Protection from flies and heat during the day is of great importance. A roomy stall in the coolest and most quiet part of the barn is needed. This stall should be cleaned daily and a good fresh bed put down. The windows in this part of the barn may be removed and burlap nailed over the openings to darken the stall. Flies should be kept away, if possible. However, if the barn is used by other livestock, it will probably be necessary to poison the flies. This may be done quite effectively by setting around several dishes of milk containing a little formalin.

The calf should be disturbed very little, but he will soon learn to enjoy a few minutes each day spent in being brushed. A curry comb should be used but little. Also a few lessons in leading and an occasional bath with soap and cool water, care being taken to entirely remove the soap, will give both the calf and the boy much needed practice for the big event to come. - J. H. Knox, College of Agriculture, U. of I.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Vol. VII Urbana, Illinois, June 4, 1924 No. 23

Farm, Home Advisers Will Meet Next Week

Plans are complete for the annual summer meeting of the Illinois farm advisers to be held here June 10, 11 and 12. In line with the plan of former years the conference this year will feature the work of the Experiment Station of the College of Agriculture, in order that farm advisers and other extension workers may become more thoroughly acquainted with the various projects and the different lines of work. The projects of the various departments will be discussed, trips of inspection made over the farm and the results of experiments explained.

Home advisers also will hold a two-day meeting during the same week, their conference being scheduled to start the afternoon of June 9 and close the noon of June 11. This meeting will consist of a series of informal conferences with the various home economics specialists during which they will tell the home advisers of new developments in their field and outline methods of work for advancing the subject in the various counties.

The meeting of farm advisers will get under way at 10 o'clock, June 10, with the general announcements for the meeting, following which E. L. Austin, boys' and girls' club worker of Purdue University, Lafayette, Indiana, will speak on "Junior Club Work in a County Program". Dean H. W. Mumford will close the first morning's program with a discussion of the work of the Illinois Experiment Station.

Present activities of the Illinois Agricultural Association will be discussed at 1:15 that afternoon by George A. Fox, secretary of the organization, after which H. C. M. Case, head of the college farm organization and management department will discuss investigational work which that department now has under way. Farm mechanics investigations will be discussed by E. W. Lehman, head of that department.

The annual mixer of farm and home advisers, staff members and wives is scheduled for 4:30 o'clock Tuesday afternoon, June 10, and will be held at Crystal Lake Park.

Wednesday morning, June 11, will be given over to a discussion of animal husbandry investigations and a tour to the points of interest in connection with this department. This part of the program will be in charge of H. P. Rusk, head of the department. Agronomy investigations will be discussed and an inspection made of the work of this department during the afternoon of the second day. Dr. W. L. Burlison, head of the agronomy department, will have charge of this part of the program. A business meeting of the Farm Advisers' Association will be held Wednesday evening.

The final day of the program is to be given over to dairying and horticulture, with the dairy discussions and inspections scheduled for the morning and those of horticulture for the afternoon. H. A. Ruehe, head of the dairy department, and J. C. Blair, head of the horticultural department, will have charge of the program for their respective departments.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director.*

Plans Made For 1,000 On Club Tour

Approximately 1,000 farm boys and girls from 40 counties of the state are expected to be here for the second annual Junior Club University Tour to be held June 12 and 13, according to E. I. Pilchard, Club Work Specialist of the College of Agriculture, who is in charge of the event. Last year 600 junior agricultural club members from 20 counties accompanied by their local leaders took part in the tour, but reports already in from a number of counties indicate that a new attendance mark will be set for the conclave of the youngsters this year.

The Sidney Poultry Club, of Champaign County, said to be the largest boys' and girls' poultry club in the United States, will have a 100 per cent representation on the tour, business men of the community having joined to provide cars for the transportation of the 114 club members to the tour. Christian County will send 40 delegates. Morgan and Knox counties each will be represented by about 25 club members, Effingham and Sangamon by 15 and Peoria by 14, according to early reports received by Mr. Pilchard. Vermilion County also is planning to bring a large delegation to the tour.

Plans have been completed for a "Cotters' Inn" for both the boys and girls, by means of which those who stay over night during the tour will be saved from 50 to 75 cents each on their lodging. Blankets and 1,000 cots have been obtained and will be furnished to the club members at cost. The cots for the boys will be placed in the gymnasium annex and those for the girls in the women's gymnasium.

The program for the tour provides for two full days of sightseeing, demonstrations, field contests and other attractions for both boys and girls. One of the features of the two-day session will be the Four-H Supper to be held in the Wesley Foundation at 6 o'clock Thursday evening, June 12.

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Avian T. B. Increasing, Veterinarians Told

Avian tuberculosis - the type found in chickens - is on the increase in Illinois and already has made its way into a majority of the poultry flocks in certain sections of the state, according to a statement being mailed to the 800 or more veterinarians in the state by the Animal Pathology and Hygiene Division of the College of Agriculture. In some sections the losses caused by the disease have stamped it as one of the most destructive of chickens, the statement adds.

The statement points out that avian tuberculosis cannot be cured and stresses the importance of preventive measures in controlling the disease. Infected flocks should be given the tuberculin test, the reactors destroyed and the premises disinfected, according to the recommendations given.

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New Guide Book Ready For College Visitors

Visitors who come to the College of Agriculture will now receive an up-to-date guide book which points out the things of interest that can be seen and gives a brief summary of some of the more important lines of work. Significant experimental results also are given. The new publication, which contains 24 pages, takes the place of a similar one published in 1921, and outlines the things in the various departments which might be of interest to the visitor. It contains a dozen illustrations which represent the various attractions of the College plant.

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"Open House" Plans Get Finishing Touch

With "Open House" week close at hand, the last finishing touches are being given to the plans that are being made for the thousands of farmers and their wives who are expected to come here from June 16 to 21 to inspect the work of the College of Agriculture and review the progress which has been made in the various lines of work during the past year in the interests of better farming. The seven-mile trip over the thousand acres in the College plant is being arranged to give visitors a well rounded idea of what is going on in the experimental plots, laboratories, fields, orchards and feed lots.

One of the main attractions which is being groomed for the week is the College dairy herd which has established 17 state and two world's records in milk and butterfat production. The leading animal in the herd is Illini Dulcina DeKol, a purebred Holstein, which now holds the state record in milk and butterfat over cows of all breeds and ages with a record of 24,313.2 pounds of milk and 1,245.21 pounds of butterfat in a year. She was bred and developed by the Agricultural College and finished the record May 24, 1922.

Some idea of what the dairyman can do toward building up a high producing herd by using recommended and practical methods is shown by the fact that the College has bred and developed the first Illinois cows, all different animals, to produce 1,000, 1,100 and 1,200 pounds of butter in a year. The record of 1,200 pounds was made by the present holder of the state record for milk and butterfat production.

For those who are especially interested in livestock there will be a wide variety of attractions. Among these will be Deverly, the Aberdeen Angus bull which sired Broadus White Sox, the grand champion steer at the 1923 Chicago International Livestock Exposition; an experiment to determine the feasibility of raising commercial beef cattle on high priced corn belt land; Urometre, the imported Percheron stallion; and hogs that have made a record as prize winners.

The College sheep flock is especially significant and holds much of interest for the farmer and the breeder. In 1919 at the largest auction sale of sheep ever held in America, a Rambouillet ram from the College flock sold for $1,600 - the top price. At the same sale in 1923 a yearling Rambouillet ram sold for $625 - the second highest price for that year.

Farm engineering will come in for a full share of attention along with soils, crops, livestock, flowers and fruit during the week. A variety of field machines, including all sorts of tillage, planting and harvesting implements, both tractor and horse drawn, will be available for study and inspection in the field machinery laboratory. A soybean machinery exhibit in this laboratory is expected to be of special interest to farmers, in view of the growing popularity of this legume.

A special exhibit of farm building plans, models and building material will be arranged along with a number of different hitches, including four, five, six and seven-horse combinations. A complete line of home water supply and plumbing systems, lighting and heating plants and laundry equipment will be on display in the home equipment laboratory.

Then there will be the Morrow plots, the oldest of their kind in the United States; the Davenport plots, a 320-acre outdoor horticultural field laboratory, greenhouses, gardens and a number of other attractions, all of which hold much of interest for farmers and their wives.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Vol VII | Urbana, Illinois, June 11, 1924 | No. 24

Ready to Welcome "Open House" Visitors

Everything is in readiness at the College of Agriculture for the many delegations of farmers and their wives which are expected here next week during the annual "Open House" when the doors of the institution will be thrown open to the public for the yearly review and inspection of the work which is being carried on in the interests of better farming. Guides will conduct the visitors on the seven-mile trip over the thousand acres of the college plant and give them a complete explanation of the activities in the orchards, feed lots, experimental plots, laboratories and fields.

A number of counties already have sent word that they will be represented by large delegations. Approximately 40 automobiles will be used in bringing visitors from Edgar County, while Vermilion, Piatt and Ford counties are others which will send large groups. Among the visitors of the week will be 200 vocational students from Chicago.

At least five new attractions, each of which represents a distinct step in the development of the institution's program for improved agriculture, this year will be featured during the week. Chief among these attractions will be the new horticultural field laboratory; the new agricultural building which houses the administrative offices and some of the college class rooms; the new imported Percheron sire, Urometre, which heads the band of about 40 mares kept on the farm; a new gas engine laboratory; and the new poultry plant, which will be in the process of expansion and remodelling and which when completed will accomodate 3,000 head of mature stock and provide space for the rearing of from 5,000 to 6,000 chickens annually.

The many other attractions at the college which have held the attention and interest of farmers year after year also will come in for their full share of time on the itinerary program. Plans being made for the visitors are designed to show them first-hand the many phases of Illinois farming which are dealt with in the work of the institution and in addition give them a well rounded idea of the progress which is being made and the results which are being obtained.

The visitors will get an impressive glimpse of the scope of the college's various activities early in the inspection trip when they view the Morrow and Davenport experimental soil plots. The Morrow plots are the oldest ones in the United States, as far as is known, having been laid out in 1879 by Professor George Morrow, then dean of the Agricultural College, as his first step in making a study of the effect which different cropping systems have on crop yields. Because of the long time which they have been in operation and the striking results which have been obtained on them, the plots take on new interest for corn belt farmers every year and are visited by thousands who are interested in practical and successful methods of saving and building soil.

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New Circular Explains Mineral Feeding

Although animals need a large number of mineral substances, ordinary farm rations will take care of the requirements for most of these minerals, according to a new circular, "The Feeding of Mineral Supplements to Livestock," which is ready for distribution at the College of Agriculture.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

Tests Throw Light on Mineral Question

Many of the debated points in the feeding of mineral mixtures to hogs are cleared up in a new bulletin, "The Value of Mineral Supplements in Swine Feeding", which has just come off the press at the College of Agriculture and is now ready for free distribution to interested persons. It gives the complete results of a number of mineral supplement investigations made by the Experiment Station of the College with 240 hogs.

Slack coal, ground limestone, salt and other common mineral supplements, widely heralded as necessities in economical pork production, have little or no effect on the rate or economy of gains which fattening pigs make, if the rations which they get contain liberal amounts of skimmilk or such feeds as tankage and good pasture, which are high or relatively high in calcium, according to results given in the bulletin. Such minerals are credited in the bulletin with giving only slightly faster gains from just a little less feed.

In introducing their experimental results, the authors point out that the practice of feeding supplements to growing and fattening hogs has become so common among farmers and stockraisers and the claims frequently made for mineral mixtures have been so extreme that the situation called for an investigation.

The mineral supplements which were put to test in the experiments included slack coal, charcoal, air slaked lime, ground limestone, rock phosphate and salt. Their selection was based more on their common availability on Illinois farms than on their proven superiority over other minerals, according to the bulletin.

Some distinctly beneficial results might be expected from the feeding of mineral mixtures when they are used with rations that do not contain enough of the feeds like tankage and good pasture, the publication explains.

Results of the experiments do not justify the use of coal in mineral mixtures, according to the bulletin. It does not benefit pigs in any way and giving them free access to it along with any other mineral mixtures cuts down the consumption of the other minerals, according to the publication.

The use of mineral mixtures in producing pigs for the market cannot be recommended when tankage or pasture is included in the ration, in view of the fact that the minerals must be bought at the lowest possible price to be used profitably for this purpose, the authors point out.

While the addition of mineral supplements to a ration of corn, linseed oil meal, middlings and bluegrass pasture has no marked effect on the rate or economy of gains secured, it does produce denser and stronger bone. However, the sows raised on this ration without mineral supplements did not seem to have been particularly handicapped during the production and raising of their first litters nor to have depleted their mineral reserves, as compared with sows on the same ration having access to a mineral mixture, the publication concludes.

-M-

Farm Bureaus in 19th District to Meet

Representatives of eight county farm bureaus in the 19th Congressional District will hold an all-day conference in Champaign, Saturday, June 14, at which time a number of problems bearing on the improvement of farmers' organizations will be discussed. The meeting will get under way at 10 o'clock. Counties which are expected to be represented are Shelby, Moultrie, Coles, Douglas, Champaign, Piatt, Macon and DeWitt.

Peach Tree Injury Not Caused By P.D.B.

Severe winter injury and not para-dichlorobenzene, the chemical control for the peach tree borer, was responsible for the damage to peach trees reported this spring from the Ozark region, according to J. A. Ruth, a member of the horticultural department of the College of Agriculture. Reports of injury, which at first was attributed to the chemical, alarmed fruit growers because of the large number of trees which had been treated with it.

"Due to the successful experimental work in controlling the peach tree borer with para-dichlorobenzene, this insect has been but little feared during the past two or three seasons. Nearly all commercial peach growers in the state are depending on this method for the control of this most serious peach infesting insect and more than a million trees were treated in southern Illinois during the last season. For this reason, reports of injury by this chemical in April, caused considerable alarm because of the large number of trees known to be treated.

"Such reports were confined to the Ozark region. Investigation disclosed that the trouble was severe winter injury. The winter injury also was found at Olney, Centralia and Urbana. There is no doubt that injury to peach trees occurred, in greater or less severity, over the entire state.

"In this type of injury, a part of the wood of the younger shoots is invariably discolored; in fact, the wood of the young shoots seems to be slightly more sensitive than the fruit buds. In more severe cases the wood of the trunk near the ground line is damaged. In still more severe cases much of the wood of the trunk and larger branches and patches of bark near the ground line are damaged. Usually such injury to the bark extends a short distance below the ground line, which is, of course, the reason it was attributed to para-dichlorobenzene. Frequently such patches extend for about the same, or even a greater, distance up the trunk from the ground.

"Injured trees are slow to leaf out, because of the damage to the water-conducting tissues. Except in extreme cases the cambium is uninjured. New wood is usually formed even below large sections of discolored bark, visible in the early part of the growing season as a white strip or sheet between the brown wood and bark.

"The severe cases of injury occurred invariably on trees either in poor condition, that is, old unpruned trees, or in orchards treated in the fall in such a way as to send them into the winter with immature wood. The direct cause was the low temperature of the first week in January, which followed an exceptionally warm December. We have not been on the look out for such injury in past years, and it is possible that it occurs rather often; certainly it occurred during the winter of 1917-1918.

"The experience of the winter is a sharp reminder to the grower of the desirability of giving his orchard such treatment as will promote an early growth, retarded in time to induce maturity."

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Apples Bloom Average of Sixteen Days

Apple blossom time for all varieties grown in Illinois covers an average of about two weeks and two days, according to a new bulletin entitled, "Blooming Periods of Apples", which is ready for distribution at the College of Agriculture. It gives the record of 106 varieties, each having a record of from 10 to 16 years, for the 16-year period 1901 to 1916. The record of each variety for each year includes dates of the first bloom, full bloom and the falling of the petals, together with an estimate of the amount of bloom. Charles S. Crandall, Chief of Plant Breeding in the College Horticultural Department, is author of the publication.

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Vol VII | Urbana, Illinois, June 18, 1924 | No. 25

Advisers Study Progress Of Investigations

More than 200 lines of experiment station work, each bearing on some significant problem in Illinois farming, were reviewed and inspected by approximately 100 farm advisers and assistant advisers of the state during their annual three-day summer conference held at the College of Agriculture last week for the purpose of acquainting them with the latest information on improved farming practices which have been developed by the institution which keeps them supplied with facts. Each line of activity was explained by some member of the station staff, these explanations being supplemented by trips to the college farm where the work of the different departments was further inspected. Eighty-two agronomy, 54 horticultural, 35 animal husbandry, 26 dairying, nine farm mechanics and seven farm organization and management lines of work were discussed during the meeting.

The experiment station of the College of Agriculture cannot afford to become the "Quack Doctor" of Illinois farming and therefore does not speak on any farming problem until it has worked out the facts and can speak with authority, H. .. Mumford, Dean and Director of the College, pointed out to the advisers in explaining the scope of the station's work to them.

Z. M. Smith, state leader of boys' and girls' club work in Indiana, outlined the methods which are followed in advancing club work in that state and George A. Fox, secretary of the Illinois Agricultural Association, explained the activities which that organization has under way.

Home advisers of the state met the first three days of the week to discuss new developments in various lines of home economics extension work with the different extension specialists.

-M-

To Hold Meeting On Poorland Farm June 27

Progress that has been made in the last score or more of years in bringing back what was once "Illinois' poorest farm" through the use of recommended methods of soil treatment and cropping systems will be pointed out to farmers and other interested persons at a meeting to be held June 27 on Poorland Farm, located about seven miles northwest of Salem. The farm was bought more than a score of years ago by Dr. Cyril G. Hopkins, then a member of the agronomy department of the College of Agriculture as the poorest one which he could get to use in a practical demonstration of soil building practices, all of which have since proved their worth. The farm is now owned by Dr. Hopkins' estate, he having died in 1919.

The meeting will be held under auspices of the Hopkins Memorial Association, cooperating with the College of Agriculture. A number of talks by prominent farmers and authorities are being scheduled as added attractions for the meeting.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director*.

Second Club Tour Draws Approximately 700

Total attendance for the second annual Junior Club University Tour held Thursday and Friday of last week at the College of Agriculture was near the 700 mark, a marked increase in the number who attended the first tour in 1923, according to E. I. Pilchard, club work specialist. A final check on the enrollment shows that 447 club members who are enrolled in some definite project registered during the two days of the tour and in addition there were many who did not get their names on record. The attendance was further swelled by a total of 95 local and county leaders who brought delegations of boys and girls for the tour.

Champaign County sent the largest delegation to the meeting, a total of 91 girls, 34 boys and 26 leaders being registered from that county, according to the final figures. McLean County was represented by 31 girls, 26 boys and 10 leaders, while Shelby County had 20 girls, 20 boys and 10 leaders at the event. Twenty other counties also sent delegations, these including Johnson, Vermilion, Bureau, Cook, Coles, DuPage, Hancock, Henry, Knox, Livingston, Macon, Macoupin, Marshall, Peoria, Rock Island, Christian, Ford, Grundy, Sangamon, Putnam and Woodford.

Gene Williams, New Burnside, Johnson County, was made honorary president of the tour at the first session, and Marguerite Mohlenhoff, Galesburg, Knox County honorary secretary. The boys spent most of their time in inspection trips to points of interest on the college farm where short sessions of instruction on different phases of crops, livestock, dairying, poultry, soils and horticulture were conducted by members of the college staff. The girls were busy with team demonstrations on foods, clothing and cooking and with a study of hygiene, house furnishings, clothing and other subjects of interest to them.

One of the features of the two-day tour was a Four-H Supper given for the boys and girls the first night of the event. Dean H. W. Mumford, of the College of Agriculture, and Miss Ruth Wardall, head of the home economics department, were the chief speakers. Leaders of America have been trained on farms, Dean Mumford told the boys and girls in speaking on the subject "Our Farm Boys" and Miss Wardall stressed in her talk on "Our Farm Girls" the influence club work has in creating a desire for the higher ideals and the worth while things in life.

-M-

3,000 Bankers Learn Of Extension Service

Approximately 3,000 Illinois bankers including representatives of practically every bank in the state, were acquainted with the scope and results of agricultural extension work in the state during the recent series of ten group meetings of the Illinois Bankers Association. Dean H. W. Mumford appeared on the program of seven of the meetings and W. H. Smith, state leader of farm advisers, on the program of the remaining three to tell the bankers first-hand about the work and give them some idea of what it is doing toward putting farming on a better basis. Improved farming practices have been established in practically every section of the state and the way paved for more profitable farming as a result of the work, the bankers were told.

-M-

Annual "Open House" In Progress This Week

The annual "Open House" is in progress at the College of Agriculture this week and delegations of farmers and their wives are making their annual inspection and review of the many lines of work which the institution has under way in the interests of better farming.

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Wheat Joint Worm Causing Heavy Damage

The wheat joint worm, an insect pest of wheat second only in importance to the Hessian fly, is more abundant in Illinois this year than for many seasons past and is causing considerable damage to the crop in the southern and western parts of the state, according to W. P. Flint, entomologist of the Natural History Survey at the College of Agriculture. A recent survey of thirteen wheat fields in four southern counties showed that an average of 21 percent of the straw was infested while in some fields as high as 30 percent of the straw had fallen. This will mean a big drop in the yields of grain from such fields, Mr. Flint pointed out. He is urging farmers to practice control measures for this pest, in view of the fact that outbreaks of the insect generally last over several seasons.

Injury to wheat by the joint worm resembles that of the Hessian fly, infested straw often falling when the heads begin to fill, according to Mr. Flint. Unlike the Hessian fly, however, the wheat joint worm works inside the straw. From one to 15 of the little yellowish maggots will be found above the first, second or third joint of the wheat plant where they have formed little hard, knot-like galls. These galls weaken the straw, which is then bent or broken by the weight of the grain in the head. The insect stays inside the straw from one spring to another.

"If wheat in infested fields is cut low, most of the galls will be removed with the straw. This practice should be followed wherever wheat is sown to clover or grass. After the infested straw is removed from the fields and threshed, it should be baled and sold where it will be used in towns or cities. If the straw is kept in stacks on the farm, the maggots of the worm will hibernate in it and produce adults the following spring which will fly to nearby wheat fields.

"If no grass or clover has been sown in the stubble, it is better to cut the grain high and plow the stubble under at least six inches deep sometime during the latter part of the summer or fall. This will prevent the adult joint worm from emerging from the stubble the next spring. The insects may be destroyed by burning infested stubble, but this practice is usually hard to follow, since it is difficult to make a clean job of the burning.

-M-

State Horticultural Tour June 25 and 26

The annual two-day tour of the Illinois State Horticultural Society will be held in Union and Pulaski counties June 25 and 26 with the cooperation of the College of Agriculture and the farm bureaus of those two counties. Prospects for a good fruit crop are bright in that section and the tour has been planned to take in farms where a number of important questions can be investigated and studied according to W. S. Brock, extension horticulturist of the college. The trip will start from Anna at 9:30 o'clock the morning of June 25 and end at Villa Ridge the following day. An evening session will be held the first night of the tour.

-M-

Oats Can Replace Middlings For Porkers

Oats are worth as much in the ration of the fattening hog as wheat middlings and can take the place of this rather high priced supplement in pork production, according to R. J. Laible, a member of the animal husbandry department of the College of Agriculture. Tests made by the experiment station show that one pound of good oats is equal to one pound of wheat middlings in feeding value.

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

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Vol VII | Urbana, Illinois, June 25, 1924 | No. 26

Twenty Counties Send "Open House" Visitors

Facts on what the College of Agriculture is doing toward working out improved practices in every line of farming that is important in Illinois were given out first-hand to approximately 1,000 farmers, farmers' wives and other interested persons from 20 counties of the state who attended "Open House" at the College last week. Because of the late season many farmers were forced to take advantage of the good weather of the week in getting delayed work done, and this made a heavy cut in the attendance. However, word has been received from a number of counties that delegations of farmers from them will visit the institution later in the summer.

Edgar County's delegation was the largest one which visited here during the week, approximately 200 visitors having come from that locality under the leadership of Farm Adviser Enos Waters. Vermilion, Piatt and Macon were other counties which had large groups here during the week. Other counties represented were Iroquois, Moultrie, Douglas, Lee, Fayette, Logan, Livingston, Coles, Tazewell, Woodford, Stark, Ford, Kankakee, McLean, Morgan and Champaign.

The seven-mile trip over the thousand acres of the college plant was so planned that by the end of the tour visitors had a well rounded idea of the progress being made in the college feed lots, orchards, laboratories, experimental plots and fields in the interests of better farming. In most cases the purebred herds were inspected in the morning and the afternoon given over largely to an inspection of the agronomy plots and horticultural work.

One of the striking things brought out during the inspection of the purebred herds was the opportunities now open to the farmer in the purebred business. Two Shorthorn, two Hereford and two Aberdeen Angus cows, all bought at recent sales for an average of about $144 each, were exhibited as evidence that the farmer can now buy purebred breeding stock at prices only a little above what the animals would bring as beef. By taking advantage of such prices farmers can raise quality market beef in an economical way and at the same time get started in the purebred business, thereby preparing themselves at low cost, for the time when price levels in the industry take an upward trend, it was pointed out. The Morrow and Davenport soil plots, as in former years, are among the chief centers of attraction for the visitors of the week, but the many other things of interest in the work of the college came in for a full share of attention.

-M-

Clinton Limestone Users Get Recognition

Forty-five Clinton County farmers have had their names posted on a chart in the local farm bureau office as "Modern Pioneers in Agriculture" in recognition of the lead which they have taken in soil improvement. Each of them has given all of the cultivated upland on his farm a liberal application of limestone. The total amount of limestone used on the 45 farms is estimated by Farm Adviser Charles Rehling to be about 21,500 tons. The limestone was applied at the rate of between three and four tons an acre. All of the 45 farmers are now able to grow clover in any field on their farms.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

State Fair Posts $4,000 for Junior Prizes

Premiums totaling $4,000 this year are being offered by the Illinois State Fair in its junior department for club and school exhibits, according to W. H. Smith, state leader of farm advisers and superintendent of the department. He is urging that members of boys' and girls' clubs as well as students in vocational agriculture make a special effort to attend the fair this year.

The junior department of the fair aims to give all boys and girls of junior age a chance to show the products which they have produced on the farm and to demonstrate their skill in the various activities of the farm. To this end, classes are provided in which juniors may exhibit live stock and other farm and home products, while provision also has been made for team demonstration work. Approximately 1,000 different exhibits from the various county clubs and schools thruout the state last year were displayed in the junior department. A feature of this year's exhibits will be the county displays representing the junior club work of the various counties.

Officials of the fair this year again intend to provide free grounds where children making exhibits can enjoy a week of camping and at the same time attend the fair, Mr. Smith said. Last year nearly 200 boys and girls took advantage of the camp and were able to pay all their expenses at the fair with their winnings on exhibits and by taking part in the demonstration team contests.

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400 Boys Compete in State Judging Contest

More than 400 boys from approximately 110 high schools of the state were on hand at the College of Agriculture Monday morning for the opening of the state judging contest for vocational agricultural students. The contest, which lasts for two days, is the first of three events scheduled at the college for vocational agriculture teachers and students. The judging contest will be followed by a three-day conference of 150 vocational agriculture teachers of the state and approximately 15 newly appointed teachers. From June 28 until July 3 the college will give a short course in a variety of farm subjects for the benefit of the teachers. Approximately 110 of them have signified their intention of enrolling for the course.

Live stock, poultry, and grain judging teams are competing in the judging contest. The conference of the teachers, the second event on the program, will be given over to a discussion of the vocational agriculture teacher's work. One of the features of this meeting will be an address by Paul Chapman, state supervisor of agricultural education, Atlanta, Georgia. Agronomy, dairying, farm mechanics, horticulture and marketing will come in for attention during the short course to be given by the college.

-M-

Oct. 1, Illinois Day at National Dairy Show

Wednesday, October 1, will be Illinois Day at the National Dairy Show to be held in Milwaukee, Wisconsin, September 27 to October 4, and already delegations from a large number of counties in the state are planning to attend, according to dairymen at the College of Agriculture. Reduced rates will be granted on all railroads and excursions run from Chicago, while Milwaukee is within driving distance of Chicago for those who wish to make the trip by auto. The show is recognized as the greatest dairy exhibition of the year and as in the past will give farmers and dairymen an opportunity to secure a fund of valuable information about the dairy industry.

Farm Feeds Can Furnish Needed Vitamins

Farm feeds, if carefully selected, will take care of all the vitamin requirements of farm animals, and with one or two possible exceptions the stock feeder need not spend money buying commercial vitamin condiments, according to a new circular, "Vitamins in Live Stock Feeding," which has just been published by the Experiment Station of the College of Agriculture, University of Illinois and is now ready for free distribution to interested persons. As far as vitamins are concerned, animals that get plenty of fresh, green roughage or well cured hays and are exposed to direct sunlight probably will never be undernourished, the new circular says.

The circular was prepared by H. H. Mitchell, associate in animal nutrition at the college, and M. Helen Keith, assistant in that division. It is designed to give general information about the nature and distribution of vitamins and outline recommendations for the balancing of farm rations with respect to them.

"The study of vitamins is so recent and information concerning them is so incomplete that the popular attitude toward the whole subject ranges from outright disbelief that such factors exist at all to the idea that all food nutrients are of secondary importance to vitamins," the authors point out.

It is true that if animals do not have enough vitamins they become unthrifty and show signs of indigestion, loss of appetite, nervous disorders and sterility, or definite diseases, such as rickets and paralysis, the circular explains. On the other hand, some commercial concerns have fostered the idea that vitamins are of first importance in nutrition and that the benefits from them may be indefinitely increased by increasing the amount fed, it added. Various commercial preparations supposed to be high in one or all of the vitamins have been put on the market and their use urged, the claim even being made that the human race, and probably animals as well, may be almost miraculously cured of many obscure ailments by the eating of vitamins, according to the circular.

"Hogs, and more particularly poultry, may under certain conditions become unthrifty and diseased, because of a deficiency of vitamins in their rations. In most cases, such conditions may be corrected by a more careful selection of natural feeds and by allowing free access to direct sunlight. Sunlight filtered thru glass is not effective. Commercial vitamin preparations are not needed if such measures can be taken."

-M-

Kane Herd Takes May Production Honors

Honors for May milk and butterfat production among the 9,000 or more cows in the 21 county cow testing associations of Illinois went to a herd of 14 purebred Holsteins owned by C. E. Warford and Son, Maple Park, Kane County, according to records announced by dairy extension workers of the College of Agriculture, who have charge of the cow testing association work in the state. The Warford herd not only made the highest herd record for the state for the month, but also contained the highest producing individual cow for the month. Each cow averaged 56 pounds of butterfat and 1,470 pounds of milk during May, while one cow, the highest producer for the month, made 102.2 pounds of fat and 2,762 pounds of milk.

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Vol. VII Urbana, Illinois, July 2, 1924 No. 27.

First Conference for Rural Pastors July 7

Rural pastors of all denominations, farm and home advisers and vocational agriculture teachers in 25 central Illinois counties, as well as any other persons who may be interested in the meeting, have been invited to attend a rural pastors agricultural conference which the College of Agriculture will hold July 7 at Camp Seymour, ten miles southeast of Decatur. The conference, which is the first of its kind to be held in the state, is designed to promote cooperation between farm and home advisers, farm and home bureaus, rural pastors and rural churches, teachers of vocational agriculture and the rural schools.

In announcing the meeting, Dean H. W. Mumford, of the College of Agriculture said, "This conference has been arranged because of the conviction that intelligent and cordial cooperation between the workers and the institutions it is designed to reach may profoundly affect the economic, social and religious life of farmers."

Those attending the conference will be welcomed at 10 o'clock by Boyd H. Walker, Director of Camp Seymour. The response to the welcome will be given by Dean Mumford. E. W. Rusk, Farm Adviser of Macoupin County, will speak at 10:45 o'clock on the subject, "The Farm Adviser and the Rural Church", after which the morning program will be concluded with a discussion of boys' and girls' club work by E. I. Pilchard and Miss Nathalie Vasold, specialists in club work at the College of Agriculture.

The afternoon program will be opened at 1:15 o'clock with an address by Dr. R. E. Hieronymous, Community Adviser, University of Illinois, on the subject, "The Rural Church and the Life of the Community". Following thistalk the Rev. J. H. Singleton, Shiloh Church, Champaign County, will speak on the subject, "The Rural Church in Cooperation with the Farmer".

The relation of teachers of vocational agriculture to the rural church and the farmer will be discussed by G. W. Sutton, principal of the community high school, Monticello.

The program for the day will be concluded with an address by A. H. Thompson, President of the Illinois Agricultural Association, Chicago, on the subject, "The Interest of the Rural Church in Farmers' Organizations".

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McLean Team Takes State Honors in Judging

Three McLean County boys, Clark Bowan, Curtis Crabb and Earl Schneckenburger, all vocational agriculture pupils in the Chenoa high school, took first honors in the recent state judging contest held at the College of Agriculture for high school pupils when they won the state team championship in the fat stock division of the contest. The team will represent Illinois in the non-collegiate judging contest at the coming Chicago International Livestock Exposition. Westel Johnson of Sandwich, DeKalb County, took high individual honors of the contest by making the highest score in the fat stock division.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director.*

Records Show Many Farms Not Paying 2 Per Cent

Eleven Gallatin County farmers who last year kept records in the simple farm account book prepared by the Farm Organization and Management Department of the College of Agriculture obtained returns that averaged only 1.65 per cent on average investments of $25,256 or about $416, according to a summary of the records which has just been made by M. L. Mosher, a member of the department.

The returns which they obtained, aside from the value of the living which they secured from their farms, lacked $375 of paying them five per cent on their investment, not to mention wages for their labor. Had the eleven farmers been compelled to pay out interest on borrowed money or cash rent equal to five per cent on their investment in land, buildings, machinery and equipment it would have been necessary for them to have borrowed an average of $375 each in addition to the money they would have needed for the cash living expenses of their families.

Some of the farmers who watched all the corners and handled their business on a well balanced basis, were able to make their farms pay a small return for labor and management over and above five per cent interest and what their farms furnished in the way of living. Four farmers, for instance, received an average net return of $626 each in addition to five per cent on their total investment and the living in the form of milk, butter, eggs, fruit and vegetables which they secured from their farms.

However, these were the four most profitable farms of the eleven. While they each returned a labor and management wage of $626 a farm, four other farms in the group payed their owners nothing for labor and lacked $828 of paying enough to meet five per cent interest on the capital invested in them. This amounted to a difference of $1,454 on the average in the returns from the four best farms and the returns from the four that paid the lowest return. This difference was due largely to the way the farms were managed and not to accident.

Each of these eleven farmers recently was visited by Farm Adviser C. W. Simpson and a representative of the Agricultural College at which time the various factors which determine the success or failure of the farm business were studied and the strong and weak points of each man's business pointed out to him.

- M -

150 Study Soil Improvement on Poorland Farm

"No one has stirred the people more to an appreciation of soil building and saving and no one has done more to work out the principles underlying this building and saving than Dr. Cyril G. Hopkins". This tribute to the deceased owner of Poorland farm and member of the Agronomy Department of the College of Agriculture was paid by Dean H. W. Mumford, of the College, during the all-day meeting held on the farm June 27 through cooperation of the College, the Hopkins Memorial Association and the Illinois Farmers' Institute. Approximately 150 people attended the meeting to study the methods that have put it back on a paying basis after it had been allowed to become the poorest one in southern Illinois, if not in the entire state.

Those who attended the recent meeting on the farm spent the morning inspecting the various crops and fields and after a picnic dinner a number of talks were given by members of the College staff and other speakers. The opening address was made by Dean Mumford; C. E. Hopkins, assistant farm adviser of Livingston County and a brother of Dr. Hopkins, gave a history of the farm; Dr. W. L. Burlison, head of the Agronomy Department, spoke on the soil investigations which the College has under way and F. C. Bauer, chief of the institution's soil experiment fields, outlined the details of the Hopkins system of soil improvement.

Variety of Crops Can Supplement Short Bluegrass

Blue grass, which is the principal pasture crop in Illinois, makes an abundant growth during the spring and early summer, and usually during the fall months. There is, however, a period during the hot, dry part of summer, usually from about the middle of July to the first of September, when little or no growth is made. This time may in case of an exceptionally dry summer and fall be extended from late June to nearly winter, making the carrying capacity of the pasture uncertain. Supplying a supplement at this time insures the stock against injury from the lack of feed, and the pasture from injury from too close grazing. This supplement may be most cheaply supplied in the form of additional pasture crops, soiling crops which are cut and fed in the pasture, or by the use of silage. As a rule, grain will prove too expensive for breeding and stocker cattle.

Pasture crops which are good at a time when blue grass is making little growt may be used for this purpose. Sweet clover sown alone in the spring or the second growth of alfalfa, furnishes much feed at this time. The use of corn, legumes and grass crops cut and fed in the pasture are satisfactory. Corn silage which has been carried over from the previous winter makes one of the best and cheapest feeds for this purpose. The use of these foods should be started some time before the grass is entirely gone. Otherwise, injury to the pasture will not be prevented and the animals will be deprived of the benefit of grass for sometime. Such a system has several distinct advantages, some of which are as follows:

1.- Prevents loss of weight on livestock and stunting of young animals as well as decreased milk flow from the females.

2.- Makes it possible to regulate the feed according to the needs of the animal regardless of the season.

3.- Increases the yield of the land in pasture by preventing too close grazing.

4.- Increases the number of animals which may be carried on a given area or decreases the acreage necessary for a given number of animals as the case may be.

5.- will usually be cheaper than supplying additional areas of blue grass when only high priced land is available.

This practice is particularly suitable for sections where there is not an abundance of cheap land which may be used only as pasture. Where there is little or no such land increased growth or production from the animals at a lower cost may be expected from the use of such methods. - J. H. Knox, Animal Husbandry Department, College of Agriculture, U. of I.

- M -

70 Vocational Teachers Take Short Course

Approximately 70 vocational agriculture teachers are enrolled in a school being held for them this week by the College of Agriculture. Courses are being offered in agronomy, dairy, farm mechanics, horticulture and marketing.

- M -

The acreage of soybeans in Franklin County this year will be five times larger than that of 1923, according to a report of Farm Adviser H. A. deJerff, who reports that there will be more than 1,000 acres of beans grown for hay and about as many more grown with corn.

15. Question of Increasing Milk Export Quotas

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Rural Church and Agriculture Brought Closer Together

What is believed to be one of the most far reaching steps that has ever been taken to get rural churches of Illinois more closely allied with agricultural extension work and other constructive farm movements was made with the holding of an agricultural conference for central Illinois rural pastors on Monday of this week at Camp Seymour, ten miles southeast of Decatur. The meeting, the first of its kind that has ever been held in the state, was called by the College of Agriculture to promote cooperation between farm and home advisers, farm and home bureaus, rural pastors and rural churches, teachers of vocational agriculture and rural schools. Thirty-six pastors from 12 Illinois counties and two other states, nine farm advisers, five home advisers, 12 teachers, one county superintendent of schools and 24 farmers and their wives attended the meeting. At the close of the session those who attended passed a motion thanking the College for the conference and asking that a similar one be held next year.

In the opening talk of the conference Dean H. W. Mumford traced the development of agricultural colleges and mapped out the work which the Illinois institution is doing through its experiment station and extension service. He pointed out that improved farming practices are being carried into practically every section of the state through the work of the institution which, he explained, aims to teach the farmer to help himself rather than rely on uncertain legislative relief. He contradicted the opinion that little progress is being made in agriculture by citing a number of significant instances to show that the farmer gradually but surely is adopting improved practices, thereby putting his business on a better basis and improving his condition.

The feature contribution of the conference from the rural church side came from Father George Nell, pastor of a parish of about 112 people 17 miles from Effingham. His story of how a small country church is playing a leading role in improved farming by getting behind farm bureau and agricultural extension movements was a revelation to many of those at the meeting and resulted in a pointed discussion. Much of the success of the church in changing the attitude of the community on farming practices is attributed by Father Nell to the fact that the interest and attention of farmers in the district is concentrated on one thing. First it was a limestone movement that resulted in 52 cars of limestone being shipped into the county on one order; then it was a dairy movement that put profitable cows on many farms and brought two purebred Holstein bulls into the parish as community sires, and a little later it was a movement for more legumes and a consequent increase in the acreage of soybeans. Farm Adviser F. W. Wascher of Effingham County, has had an important part in making the recommendations for improved farming that have been carried out by the church.

Other speakers of the conference were Boyd H. Walker, Director of Camp Seymour; E. W. Rusk, Farm Adviser of Macoupin County; Miss Anna Searl, Home Adviser of Livingston County; Miss Nathalie Vasold and E. I. Pilchard, club work specialists of the College, the Rev. J. H. Singleton of the Shiloh Church, Champaign County; Dr. R. E. Hieronymus, University Community Adviser; and G. W. Sutton, Principal of the Monticello Community High School.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director.*

High Producing Cows Pay Owners $217 Above Feed Cost

Farmers in southern Illinois, as well as in other sections of the state, can count on high producing cows to do their share toward making dairying profitable according to records of the Franklin-Jefferson-Marion Cow Testing Association which has just finished a year of tests on 347 cows belonging to farmers in that section of the state. A study of the records made by H. E. Jamison, Assistant in Dairy Extension at the College of Agriculture, shows that the best cows in the association - those that made more than 10,000 pounds of milk during the year - returned their owners $217.55 each above feed costs. There were 41 cows in the association in this class.

In contrast to this return, the poor cows - those that made less than 4,000 pounds of milk in the year - returned their owners only $36.03 above feed cost. There were 43 cows of this type in the association. The average return above feed costs for all cows in the association was $114.72, according to the records of L. J. Hager, tester of the association. The average production of all the cows in the association was 6,611 pounds of milk and 271.3 pounds of butterfat at an average feed cost of $76.45 a cow.

Butterfat was produced as low as only 18 cents a pound by a herd of 12 Jerseys belonging to W. S. Lacey. This was made possible by the feeding of a home grown ration according to the individual production of the cows and by the use of sweet clover pasture in the summer. The highest cost for butterfat in any herd was 62 cents a pound. This herd was fed in the barn the entire year and the cows fed liberally regardless of their needs as shown by their production records.

- K -

Cost Farmers $8.71 a Hundred to Produce Pork in 1923

More than 161,360 pounds of pork produced last year on 14 Champaign and Piatt County farms cost $8.71 a hundred, which was $1.24 a hundred less than it sold for, according to records kept by the 14 farmers in cooperation with the Farm Organization and Management Department of the College of Agriculture. The records are fairly representative for a large number of farms in central Illinois, according to R. C. Ross, a member of the department who summarized them. The average loss of $1.24 a hundred pounds was attributed to the relatively high price of corn in comparison with that of hogs.

Even with the relation of corn and hog prices unfavorable for profits, two of the 14 farmers kept their costs of producing pork below the average selling price of $7.47 a hundred pounds and made a profit. The costs of one of these farmers for pork production amounted to $6.53 a hundred, leaving him a profit of 94 cents a hundred, while the costs in the second case totaled $7.21 a hundred, leaving a profit of 26 cents a hundred pounds. These two farmers were able to produce pork at a profit largely because they fed and handled their hogs economically, they produced pork on a large enough scale so that they could use man labor efficiently and they kept miscellaneous costs low, according to Mr. Ross.

Feed took up nearly 76 percent of the total cost of producing pork, or $6.59 a hundred, man labor 80 cents, horse labor 10 cents, general farm expense 47 cents, interest 27 cents, buildings and equipment 21 cents and miscellaneous items, including veterinary charges, 27 cents. As compared with the costs on the same farms in 1922, these figures represent an increase of $1.80 in the feed bill and 20 cents for man labor. Otherwise there is only slight variation in the items of cost. The price level for 1923 was $1.65 a hundred pounds below that for 1922.

New Life Added to the Strawberry Patch by Renovation

The best time to renovate the strawberry patch is in early summer, immediately after the bed is through fruiting. The crop the following year will be directly proportional to the number and vigor of the new plant crowns laid down after renovation. It is wise, therefore, to renovate early in order that the new plants may have the benefit of a long growing season.

The number of crops to be taken from the strawberry bed depends upon the variety grown and the condition of the bed at the end of the first picking season, as regards soil fertility and the presence of weeds. If the soil is of average fertility, a variety like Dunlap is being grown, and good care has been given the bed during the first fruiting season, it will usually pay to renovate it, thus securing another good crop for the next year.

The chief purpose of this renovation or renewal is to thin out the older, unproductive plants in the rows and give those that remain the opportunity to produce new matted rows of vigorous, healthy plants by the formation of runners.

As soon as the last picking of berries is completed the plants are clipped off with a sickle, or in large commercial beds they may be mowed off with a machine. After the leaves have been allowed to dry the bed is burned over, on a windy day, preferably after a rain when the ground is moist. If there is no wind and the plant-crowns are dry, a slow fire may injure them. If the foliage was heavy it will be safer to rake at least part of it to the middles before burning. These operations eliminate many diseases and insect pests, helping materially in holding strawberry leaf roller and leaf spot in check. These pests were especially troublesome in some sections of Illinois this year.

The next step is to thin out the surplus plants. This is done either with a hoe or plow, depending upon the size of the bed. If a hoe is used, as in a small bed, the surplus plants are cut away, narrowing down the rows and leaving a vigorous young plant about every ten inches in the row. A coat of well-rotted manure spread on and cultivated in with the soil around the remaining plants which have been well-hoed, will soon induce new runners to start. This is also the best time to apply a thin coat of nitrate of soda, especially if manure is not available, unless the soil is sufficiently fertile. With good cultural methods continuing throughout the season, a new matted row will be formed by the end of this time, capable of producing a larger crop than was produced the first fruiting season.

In a large plantation, either a disc or a turning plow is used to narrow down the original matted row. If the plow is used, furrows are plowed from each side of each row until a strip of plants about six inches wide is left in the center of the row. The middle space between the rows is then cultivated with a spike-toothed cultivator and the ridges smoothed down with a planker, drawing fresh soil in around the narrow strip of young plants. A spike-toothed harrow may be run across the patch with the teeth set with a back slant, so as not to tear out too many plants. The plantation is then gone over with a hoe to cut out surplus plants. As was the case during the previous seasons, good cultivation should be practiced from this time on. - A. S. Colby, Associate Chief of Pomology, College of Agricultur, U. of I.

- M -

There are now 20 cow testing associations in Illinois that are testing more than 9,000 cows on 600 farms every month, according to dairymen at the College of Agriculture.

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Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Whiteside Dairy Judging Team Wins International Contest

Three Whiteside County boys' club members, who compose the junior championship dairy cattle judging team of the United States, last week added to their laurels by winning the international contest in England and bringing the gold cup offered by the London Daily Mail to this country. The three team members are Harold Gaulrapp of Rock Falls, and Donald Williams and Elwyn Folkers, both of Sterling. They were coached and trained by C. S. Rhode, Dairy Extension Specialist of the College of Agriculture and L. O. Wise, Whiteside County Farm Adviser, both of whom accompanied the young judges on the trip.

Details of their victory have not yet been received by club workers of the College. A cablegram from Mr. Rhode brought the news that they had won and a London dispatch was to the effect that they had defeated the English team by 96 points, but aside from this no details of the winning are available. The contest, which was sponsored by the Daily Mail, took the competing teams to some of the most prominent herds and flocks in England. The awards were announced at the Royal Agricultural Show held at Leicester.

The Whiteside County team won the right to represent the United States in the international contest by defeating 20 other teams for first honors in the junior judging contest at the National Dairy Show last October. It previously had won the right to represent Illinois in the United States contest by winning the state championship at the Aurora Fair last fall.

The team sailed from Montreal June 7 after a visit in Chicago and Washington and will return to the United States in early August. A visit to the Royal Agricultural Show is on the schedule and before returning the quintet will visit some of the prominent breeding establishments in England, Scotland, the islands of Guernsey and Jersey, Switzerland, Holland and Denmark. Mr. Rhode will make a study of dairy marketing in Denmark and will investigate various dairy conditions in other countries before returning. He also will attend a dairy cattle breeders meeting in Edinburgh. The expenses of the team and its coaches are being paid by dairy manufacturers, breeders, individuals and other interested concerns.

The victory of the three club members in the international contest should add considerably to the start which they already have in the dairy cattle business. All three are members of the dairy calf club project outlined by the Agricultural College and developed in Whiteside County by Farm Adviser Wise.

Steps already have been taken to enter an Illinois team in the national junior dairy cattle judging contest again this year in an attempt to repeat the feat of the Whiteside County team, according to E. I. Pilchard, Club Work Specialist of the College. Funds have been provided whereby the team which wins the state championship can be sent to the National Dairy Show to be held in Milwaukee, Wisconsin September 27 to October 4 to compete with teams from other states for the 1924 championship of the United States.

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Farm Earnings Fail to Pay Farmers 5 Percent on Capital

Two hundred thirty-three farm records kept last year in 11 counties in representative parts of the state by farmers who cooperated with the College of Agriculture and their county farm bureaus show that the earnings on these farms dropped to such a low level that each of the farmers lacked an average of $12 of getting anything for his labor and management after five percent interest on a conservative valuation of his land, livestock and equipment was deducted. The generally recognized fact that farmers are going through a severe depression is confirmed by a summary of the records, according to H. C. M. Case, Head of the Farm Organization and Management Department of the College.

Expressed in another way the earnings of the 233 farmers were such that even if they were allowed labor wages comparable to a hired man's wages they still made only 3.47 percent on their investment to pay them for the use of their capital and their managing ability, he explained. Farmers are entitled to more than a hired man's wages since their ability as managers should be rewarded, he added.

Those who kept the records were farmers who were willing to keep good farm accounts throughout the year and their earnings probably are better than those of the average farmer in the state, Mr. Case pointed out. The records were kept in Hancock, Kane, JoDaviess, McDonough, Woodford, Ford, Jersey, Clinton, Monroe, Wabash and Gallatin counties.

"Despite the fact that the average earning of the 233 farmers was extremely low there is some encouragement for the farmer in a study of the records and the returns obtained by the different farmers. For one thing the 78 most profitable farms in the group each made $1,997 more than the 78 least profitable farms. This difference of almost $2,000 in the earnings of the most and the least successful farmers measures the difference between success and failure on many Illinois farms. A study of the differencesin the farm earnings and the factors causing the differences shows that it is worth while for farmers to study their farm business operations in a thorough and business like manner."

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Maggots One of the Worst Enemies of Sheep During Summer

Maggots are one of the worst enemies of sheep in summer, according to W. G. Kammlade, Assistant Chief of Sheep Husbandry at the College of Agriculture. These maggots are the larvae of flies which lay their eggs in the wool when it is dirty and in most cases these pests are found on the hind quarters of the sheep where filth attracts the flies. They can be eradicated by clipping off the wool and applying turpentine or some sheep dip. Maggots may cause the death of sheep if the flock is not inspected at least once each week in summer.

Inspecting the flock to see that there are no infestations or injuries among the sheep is one of the essentials of sheep raising in summer. Others are pasture, shade, water and salt. Lambs should be weaned when about four months old and the ewes given a chance to gain weight before next breeding season.

"Experienced sheepmen do not neglect their flocks in summer. Even though the management of sheep in summer is really not difficult, there are some things which must not be neglected. Those men who have raised early lambs and have marketed them have taken a big step in simplifying the summer management of their flocks."

Basket Racks Save 20 Percent of the Labor of Threshing

Farmers can save close to one-fifth of all the labor connected with threshing by using basket racks to haul the grain from the field, thereby doing away with the extra men usually needed in the field to pitch the bundles, according to Emil Rauchenstein, a member of the Farm Organization and management Department of the College of Agriculture. A survey made by the College on 134 farms shows that 28 percent of the labor used in getting the grain from the field to the threshing machine can be saved by the use of these basket racks. However, the rest of the operations were not affected by them so that the saving in labor for the whole operation of threshing amounted to 20 percent.

Ninety-seven of the 134 farms used field pitchers and on these farms the threshing crews averaged six field pitchers, 9.6 bundle haulers, six grain haulers, and two other workers, making a total average crew of 23.6 men for the large threshing machines. On farms with the same size machines where basket racks were used the average crew consisted of 11 bundle haulers, six grain haulers and two other workers, or 19 men in all, compared with 23.6 men where no basket racks were used. Threshing was done at the same rate on farms where the field pitchers were used and on those where the basket racks were used. Farmers who had just made the change to the basket racks said that this method of threshing was less tiresome than when field pitchers were used.

Basket racks, which came into quite general use during the war, are similar to the ordinary bundle wagon, with the exception that a slatted, box-like frame about three feet high is set on the bed, making it possible for each driver to pitch on his own load. In some cases the ends and only a portion of the sides at the back and front of the bed are slatted, the slats on the side being placed at an angle to join the end slats and the side of the bed.

- M -

American Farmer Leads in the Use of Power and Machines

Farming leads all industries as a user of power and in turn the American farmer has more power and machinery at his command than the farmer of any other country, according to E. A. Lehmann, Head of the Farm Mechanics Department of the College of Agriculture. Most of the machines of production for the farm have been developed during the last 75 years and in that time the farmer has changed from "the man with a hoe" to a user of power and a large scale producer. The last 25 years especially have seen a marked increase in the use of machinery and mechanical power on the farm. Thisincrease in the use of power has increased the farmer's efficiency in production many times. Although there has been an increase of about four percent in the number of farmers, production has increased from 35 to 68 percent in the principal farm products during the 25 years just passed.

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Essex County, Ontario, Farmers to Visit College Next Month

A delegation of approximately 100 Essex County, Ontario, farmers and their wives, headed by Justin Miller, agricultural representative of that county, will make an auto excursion to the College of Agriculture and other points of interest in this state during the week of August 17, according to word received at the College from Mr. Miller. The visitors plan to arrive at Gary, Indiana, August 19 and return to South Bend, Indiana, August 22. While in Illinois the delegation plans to inspect the work of the Agricultural College and visit prominent grain, dairy and livestock farms along its route.

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Mistakes of Inflated Period Not All Made by Farmers

Farming suffered first and apparently the most of all industries from post-war deflation, but indications now point to a slowing up in all lines of business and a consequent return of the farmer's dollar to its full buying power, Dean H. W. Mumford of the College of Agriculture told members of the Montana Bankers' Association in addressing them last Friday at their annual convention held at Bozeman.

Banks can help in restoring agriculture to a healthy condition by giving their moral support to farmers' organizations and agricultural educational projects, and particularly by extending their interest in the farmer's welfare beyond the mere safety of a loan, he said.

"Farmers and bankers of the Northwest must not get the notion that they are the only people in distress", he continued. "The cloud of agricultural depression may have settled lower and become more threatening in this district than in the corn belt, and some other sections, but no one familiar with the facts can deny that the depression has been widespread. If we are to judge the future outlook by similar depressions of the past we must necessarily conclude that recovery will not be rapid."

The mistakes which were quite commonly made and which have been characteristic of all periods of depression were not confined to farmers alone, but were common to men in all lines of business, he pointed out in continuing. It so happened that agriculture was hit first, he explained, and then added that as soon as depression comes in other lines of business, the farmer's dollar will be restored to something like its normal purchasing power and the condition of agriculture will be improved. The far reaching effect of this slowing up or depression in other lines of business can only be guessed at the present time, he said.

"Not all troubles of farmers are due to mistakes made during the inflated period. The burden has by no means been light on those whose mistakes were negligible. However, there is no known way to escape the serious effects of a post-war period and the sooner we make up our minds to adjust ourselves to this fact and its inescapable consequences, the sooner we will start to make the future of agriculture more satisfactory.

"I do not mean to infer that nothing can be done to help or that time alone will solve agricultural or industrial ills. We can profit by the experiences of the past with reference to the utilization of land, the marketing of our farm products, the better understanding of the safe use of credit, the curbing of public expenditures and its inevitable accompaniment of increased tax burdens, the better organization of farming on individual farms and closer cooperation among farmers themselves in production and marketing."

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Sixty percent of the agricultural production of Illinois and an equal percentage of the value of farm land and buildings in the state is in the hands of men who do not own the land they operate. This makes tenancy a big problem and calls for careful attention to the farm lease.

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The Extension Messenger

Disorder and Bad Tools Hamper Farmer in Work Shop

Hundreds of shops on Illinois farms are sadly lacking in arrangement, condition of tools and general tidiness, according to A. L. Young, a member of the Farm Mechanics Department of the College of Agriculture. Admitting that work done in the shop - provided judgment is used in determining what to do and when to do it - can be made as profitable as other work done on the farm, it would seem well to keep the shop in shape so that necessary work can be done quickly and well, he said.

"The best size and arrangement of the shop for a given farm and the tools that should be included in the equipment of it will naturally vary considerably with the farm and the man or men who are going to use the shop. There are,however, certain things that every farmer can do to make his shop more usable and therefore a better investment.

"Insofar as possible everything should be kept off the floor and the work bench. Things in the shop should be hung on the wall or the ceiling or kept stored on shelves or in drawers. The floor naturally is the dirtiest place in the shop and therefore should be the part most easily cleaned. A floor so littered as to make a thorough sweeping impossible gives the whole shop a messy appearance.

"Junk piles should be avoided, especially under work benches. Scrap pieces often can be used, it is true, but not unless their owner knows where they are and that usually means having them where they can be seen. To some extent scrap material can be sorted and stored as bolts, nuts, etc., but the main thing is to store it so that the various pieces can be seen. It is well to have a small box for scrap that is to be thrown away or sold as junk, but this box should be cleaned out occasionally.

"It should be remembered that most of the tools in the shop have a cutting edge and that no such tool can do good work long if it is abused either while in use or when idle. The cutting edge of some tools, files for instance, is abused more when the tools are not in use than whey they are. Tools with delicate cutting edges should not be stored loosely in drawers or on shelves with other tools. A little care in this respect, together with an effort to prevent rusting, will greatly lessen the amount of labor necessary in keeping tools in good working order.

"All tools in the shop should be kept sharp. It is all the more necessary for persons who do not have a great deal of talent or liking for mechanical work to keep their tools in good shape, inasmuch as dull tools mean the use of more time and energy. Knowing how to keep tools in good working order is almost as important as knowing how to use them, and in part at least this work should be done by the farmer himself and not all left for the professional mechanic."

-- M -

Special Care Needed in Sowing Orchard Cover Crops

Special care is needed in sowing the cover crop in the orchard, as the ground usually is dry when crops of this kind are planted, according to F. E. Carver, a member of the Horticultural Department of the College of Agriculture. The soil should be disked well and preferably worked down with a harrow or drag, after which the seed may either be broadcasted or drilled. Care should be taken to see that the cross rows are seeded down and that the seed is sown over the entire middle between the trees. The exact time of sowing will vary with the kind of orchard and with the cover crop that is used. Cowpeas, one of the most common crops used, are planted in apple orchards about the middle of July. In peach orchards bearing a good crop the planting should be delayed as long as possible and an extra cultivation given. If the cover crop can be planted just before a rain it will germinate much better and, of course, make a better stand.

Inbreeding Corn Aids in Eliminating Weak, Poor Types

Inbreeding is a method of breeding which has for its object the intensification of the characters in the stock. The method has been used for a long time by animal breeders and usually with good results, but in plant breeding, particularly with certain crops, as corn, it has come into prominence only within recent years. Inbreeding signifies close relationship. It is opposed to out-crossing or out-breeding. There are various degrees of inbreeding. In animals, inbreeding may be carried on to a very slight extent. In plants which are capable of self-fertilization there is the closest kind of inbreeding. Between these extremes there are all possible degrees.

In the mind of the man who works with corn the term inbreeding is associated with effects which are largely injurious. The reason for this probably lies in the fact that such effects are so noticeable in the corn plant following self-fertilization. Corn is normally cross-fertilized. Nature has various ways of encouraging crossing in this plant, such as the separation of tassels (male) from silks (female), the difference in time of maturity of pollen and silks on the same plant, and the fact that the pollen is so effectively scattered about the field by the wind. It appears, then, that nature favors crossing rather than inbreeding for the corn plant.

But the effects of inbreeding are not all bad even in corn. Some good results come from this method. Self-fertilization brings to light evidences of defective germplasm in the appearance of weak types, albinos, striped plants and plants with rolled leaves, weak root systems, and predisposition to smut and other diseases. Such characters are usually covered up as a result of crossing under field conditions so that they do not appear. So long as crossing takes place naturally and without interference in corn, these defectives would be carried along indefinitely in a hybrid condition and would probably never be entirely eliminated. By inbreeding, however, the elimination of undesirable types can be easily and quickly accomplished.

A very common effect of inbreeding in corn is a reduction in vigor and productiveness. Of course the appearance of such abnormalities as were enumerated above contributes to this reduction. However, the whole reduction cannot be accounted for in this way, for even after these weak types are eliminated there is still a considerable difference between the original variety and the inbred strain in productiveness and general vigor of the plant. Inbreeding a crossed type like corn tends to produce pure types through segregation and recombination of genetic factors for growth, productiveness and the like. As a consequence, the pure types differ from each other as well as from the original variety because they receive different hereditary units. It is this separation or assortment of hereditary units that accounts in large part for the apparent injurious effects of inbreeding.

On the whole, the best effect of inbreeding in corn is probably bringing to light the real germinal content of the stock (as evidenced by the characters exhibited, good or bad). Selection, natural or artificial, can then eliminate the bad and retain the good. The hereditary units for vigor and productiveness which were separated by self-fertilization into different lines, can be combined by hybridization, often with very beneficial results. - C. M. Woodworth, Agronomy Department, College of Agriculture, U. of I.

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A dry Bordeaux mixture made of one pound of dehydrated copper sulphate, one nd one-fourth pounds of calcium arsenate and four pounds of hydrated lime makes a atisfactory dust for controlling flea beetles in the home garden. These materials hould be mixed thoroughly and then dusted over the entire plant.

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New Bulletin Shows Farm Accounts Are Profit Boosters

That farm accounts, accurately kept and carefully studied, are a dependable guide to more profitable farming is brought out in a convincing way in a new bulletin, "Increasing Farm Earnings by the Use of Simple Farm Accounts," which has just been published by the Experiment Station of the College of Agriculture. The new bulletin gives a detailed discussion of the benefits which 19 Woodford County farmers realized by keeping accounts and making a continued study and improvement of the organization and operation of their farms. In addition it discusses the principal factors which have a bearing on farm earnings. It was written by H. C. M. Case, Head of the Farm Organization and Management Department of the College, and M. L. Mosher, a member of the department.

According to the bulletin the accounts kept by the 19 farmers led them to improve the organization and operation of their farms in ways that added approximately $650 to their average net income in 1922, the seventh consecutive year in which they kept accounts. Uniform records kept in a simple farm account book prepared by the College provided the means of showing the farmers at what points their farms could be put on a better paying basis. The changes made on all or on part of the farms as a result of the things brought out in the accounts resulted in bigger crop yields, larger returns for each $100 invested in productive livestock, more acres of crops worked by each man and each horse and lower expenses for each $100 of income, the authors point out.

The added profit which came as a result of the record keeping was determined by comparing the income on the 19 farms at the beginning and at the end of the seven-year period with the income from farms whose operators had kept records for only one or two years, and by studying changes made on individual farms, according to the bulletin.

This comparison and study showed that in 1922 the 19 farmers realized an average of 1.16 percent more on their capital than did other farmers in the county who had kept records for only one or two years. This additional net return applied to the average capital investment of $54,490 on the 19 farms gave the 19 operators a net income which was larger by approximately $650 than would have been the case had they not used the accounts to find out how they might improve their farm business, according to the bulletin.

These same 19 farms are examples of the wide difference in earnings made by farms in the same locality, the bulletin continues. The seven best paying of the 19 farms, as a yearly average, made 4.52 per cent more on the investment than the seven poorest paying ones, or paid the operator $2,133 more for his labor and management, it points out and then shows in a detailed way how these differences in farm earnings were due to differences in managing skill.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

Sunflowers For Silage Best Cut When Fourth Blooming

Under Illinois conditions the best results with sunflower silage as a dairy cattle feed are likely to be obtained by ensiling the plants before more than 20 to 25 percent of them are in bloom, according to the abstract of a new bulletin, "Sunflowers as a Silage Crop for Dairy Cows", which has just come off the press at the College of Agriculture. The new publication, which was written by W. B. Nevens, Assistant Chief in Dairy Cattle Feeding at the College, clears up some of the problems involved in feeding sunflower silage by giving the results of tests which the college dairymen made to find out how the flow of milk was affected by plants harvested at different stages of maturity. Three kinds of sunflower silage each made from plants cut at different stages of maturity were compared with corn silage in the experiments.

The silage made from the sunflowers cut 87 days after planting and when about 23 percent of the flowers were coming into bloom was the most palatable and kept the milk flow closest to the level of the flow produced by corn silage rations, according to the abstract. The plants from which this silage was made were cut August 13 - the earliest of the three different cuttings. The second cutting was made 106 days after planting and the third 126 days after planting. Silage from the first cutting of sunflowers not only made more milk than that from the second and third cuttings, but it also was more palatable and much more digestible, according to the abstract. The feeding of sunflower silage did not seem to cause any physical disturbances nor was the composition of the milk affected. Apparently there was no effect on the flavor of the milk.

- M -

"Twin" Entry from Douglas Starts Half-Ton Calf Club

Illinois Half-Ton Calf Club is off to a good start with two Shorthorn calves owned by H. L. Gates & Son, Tuscola, as the first entries. The Douglas County breeders plan to raise both calves on one cow and at the present time have excellent prospects of meeting the requirements of the club. The project was started this year by the College of Agriculture to demonstrate the worth of good breeding, proper feeding and the right kind of management in getting beef calves ready for market at an early age. Breeders and feeders who enter calves in the club will attempt to make them weigh at least 1,000 pounds when a year old. The honor of receiving the first entries in the club goes to F. W. Garrett, Farm Adviser of Douglas County.

One of the calves which has just been entered by Mr. Gates and his son is a roan heifer dropped June 21 by Diamond Girl, a deep milking roan cow, and the other is a red bull dropped by Village Maggie July 3. The two calves have been turned with Diamond Girl, but because of her deep milking qualities she has been able to over supply them with milk and has had to be milked some besides.

The Shorthorn herd of Mr. Gates and his son includes thrifty, good feeding, deep milking cows and a thick, meaty, masculine bull. The son in the partnership, Cecil Gates, is a graduate of the College of Agriculture and at present is a boys' club work specialist at the institution.

"Baby beef production and the fattening of calves is coming in for more and more attention and cattlemen are showing a lively interest in the possibilities of this new phase of beef production", E. T. Robbins, Livestock Extension Specialist of the College, who has charge of the club, said in discussing its work. Results obtained by members of the club are sure to show what factors are of most importance in pushing beef calves to early market condition, because all those who enter calves in the contest will keep a record of the feeding and management."

More Fertility in Dry Straw than in Average Manure

What shall I do with the oats and wheat straw? This question confronts the thoughtful farmer as the threshing season approaches. Since a ton of dry straw contains a greater proportion of fertilizer constituents than a ton of average stable manure, it certainly ought to be utilized - but how? The answer to this question is not an easy one.

The incorporation of straw with the soil encourages rapid development of cellulose-decomposing bacteria. These organisms secure their energy-giving food from the straw, but obtain their requirements of nitrogen and other mineral elements from the available supply in the soil. They may, therefore, seriously interfere with the growth of the non-leguminous crops by depriving them of the available nitrate nitrogen of the soil at a critical period in the development of the plant. Therefore, straw ought not be plowed under immediately preceding corn, oats, wheat or similar crops on most Illinois soils. Fortunately this depressing influence is only temporary and if straw is properly used, benefits may be derived from the use of it without the accompanying undesirable effects.

Nitrate may be saved from loss through the drainage water by the proper use of straw. This may be practicable where considerable quantities of active organic matter are present in the soil to encourage rapid nitrification. For example, the plowing under of straw with second-year sweet clover stubble or sweet clover pasture land in the fall may serve as a means of nitrogen conservation.

Top dressing wheat with straw during the winter is a common practice in some communities. The data thus far available, however, indicate that marked returns from this practice may be expected only in exceptional years. In 1917 nearly 100 percent increases were secured from a winter mulch of straw on wheat and during the past winter, a December application of straw was quite effective in preventing winter killing. A January application, however, was much less effective this year than that applied in December.

The so-called "alkali" soils of the state appear to be an exception to the statement that straw ought not be plowed under immediately preceding a grain crop. The experience of many farmers is in accord with laboratory investigations which indicate that decided benefits may be derived from the use of straw on this type of soil. - O. H. Sears, Agronomy Department, College of Agriculture, U. of I.

- M -

Nurserymen Hold Summer Meeting and Tour at College

Members of the Illinois State Nurserymen's Association held their summer tour and meeting at the College of Agriculture on Wednesday and Thursday of this week. The meeting was given over largely to the discussion of problems related to the nursery business and to the inspection of orchards on the college farm and at nearby points.

During the afternoon of the first day the visitors were taken over the 20 acres in the outdoor horticultural field laboratory where they inspected the more than 500 kinds and varieties of fruits that are being grown by the college. The new horticultural field laboratory building also came in for special study.

One of the features of the meeting was a banquet Wednesday night at which T. C. Blair, Head of the College Horticultural Department, discussed city beautification and showed lantern slides of this type of work done in Champaign and Urbana.

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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New Circular Tells How To Hitch Horses For Most Work

Many farmers are still plowing with four horses hitched abreast when they could make the plow pull easier and get more work done in a day by splitting the four horses into two pairs and hitching one pair behind the other. Other farmers are handling only two or three horses when they could cover twice as much ground with five or six. These facts are evidence that many farmers could cut their production costs and swell the output of their farms by using the right combination of hitches and implements and thereby getting the most out of the man and horse labor that is used, according to a new circular, "Hitching Horses To Get The Most Work Done", which is now being distributed free to interested persons by the College of Agriculture. Four and five-horse combinations, with one pair in front and a pair or three behind, should be adopted as standard in the corn belt for use with the common two-bottom gang plows, the circular recommends.

The new publication describes and gives directions for making a number of tandem hitches which are in actual use on Illinois farms and which are designed to do away with side draft and make implements pull easier. It was prepared by E. W. Lehmann, Head of the Farm Mechanics Department of the College, and E. T. Robbins, Livestock Extension Specialist.

Side draft, one of the heaviest drains on horses used for plowing, can be practically eliminated by using tandem hitches made with just ordinary plow eveners and wagon double trees, a draft chain for the lead team and an extra pulley with a short evener next to the plow, according to the circular. Such hitches can be arranged for four-horse teams hitched two-and-two; five horse teams hitched two-and-three, and six-horse teams hitched three-and-three.

The farmer who lays aside the four-abreast plow evener and tries the two-and-two or the two-and-three hitch for a day seldom goes back to the old horse-killing four-abreast, gang-plow hitch, according to the authors of the circular. Four horses hitched in tandem with two in front and two behind can walk 20 miles a day and plow five acres easier than four horses hitched abreast can walk 16 miles and plow four acres, they point out.

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American Judges Defeated England's Best By 100 Points

Whiteside County's junior champion dairy cattle judging team, which has just returned from England after adding the international championship to its string of victories, defeated England's best with more than 100 points to spare, while individual members of the team took first, second and fourth individual honors in the contest held at Haywardsheath, July 12, according to C. S. Rhode, Dairy Extension Specialist of the College of Agriculture, who accompanied the team and assisted L. O. Wise, Whiteside County Farm Adviser, in training and developing it. America's team scored 1,590 points and England's 1,484. Donald Williams, of Sterling, was the highest scoring individual of the contest with 545 points to his credit, while Harold Gaulrapp, of Rock Falls, was second with 540. Elwyn Folkers, the third member of the team, scored 505 points.

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New Different Kills Now In Farm Use - TM

Outlines Two Best Ways To Settle Up Threshing Labor

The number of bushels threshed for each man is the fairest basis on which members of a threshing ring can settle up their labor differences when the time is affected by weather conditions or other factors beyond the control of the individual farmers, according to C. A. Bonnen, of the Farm Organization and Management Department of the College of Agriculture. The time basis, in which the number of hours or days of man labor furnished by each member of the ring is considered, gives the fairest settlement when some farmers in the ring have tangled or weedy grain, set the machine at one or more barns or so far away from the field that much more time than average is needed to thresh a given quantity of grain, he said. These two methods of settling up labor differences give a fairer distribution of the expenses than would be possible under other systems.

"In settling differences on the bushel basis, two bushels of oats are considered equal to one bushel of wheat or rye. The total bushels of grain threshed in the ring is divided by the total number of workmen in the ring to get the average number of bushels threshed by each workman. This figure multiplied by the number of workmen furnished by a member of the ring gives the amount of grain that member can thresh without being charged. If he threshed more than this he pays the difference at an agreed price a bushel and if he threshed less he is paid for the difference.

"In using the time basis for settlement, a record is kept of the hours of labor furnished and received by each member of the ring. If he receives more than he furnished he pays the difference and if he furnished more than he received he is paid for the difference at an agreed daily or hourly rate.

"In either method the actual settlement can be made easier if a treasurer is appointed to collect from those who furnished less labor than they received and to pay those who furnished more than they received. Detailed instructions for the use of either of these methods may be obtained by writing the Farm Organization and Management Department of the College of Agriculture".

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Start Survey To Get Facts on Hessian Fly Situation

In order to gather information that can be used as a basis in making recommendations for wheat seeding dates this fall, the State Natural History Survey at the College of Agriculture has just started a survey in 40 of the larger wheat growing counties with a view to determining the abundance of Hessian fly, joint worm and several other wheat insects. The facts gathered in this way, together with data obtained from plots in nine different parts of the state where wheat seeding trials are conducted, will make it possible to set the approximate time for seeding wheat to escape injury by the fly. Results of the survey also will be used in making recommendations as to the best methods of handling wheat stubble to avoid damage by the joint worm, according to T. P. Flint, who is in charge of the survey. This is the first year that a similar survey has been made and results of it will be announced during the latter part of August.

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Turkey Wheats Show Promise of Holding Lead In Yields

Wheats of the Turkey type, which have consistently led all other varieties in yield for the last 19 years at the Experiment Station of the College of Agriculture are running true to form this year and show more promise than the semi-hard or soft winter wheats, according to early indications of yield. The yields of 28 different varieties grown on the College farm this year are being determined at the present time. Common Turkey and Turkey 1-110 again are among the best yielders.

Prompt Measures Needed To Save Alfalfa From Web Worm

During the fall of 1923, many newly sown alfalfa fields thruout Illinois showed a good stand, but after one or two weeks, the plants began to disappear until shortly there were not enough left to make it profitable to allow the field to stand. The cause of this disappearance of the plants was due to three different insects, but mainly to the alfalfa or garden web-worm. This insect, when full grown, is a little buff colored triangular moth of a rather nervous disposition, that flies very readily when disturbed in the field. It deposits its eggs in alfalfa and several other crops and weeds, particularly in Amaranthus. These eggs hatch into small spotted gray and black worms which spin light silken cases on the ground about the base of the alfalfa stems and remain in these shelters most of the time. They feed on young alfalfa plants, often cutting off the stem near the ground. As these silken cases are often covered with bits of dirt and leaves, it is rather difficult to see them. On completing their growth, the worms change to a resting stage inside their cases and later emerge as moths. There are several broods of the insect each season.

Prompt measures are necessary to save newly sown fields of alfalfa infested by this insect. If such fields can be sprayed with two pounds of arsenate of lead to 50 gallons of water applied at the rate of at least 100 gallons an acre, the worms may be quickly cleaned out and the alfalfa saved. Spraying can be done with any field crop sprayer, or with a potato sprayer. If a field duster is available, the ground can be covered more quickly, applying calcium arsenate at the rate of ten to 12 pounds an acre. The worms also attack the older stands of alfalfa. Here they web the leaves and strip the plants. Prompt cutting is the best means of combating this pest in the older fields. - W. P. Flint, Entomologist, State Natural History Survey, College of Agriculture, U. of I.

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Careful Curing Needed For Success In Storing Onions

One of the secrets of successful storage of onions is careful curing, which should start in the field. In the first place, the crop should not be harvested as dry onions until the tops ripen down and fall over or mature sufficiently to wither near the top of the bulb. At this stage the bulbs should be pulled and the whole plant allowed to dry. The drying may be accomplished to advantage by placing the bulbs, with tops attached, in wind-rows. The onions should be piled in such a way that the tops will partially protect the bulbs from direct sunlight. They should be subjected to the sun's rays in this manner until the tops are completely dry.

The next procedure is that of removing the tops by clipping them off about an inch above the bulb. It is important to leave a small portion of twisted stem attached to the bulb in order to protect against fungous infection. Onions should be stored in a way that will provide for free circulation of air around the individual bulbs. This may be accomplished by storing them in slat crates which should be stacked in the storage on a platform so constructed that there will be free circulation of air underneath the crates as well as around them.

Temperature and humidity also play an important part in successful storage of onions, since they belong to that class of vegetables which require a cool temperature and low humidity. It is especially important that they be stored in an atmosphere as nearly dry as possible, in order to prevent the development of fungous diseases, which cause the bulbs to rot. In the home storage room where only two or three bushels are stored, the onions may be placed in slat crates and these containers suspended a few feet from the ceiling. The temperature in this part of the room will be more nearly optimum than near the floor. - Glenn O. Randall, Horticultural Department, College of Agriculture, U. of I.

A good stand, but after one or two [illegible], there were not enough left to make it profitable to [illegible]. [illegible] of this disappearance of the plants [illegible] to the alfalfa or green cutworm. This [illegible] colored [illegible] caterpillar [illegible] of a rather nervous disposition [illegible] disturbed in the field. It devours [illegible] weeds, particularly [illegible]. [illegible] worms which [illegible] cases on the [illegible] and remain in them [illegible] most of the time [illegible] cutting off the stem near the ground. [illegible] bits of dirt and leaves, it is rather difficult [illegible] with the worms change to a resting stage [illegible]. There are several broods of the insect each season.

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Corn Improvement Program Mapped Out in New Circular

A corn improvement program, based on the results of field and laboratory tests extending over several years, has been mapped out by the Experiment Station of the College of Agriculture and will be put before farmers of the state in the near future in the form of a new circular, "A Program For Corn Improvement". The new publication, which was prepared by C. M. Woodworth, Associate Chief of Plant Breeding, contains 24 pages and a dozen illustrations which show details of the various means of improvement explained in the circular. Two means of corn improvement - the selection method and the pure line method - are discussed by the author.

Both the acre yield of corn and the quality of this crop - the most important one in Illinois - can be increased and improved through the growing of better strains, according to the publication, which adds that "it is believed that better strains can be produced by carrying out the suggestions outlined in this curcular". The program is designed to set forth "all that appears best in theory and practice in the light of present day knowledge of corn breeding". The need for improvement and the opportunities in corn breeding are believed to be as great as ever, it is pointed out in the circular.

"During recent years important developments have occured in the theory and practice of corn breeding. Investigations of inheritance in this plant have resulted in putting corn improvement on a more scientific basis. The once popular ear-to-row method, which was markedly effective in some cases, has been discarded by many practical corn breeders. The recent work on corn root, stalk and ear rots has emphasized the necessity of considering disease resistance in any corn improvement program for the corn belt".

Attention at the outset to the foundation stock that is to be used is essential to the success of corn improvement, it is pointed out in the circular, which explains that choice of foundation stock is essentially a choice of variety. The author then points out that varieties differ greatly and outlines a number of points that should be considered in the selection of a variety.

The method of corn improvement which emphasizes selection is the first one discussed in the circular. This method is particularly adapted to the corn grower who desires a simple but effective method of improving his own crop. It also is adapted to the seed corn producer who has built up a trade with his neighbors because of his integrity and his ability to select good seed, handle it properly and sell it at a reasonably low price.

The pure line method of corn improvement is believed to have a distinct place in corn improvement because of its possibilities, according to the circular. By this method it seems possible to produce hybrid strains that are resistant to at least a majority of the diseases affecting corn; that are adapted to the special conditions in different parts of the state, such as soil types, soil acidity, dry weather, length of growing season and insect attack, and that are adapted to special uses, such as for silage, grain and manufacturing.

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Bill For Fence Upkeep Totals Ten Cents A Rod A Year

Detailed cost accounting records kept for the past four years by ten Champaign and Piatt county farmers in cooperation with the College of Agriculture show that the average cost of fence upkeep on the ordinary farm in the grain farming sections of the state amounted to about 10 cents a rod a year. This figure includes labor for maintenance, materials for repairs, interest on the investment and depreciation. The average size of the ten farms was 225 acres on which there were 1,150 rods of fencing, making the total bill for fence upkeep on each of the farms $115 a year.

However, this cost for upkeep does not cover the whole bill which should be charged up to fences, according to C. A. Bonnen, of the Farm Organization and Management Department of the College, who summarized the records. If the losses which ordinarily are overlooked were added to the cost of maintenance, the total bill charged up to fences would be about double the mere cost of upkeep, he pointed out. Some of the losses from fences which ordinarily are overlooked include the loss of the use of the land occupied by the fence, the loss of crops caused by turning on the growing crop and the cost of labor for cutting weeds along fences, he said. Then too, permanent fences often separate two fields in which the same crops are growing, thus causing a loss, because it costs more an acre to operate two small fields than it does one large field.

"A good way to cut fencing costs is to use temporary fences. The cost of labor for putting up and taking down such fences and the interest and depreciation of the fencing materials would be about the same a year as the cost of maintaining a permanent fence plus the loss of the use of the land occupied by it.

"Using temporary fences therefore would lower the cost of the fence upkeep by cutting down the total rods of fence needed for the farm, by increasing the efficiency of operation where fields were combined for one crop and by reducing the amount of labor for cutting weeds along fences".

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Southern Corn Root Worm Gets Blame For Fallen Corn

The cause for much of the fallen corn in Illinois this year has been traced to the southern corn root worm, according to W. P. Flint, Entomologist of the State Natural History Survey at the College of Agriculture. Many farmers, particularly in the central and southern parts of the state, have reported damage by the worm.

The insect is a pest of wet seasons or of overflow land and the only remedy which has been found effective in controlling it is to keep the ground clean early in the spring and plant corn as late as possible to have it mature. During the present season, because of the late spring, some late planted corn has been seriously infested. Rotation has little if any effect on the insect. It has been found in corn following sod, soybeans, stubble, clover and several other crops. Studies are being made of the worm this year and a statement regarding its abundance probably will be sent out early next season.

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A number of interested limestone companies are backing a boys' alfalfa club of 51 members in Montgomery County to the extent of giving each member of the club five tons of limestone free of all charges except those for freight. Fourteen other boys in the county, who have made application for membership in the club, also will receive each five tons of limestone, making a total of 325 tons that will be used by the club members. Each of the boys will use his five tons of limestone on the acre of alfalfa which he will grow as outlined in the club project prepared by the College of Agriculture. Farm Adviser A. E. Snyder is in charge of the club.

Selection Aids In Bettering Yield And Quality Of Soys

The soybean belongs to that class of crops we call self-fertilized, that is, the pollen of each plant fertilize the ovules of that plant so that each single plant is both male and female parent of the seed produced. Wheat, oats, and barley are other crops belonging to this group.

For this group of plants we find that selection is important in isolating the types existing in any variety. When this isolation is accomplished it is not worth while to select further within these types, since we find that such selection is entirely ineffective unless the parent originally selected was a hybrid. Hence the improvement of the soybean by selection consists first in isolating the lines,and then in testing these out to see which are best.

To be more specific, let us suppose we are trying to improve by selection a variety of soybeans in seed production. We go thru the field and choose those plants that are early maturing, that bear their pods well up off the ground, that stand up well, that are filled with pods to the very tip of the stem and that do not shatter easily. We choose a large number of such plants - as many as we can handle - a thousand or more if possible. We thresh and harvest these plants separately. The next spring we plant the seeds of each plant in a separate row and study the progeny. We save separately those progenies that appear to be breeding true and that exhibit the desirable characters above mentioned, and give them a yield test the following year. We repeat this test for three years.

We would apply the same general method in breeding for forage. We would however, in our initial selections pay more attention to leafiness of the plant, tendency to retain leaves, fineness of stem combined with upright habit of growth. We test the selected plants in the same manner as above outlined, except of course, that we would base our final selection on yield of hay.

If one is not in a position to test out the selections individually he can thresh the selected plants together and plant in a seed plot the next year. The seed plot may be a small piece of ground near the farmstead, it may be a corner of the general field or even a few rows along the side. Inspection at various times during the growing and ripening seasons is advisable to remove plants that are off-type, weak, or diseased. Superior plants may be selected from the seed plot for planting a similar plot the next year. The rest of the product can be used to plant the general field or as much of it as the supply of seed will allow. This procedure can be repeated year after year if desired, or after a lapse of several years. In any case, the result is fairly certain to be considerably improved in yield and quality of product.-- C. M. Woodworth, Agronomy Department, College of Agriculture, U. of I.

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Recommends February Lambs in Illinois Sheep Raising

The raising of early lambs rather than late ones is recommended by W. G. Kammlade, assistant chief of sheep husbandry at the College of Agriculture, who says that breeding for early lambs should start in early September. It is true that early lamb raising takes more equipment and that the lambs and ewes must be partly barn fed at least instead of the lambs being raised entirely on pasture, but those who raise early lambs find that their returns are more than enough to cover the cost of extra feed and care at a time when other farm work is not urgent, he pointed out. Early lambs are those which are dropped from the middle of February to the first of March and they usually can be sent to market before midsummer without any trouble.

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Cheaper Feeds Can Substitute For Those Now Quoted High

Dairymen who were slow in laying in a supply of feeds earlier in the summer have been overtaken by price increases which not only have come earlier this year but which also have been sharper than usual, according to Dr. W. B. Nevens, Assistant Chief of Dairy Cattle Feeding. The ton prices on such feeds as wheat bran, linseed oil meal, gluten feed and cottonseed meal advanced as much as $3.50 in some cases during June and July, while in other cases the jump in price was as much as $6 a ton. Further advances are likely when the barn feeding season begins and the question now being asked by dairymen who still have to buy supplies is: "What are the most economical feeds to use and what should be bought?".

A hundred pounds of ground shelled corn, the price of which has taken an upward trend, may be replaced by 108 pounds of ground barley, 101 pounds of hominy feed or 122 pounds of ground oats without any loss of feeding value In fact, the barley and oats contain slightly more protein than the corn. Using these comparative feeding values and figuring corn at 84 cents a bushel dairymen can afford to pay 67 cents for a bushel of barley, 39 cents for oats and $29.70 a ton for hominy feed. With corn at $1 a bushel, barley is worth 79 cents a bushel, oats 47 cents and hominy feed $35.35 a ton. These prices do not take the cost of grinding the grains into consideration.

Likewise it is possible to substitute some of the cheaper protein feeds for the higher priced ones. Usually the protein concentrates having the highest percentage of protein are the cheapest sources of this element. However, when corn is high in price, the value of the lower protein feeds increases, because they can furnish some of the same feed constituents that are obtained in corn. The constituents other than protein in these lower protein feeds have a feeding value equal pound for pound to the same constituents in corn.

For this reason when corn is 84 cents a bushel and choice cottonseed meal is worth $50 a ton, the dairymen can afford to pay $27 a ton for wheat bran, $45 a ton for linseed oil meal, $47 a ton for soybeans and $39 a ton for gluten feed and still get protein as cheaply as he would in the cottonseed meal. With corn at $1 a bushel and cottonseed meal at $60 a ton the dairyman can afford to pay $54 for linseed oil meal, $32 a ton for bran, $57 a ton for soybeans and $47 a ton for gluten feed.

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College Making Exhibit At Aurora Exposition This Week

Seven exhibits from the College itself and one from the State Natural History Survey are combined in a display being made this week by the College of Agriculture at the Central States Exposition which is being held at Aurora. Animal Husbandry, Farm Mechanics, Farm Organization and Management, Dairy Husbandry, Soils, Crops and Boys' Club work are represented in the seven exhibits from the College and Entomology in the exhibit from the Natural History Survey.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director.*

Advertising Helps Orchardist Cash In On Surplus Fruit

Many small orchards produce more fruit than is used by the grower and it sometimes is a question as to how to dispose of this surplus to the best advantage. Since there seldom is enough fruit of any one kind or variety to ship in carlot quantities to the large markets the problem is one of local sales. These local sales can be stimulated and the surplus of fruit disposed of in many cases by using advertising to let people know where and how the fruit may be obtained. There are a number of different ways in which the home orchard can be advertised.

If the fruit is to be delivered to the customer, an attractive advertisement in the local newspaper is perhaps the best way to reach the most people. Even if the fruit is not to be delivered but sold entirely from the farm, such an advertisement will reach many prospective buyers.

An attractive and suitable name for the farm, displayed over the entrance or on the gate, will be an advertisement and also will help people find the place easier than if it does not have such a name. This name will be more easily remembered in following years than the owner's name and may be the means of many re-sales.

Neatly painted signs telling what is for sale and where it can be bought, if carefully placed along the main road will attract the attention not only of the local people but also may mean the selling of considerable quantities of fresh fruit to tourists. If the orchard is near a hard road these signs may bring people from considerable distances for the sole purpose of purchasing fruit. There are many examples of such cases at hand. People have driven 50 miles to an orchard for a few bushels of high grade peaches even in a year when they were moderately plentiful. These road signs should be plainly lettered and large enough to be easily legible, but should not be so big that they will look like bill boards.

A sign may be put in front of the farm announcing what is for sale and the price. This sign should be neat and attractive if the best results are desired, as people often are influenced by the impression of these signs. If a blackboard sign is used, the kind and variety of fruit and the prices can be placed on the board as each variety ripens and this also will attract attention.

The best type of advertising, however, is that given by the people who buy the fruit. If they are pleased with it, they will tell their neighbors and many extra sales will result in this way. Therefore, if the purchasers are to be well pleased with the product it should be of high quality varieties and should be carefully sorted to discard wormy, diseased and bruised fruit and should preferably be sized in many cases. The package in which the fruit is sold should be clean and attractive. - F. E. Carver, Horticultural Department, College of Agriculture, U. of I.

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Brooder House Construction Is Explained In New Circular

Features that should be combined in a good colony brooder house and complete directions for building such a house are given in a new circular, entitled "A Colony Brooder House That Starts Chicks Right", which is now ready at the College of Agriculture for free distribution to interested persons. The new publication points out that success in poultry raising depends to a large extent on how well the young stock is brooded and grown. Since successful brooding is nothing more than proper housing with the addition of a heat requirement, any money that is spent for a properly built colony house therefore is a good investment, the circular explains. It may be obtained free by writing the College at Urbana.

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New Circular Points The Way To Control Of Soil Erosion

How soil erosion, the biggest problem on many Illinois farms, can be controlled through the use of Mangum terraces, is the theme of a new circular entitled, "Saving Soil By Use Of Mangum Terraces", just off the press at the College of Agriculture. About five and a half million acres of land in Illinois are subject to serious erosion, according to the publication. The two kinds of erosion - sheet erosion and gullying - are discussed in detail in the circular. The new publication contains a number of illustrations bearing on the erosion problem and showing various details in the construction of terraces. E. W. Lehmann, Chief of Farm Mechanics at the College, and F. P. Hanson, a member of the Farm Mechanics Department, are authors of the new circular.

Terracing is the most effective mechanical means of preventing soil erosion and at the present time the Mangum terrace is the best adapted to Illinois conditions, the publication continues. Like other types, the Mangum terrace is designed to slow up the flow of surface water, thereby allowing more of it to be absorbed and preventing it from gaining enough speed to wash the soil. Its value in checking soil washing on Illinois farms not only has been demonstrated by the results obtained on one of the state experiment fields, but also by the success which farmers have had with it during the last two years.

In terracing an entire field, a series of terraces is built with the terraces at regular intervals from the top to the foot of the hill, each of these terraces usually being from 16 to 20 feet wide. The terraces are spaced so that each one will take care of the water that falls between it and the one above and are close enough together so that the run-off water from average storms will not have an opportunity to descend in small rivulets between them.

The steps to take in laying out a terrace and the methods to be followed in building one are explained in detail in the new circular. Copies of it may be obtained by writing the College at Urbana.

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Breeding Ewes Should Be Culled To Insure Quality Product

Even though prices for lambs continue at satisfactory levels and the wool market shows more activity and strength, it will be advisable for every sheep raiser to cull his flock before the breeding season starts. Quality of product is as important, and often more so, than quantity when figuring profits. This is shown at the present time when poor grades of lambs are selling for $5 to $7 a hundred less than top lambs. If growers insist on retaining every available ewe to produce lambs the time of excess supply and lower prices will be brought nearer.

In this connection a statement from a concern interested in the sheep business is of interest. This concern pointed out that, "Conservative expansion on the part of the experienced men may prove warranted; but rapid increases tend to destroy the high prices which originally encouraged such expansion".

Every ewe that did not raise a good lamb and fleece should be culled. Usually from one-third to two-fifths of the income from the flock is from wool, so that the fleeces of breeding ewes are important. Ewes that are weak in the back, shallow bodied, narrow chested, high in the flank, light in the hind quarters, leggy and poor milkers should be weeded out. Ewes that lack constitution and vigor will not be the most profitable kind. - W. G. Kammlade, Assistant Chief of Sheep Husbandry, College of Agriculture, U. of I.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Warns Farmers To Prepare For Worst Seed Corn Shortage In Years

Unless freezing weather holds off until about the first of November, good seed corn will be harder to find in Illinois next spring than has been the case for years, according to J. C. Hackleman, Crops Extension Specialist. Indications already are that the supply will be shorter than it has been since 1918. This threatened shortage looms as one of the most serious aspects of the present corn crop conditions and farmers have been warned not to take any chances but to gather a considerable supply of seed in order to be prepared for the scant supply. It looks now as if farmers who pick a surplus of seed and take care of it will have a readily salable product next spring.

From present indications, the biggest part of Illinois corn will not be past the glazed dent, or silage stage by the date of average killing frosts in Illinois, but even at this stage seed ears can be selected with a fair degree of safety, provided they are given the proper care. When picked about the time the crop is ready for silage, the seed ears should not be piled up but should be put on racks where there will be a free circulation of air around them and where they will be protected from freezes before completely dried out.

Several conditions have contributed toward what threatens to be one of the most serious seed corn situations in years. In the first place Illinois farmers started out with poor seed this spring, because of the early frosts and severe winters of the 1923-1924 season. Poor as the seed was, it could not be planted on time because of the late spring and in most parts of the state farmers were an average of 15 to 20 days late in getting their corn in. Then after the seed was planted there were several weeks of cool, wet weather, all of which gave the crop a serious setback.

To make matters worse the average temperatures in Illinois this summer have been cooler than is best for corn and hence the crop has not been able to regain any of the time lost earlier in the spring. To be relatively safe for seed this year corn must have favorable growing weather until about the middle of October. Some idea of how much chance there is for corn to mature before killing frosts catch it this year can be gained from the fact that in the last five years there have been only two seasons in which corn was not killed by frosts until after the first of November. In two other seasons it was killed during the latter half of October and one year - 1923 - killing frosts came September 13 and 14.

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Kane County Cow Heads List Of High Producers For Month Of July

A purebred Holstein in the herd of J. H. Burr, St. Charles, Kane County, took first honors for July milk and butterfat production among the 9,000 or more Illinois cows in the 21 county cow testing associations of the state, according to an announcement by C. S. Rhode, Dairy Extension Specialist, who has charge of this work in the state. The leading producer for the month made 2,009 pounds of milk and slightly more than 86 pounds of butterfat. R. D. Morris, Stockton, Jo. Daviess County, was the owner of the highest producing herd for the month.

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100 Canadian Farmers And Farmers' Wives Study Work of College

One of the largest and most unusual delegations of farmers and farmers' wives that has visited the College of Agriculture this summer to review the work of the institution and inspect things of interest in this vicinity was here for a day last week from Essex County, Ontario. There were approximately 100 in the party, which was organized by Justus Miller, Essex County Representative of the Ontario Department of Agriculture, for a week's tour through some of the principal farming districts of Illinois. The trip was made in 25 automobiles.

J. C. Spitler, Assistant State Leader of Farm Advisers, and Elwood Howell, of the Agricultural College Extension Department, led the tour through Illinois. Before arriving here the Canadians visited the State Prison at Joliet and then drove through the different farming sections between that point and Bloomington. The delegation left here Friday morning for Rantoul where Chanute aviation field was visited and from there the party went to the farm of Frank I. Mann, near Gilman. After visiting the Mann farm the visitors left for South Bend, Indiana, for the start of the return trip home.

Chief interest of the Canadians during their stay at the College was centered in the dairy herds and plant. They were shown a number of representative Holsteins, Guernseys, Jerseys and Ayrshires from the College herds, the records and good points of the individual animals being pointed out in each case. The work of the other departments and divisions of the College also was explained during the tour over the farm.

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Bureau County Team To Represent Illinois In Sioux City Contest

First honors in the junior live stock judging contest held last week at the Central States Exposition and Fair, Aurora, for boys' club members went to the Bureau County team, composed of Lawrence Carver, Gilbert Carver and Elmer Dreman and coached by J. B. Hatherborn, Assistant Farm Adviser of the county. The Bureau County team scored 1,139 points out of a possible 1,350, thereby winning the state junior championship and the right to represent Illinois in an inter-state contest to be held September 15 at Sioux City, Iowa. Eleven other states will be represented in the Iowa contest. William Allen, a member of the Sangamon County team, was the highest scoring individual of the contest.

The contest this year was larger than the one of 1923, seven teams competing as compared to five last year, according to E. I. Pilchard, boys' club work specialist of the College of Agriculture, who has charge of the contest. Each of the competing teams placed and gave reasons for the placings on a ring of hogs, horses and sheep and in addition judged a ring of hogs and two rings of cattle.

The Sangamon County team, composed of Joseph Bachman, Reuben Carson and William Allen, was the second highest scoring one of the contest, while the Mercer County team, composed of John Lemon, Floyd Meehler and Lawrence Skinner, took third honors. Peoria County was fourth, Lake fifth, Knox sixth and Shelby seventh.

In winning the state championship the Bureau County team made the highest score in the judging of hogs, tied for high score in the judging of cattle, scored highest in the judging of horses and was fourth in the judging of sheep. The highest score in sheep judging was made by the Mercer County team.

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Proper Feeding Keeps Flock Laying Well At This Season Of Year

That farm hens can be kept out of a laying slump during this season of the year if they are fed with reasonable care is shown by the records on a pen of 40 White Leghorns, all two and three years old, on the farm of the College of Agriculture. The pen has just rounded out four weeks of laying with a total of 599 eggs, or almost exactly 15 for each hen, to its credit. This production, which is at the rate of more than 53⅓ eggs a day from 100 hens, is at least four times the average production of Illinois hens. For the most part the 40 hens are just ordinary Leghorns, although they are the ones that were kept after the flock was culled last year.

The way hens lay during this month and next is an important item in fixing the yearly profits which the farmer gets from his chickens, according to L. E. Card, chief of poultry. Just now hens naturally are falling off in laying and this means that egg prices all over the country are going up. Hence the flock owner who can keep his hens laying at a fairly high rate is increasing his chances for profits.

"Unfortunately, many people think that it is not necessary to feed dry mash and animal protein during the summer when the hens are on range, but if this is not done the egg yield will slump. If the production of the flock is to be kept up at this season the hens must have dry mash at all times. A good mash can be made of 100 pounds of wheat bran, 100 pounds of wheat middlings, 200 pounds of finely ground corn, 100 pounds of ground heavy oats and 100 pounds of meat scrap or tankage. Scratch grain should be fed lightly, so that the hens will eat more mash than grain by weight. Plenty of fresh water should be kept available and if possible fresh green food should be supplied once daily, unless the flock is on green range. A feed of soaked oats once daily will be relished by the hens and will act as a further stimulant."

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Soybeans Make Best Hay If Harvested When Pods are Well Formed

The time and the way they are cut have much to do with the value of soybeans for hay, it is pointed out by S. S. Carney, Crop Production Specialist. It is best to cut them when the pods are well formed, although they may be harvested for hay from the time the pods begin to form until the leaves begin to turn yellow. It is true that the hay has a higher percentage of protein if the beans are cut early, but they are harder to cure and yield less. Early cut soybeans also have a tendency to be laxative.

Those who have grown both cowpeas and soybeans agree that the soybean hay is much more readily and easily cured than cowpea hay. Cutting usually is started as soon as the dew is off and continued the rest of the day. When the best quality of hay is wanted the beans are raked into windrows as soon as they are thoroughly wilted and then after a day or two the hay is cocked or bunched. Most of the curing takes place while the hay is in the cock.

Many people who have worked with soybeans find that the hay will keep for long periods in the cock without spoiling. In this respect it seems to be better than such legumes as alfalfa and clover. Great care must be taken to prevent the loss of leaves, as they are the most valuable part of the hay.

A good quality of soybean hay may be harvested by letting the hay stay in the swath until it is completely cured. It is then raked up while damp with dew and after a few hours of sunshine is ready to take in. Hay made in this way may be just as palatable as that cured in the cock but does not look as well.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Red Russian Outyields 27 Other Wheats In 1924 Variety Tests

Red Russian, a bearded wheat of the Turkey type, outyielded 27 other varieties which were tested on the experiment station farm of the College of Agriculture, University of Illinois this year for yield, hardiness and other qualities, according to threshing records which have just been compiled on the different varieties. It made 48½ bushels an acre, or three bushels an acre more than Indiana Swamp, a soft bearded wheat, which was the second highest yielding one in the test. The poorest yielder in the tests this year was Berkley Rock, a soft wheat. It failed to make 21 bushels an acre.

Minturki, a hybrid of the Turkey type which was developed at the Minnesota experiment station, was a close third in the tests with a yield of just a shade less than 45½ bushels an acre to its credit. The fourth highest yield was made by Kanrad 2401, this variety having produced slightly more than 44 bushels an acre. Turkey Red 10-110 was fifth, with a yield of almost 44 bushels; Malakof C. I. 4898, sixth, with a yield of almost 43½ bushels; Malakof 5-460, seventh, with a yield of 43½ bushels; World's Champion, eighth, with a yield of slightly more than 43 bushels; Red Rock, ninth, with a yield of just a little more than 43 bushels, and Hardy Northern, tenth, with a yield of less than 42½ bushels.

Wheats of the Turkey Red type ran true to form as high yielders in the tests this year with the exception of Indiana Swamp. Minturki, Red Rock and Hardy Northern, all of the ten highest yielders in the test are of the Turkey Red type, it is pointed out by R. . Stark, crop production specialist of the college. Both Indiana Swamp and Red Rock are soft wheats, while Hardy Northern is a hard wheat quite different from Turkey Red. Minturki is a Turkey hybrid. Indiana Swamp, Red Rock and Hardy Northern do not lodge readily, while the varieties of Turkey do.

Not only were the Turkey Red varieties the highest yielders, but they also came through the last severe winter with little or no signs of damage, whereas most of the soft varieties were seriously injured. Such winters as the one just past are to be expected and the possibility of extremely cold temperatures emphasizes the need for selecting those varieties which have been found winter resistant, Mr. Stark pointed out.

The ten lowest yielding varieties in the test were: Clark's Black Hull, 38.6 bushels; Michigan Amber, 38.2 bushels; Gladden, 37.4 bushels; Fulhio, 36.4 bushels; Mediterranean, 36.4 bushels; Forward 29.5 bushels; Trumbull, 27.4 bushels; Poole, 25.7 bushels; Fulcaster, 21.1 bushels, and Berkley Rock, 20.9 bushels.

Some of these, under favorable conditions, yield well in central Illinois, but they are better suited to southern Illinois where they yield better than the hard varieties. Variety trials in the southern part of the state show that Fulcaster, Mediterranean, Trumbull, Gypsy and Illini Chief are well adapted to that section.

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Soybean Growers Are Having Most Trouble In Harvesting Seed

Seed harvest is giving Illinois soybean growers the most trouble in handling that crop, according to a survey made by the farm mechanics department of the College of Agriculture. As yet there is no established practice for gathering the seed and no one method has been developed as the best one, although a number of implements already on the farm are being tried with more or less success. Grain binders are being used in harvesting soybean seed by almost three-fourths of the growers, while a fifth of them are using mowing machines. The rest - about 10 per cent of the growers - are using various means, including the combined harvester and thresher, self rake reaper and modified beet lifters. In a few cases, where only small areas of beans are grown, they are cut or pulled by hand.

The binder may be used for soybean seed harvest when the crop is planted in rows or drilled solid, according to I. P. Blauser, of the farm mechanics department. However, the crop puts more strain on the whole binder than do the small grains and the straw also is rather coarse, causing wear on the canvasses. The mower is used largely for low growing varieties and for beans that are badly lodged. A side delivery attachment or buncher is used in most cases. The self rake reaper does about the same type of work as the mower, but it also bunches the soybeans back of the machine out of the way of the horses on the next round.

The bean picker, or combined harvester and thresher, gives promise of developing into a satisfactory means of harvesting soybeans where they are grown for seed and soil improvement. This machine consists of a picker cylinder and a box container to catch the beans as they are knocked off by the cylinder. In most cases two horses are used to pull this machine, although four are sometimes used. There are several makes of these harvesters, some taking one row and some two rows at a time. There always is a small amount of pods collected with the soybeans, but these can be cleaned out with a fanning mill. However, if this trash is left with the soybeans it aids in keeping them from heating.

Under favorable conditions, this type of harvester does good work. It does the best job with the rather tall, erect growing varieties, but it is important that they be evenly matured. Less labor is needed with this combined harvester and thresher than with some of the other machines that are used in harvesting soybeans. Two men can harvest from five to seven acres a day.

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Cow Testing Association Member Boosts Earnings $37.87 A Cow

A striking example of how the members of the 21 cow testing associations in Illinois are getting big dividends on their membership fees by following improved dairying practices is found in the case of Dean Hastings, a McLean county farmer living near Normal. In the last three years he has swelled the earning power of his dairy herd from around $95.73 a cow to $133.60 a cow by joining his county cow testing association and making use of the recommendations of that organization, according to C. S. Rhode, dairy extension specialist of the College of Agriculture.

In 1921 each cow in Mr. Hasting's herd was returning him an average of about $95.73 over and above feed costs, but by putting some of the recommendations of the association into practice he was able to add $37.87 to this return, according to Mr. Rhode. Among other things he found out after he had joined the association that home grown feeds with enough protein added to balance up the ration were more economical than commercial dairy feeds. In addition he raised the average test of the milk of his herd from 3.5 per cent butterfat to five per cent butterfat by studying the records of his cows and weeding out the low testing ones.

Best Time For Peach Tree Borer Treatment Will Be Here Soon

The para-dichlorbenzene, or P. D. B., treatment for peach tree borers is best applied to trees in southern Illinois, or south of the Vandalia railroad, from September 25 to October 25, while the best time north of this line is from September 20 to October 20, according to S. C. Chandler, assistant entomologist of the Natural History Survey at the College of Agriculture. It would be hard to find a five-year-old peach tree anywhere in Illinois that has not been injured by the borers, he pointed out in showing the importance of the treatment.

The borers always pass the winter in the inner bark of peach trees as pale, white worms from one-fourth to a half inch long. These worms can be found from ten inches above to six inches below the ground, but are most abundant just below the surface. Their presence in a tree is indicated by masses of gum mixed with brown frass or sawdust coming from the injured trunk.

Half an ounce of para-dichlorobenzene, or P. D. B., as it is commonly called, is enough for each tree between one and three years old. Trees from four to five years old should each get three-fourths of an ounce and trees from six to ten years old a full ounce. Trees that have not grown one full season should not be treated at all. The amount of P. D. B. to be used for a tree should never be guessed, but should be measured out in a measuring cup.

Before the P. D. B. is applied, the grass, weeds and excess masses of gum should be scraped away from the base of the tree, but care should be taken not to scrape away so much earth that the chemical will be below the burrow entrances of the borers. The P. D. B. should be spread on the ground in a band an inch or two wide and about an inch away from the trunk of the tree at all points. The chemical should not touch the tree. Four or five spadesful of earth are put over the band of P. D. B. and firmed down with the back of the spade.

No trees have been killed in Illinois when the methods just outlined were followed, but there have been some losses when the P. D. B. was applied so close to the trees that it touched the bark. Trees have been killed in other states under different soil and weather conditions, but five years of experiments made by the Natural History Survey indicate that the chemical is relatively safe.

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Field Selection Big Aid In Getting Supply Of Good Seed Corn

Much can be accomplished in securing good seed corn by paying particular attention to field selection. The parent plant indicates to a considerable degree the qualities of the ear it produces. The field from which the seed is to be secured should be inspected early in the fall before a killing frost for the purpose of locating healthy, normally maturing plants. At this time such plants should be marked and the ears left in the field until they have fully matured. A narrow strip of colored cheese-cloth or colored yarn tied around the shank of the ear will make it easy to locate the selected plants later.

Ears should be selected only from erect, apparently healthy, strong, vigorous stalks having good root systems. The ear tips should be well covered with husk and the ear should decline at an angle greater than 45 degrees from the stalk so as to prevent the entrance of water and disease spores. The stalk and portions of the leaves should still be green, but the husk dry and dead, indicating natural maturity. Ears selected from such plants are most likely to be relatively free of disease. It is essential that the selected ears be well dried and kept out of freezing temperatures after they have been harvested. - F. L. Winter, assistant in plant breeding, College of Agriculture, U. of I.

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Eight Varieties Yield Succession Of Fresh Peaches For 100 Days

Fresh peaches out of the home orchard for a period of 100 days in normal seasons are a possibility for farmers and orchard owners who make the proper selection of varieties, according to F. E. Carver, a member of the horticultural department of the College of Agriculture, University of Illinois.

The varieties which he recommends and their ripening dates as recorded here in 1921, include Mayflower, June 27 to July 4, a white-fleshed clingstone of poor quality and moderate yield, but valuable because of its earliness; Early Wheeler, July 6 to 17, a white-fleshed cling of good size and unusual beauty, but only fair to poor in quality; Greensboro, July 10 to 20, a white-fleshed, semi-freestone of medium size with slightly better quality than Early Wheeler; Carman, July 28 to August 14, a white-fleshed attractive peach of fair quality with a stone that is almost free.

Hiley, August 11 to 25, a white, freestone peach of fair to good quality which is large and attractive, but not productive or hardy enough for a commercial variety; St. John, August 14 to 20, a yellow freestone of very good quality, but only moderately productive and adapted only to certain soils and climates; Early Crawford, August 16 to 23, a large, yellow-fleshed freestone of excellent quality; Champion, August 17 to 28, the best of the white-fleshed, freestone peaches; Belle, or Belle of Georgia, August 22 to 31, a white, semi-freestone of good size and color which is fair to good in quality although not as good as Champion, Alton and some of the other white-fleshed peaches; Early Elberta, August 23 to 29, quite similar to the ordinary Elberta except as to ripening dates; Ede, or Captain Ede, August 25 to 30, a yellow freestone of good quality ripening just before Elberta.

Elberta, August 28 to September 7, the standard market yellow freestone peach, fair in quality; J. H. Hale, August 28 to September 8, also a standard yellow freestone peach of slightly better quality than Elberta; Heath, September 9 to 17, a white-fleshed clingstone of good quality; Krummel, also known as Krummel October, September 25 to October 10, a yellow freestone peach of good quality, particularly in seasons favorable to proper ripening.

Late Crawford is the best of the Crawford group of peaches and one that should be in the home orchard. It comes into bearing late and is somewhat unproductive but is of excellent quality.

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Three Teams To Represent Illinois In Interstate Fair Contests

Illinois will have three state champion teams in the boys' and girls' contests to be held next week at the Interstate Fair at Sioux City, Iowa. In the live-stock judging contest the state will be represented by the Bureau county team, while the Du Page county team will compete in the home projects demonstration team contest. The Shelby county team will represent the state in the farm projects demonstration team contest. Teams from 12 states are expected to take part in the contests.

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Plowing Need Not Be Any Harder In Fall Than Same Job In Spring

Fall plowing need not be any harder on horses and tractors and no more of a task than the same job would be in the spring, in the opinion of A. L. Young, of the farm mechanics department at the College of Agriculture, University of Illinois. This is his answer to the question, "Is it wise to put off plowing until spring in the hope that the plow will pull easier then than it will in the fall?"

Even the heavier clay soils that are hardest to plow when packed and dry can be plowed with little more effort in the fall than in the spring, unless they are extremely dry, he said. To do this, however, requires that the proper kind of plow be used and that it be kept in condition. These heavier clay soils are the kind that benefit most from fall plowing.

"It should be remembered that horses and tractors usually will have a better footing when the plowing is done in the fall than they would when it is done in the spring, and this may offset to a marked degree the increases in plow draft. Then, too, such plant roots as are in the top soil will still be green and should be easy to sever with the share edge when plowing is done in the fall. As a rule, plow bottoms also will scour nicely during fall plowing and this in itself will do much to reduce draft.

"In either spring or fall plowing, much can be done to cut down the draft of the implement by getting rid of side draft, which always means wasted effort. In case a horse plow is being used, the horses probably will have to be hitched in tandem to eliminate side draft. If the plowing is being done in early fall or late summer this method of hitching them will make it possible for the horses to do more work on warm days. In some soils, especially fairly heavy ones, a dull plow share may add a whole lot to the draft of the plow and for this reason, the share should be kept sharp.

"Unless the ground is being prepared for fall seeding, there is no need to pulverize the soil to any great extent. A general purpose, or even a sod bottom, plow that will turn the furrow slice slowly and not break it up a great deal should be used. All that is necessary is to do a good job of covering trash. In some respects it is beneficial to have plowed ground rough during the winter. Letting the team or tractor travel rather slowly will help reduce the amount of pulverization that takes place."

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Warren County Reports First 1924 Ton Litter Of Pigs In Illinois

A. D. Bradshaw, a purebred Poland China breeder living near Smithshire, Warren county, has the distinction of being the first member of the Illinois Ton Litter Club to meet the requirements of the club for the present season by making a ton of pork out of a single litter of pigs in 180 days. W. H. Smith, state leader of farm advisers who has charge of the club, has just received the report of the official weight of the litter from A. A. Olsen, Warren county farm adviser, who sponsored the work of the club in that section.

There are eleven pigs in Mr. Bradshaw's litter and when six months old they weighed 2,030 pounds. The pigs could have been pushed for a much greater weight but Mr. Bradshaw did not wish to get them too fat, according to Farm Adviser Olsen. His chief aim was to see how cheaply he could make a ton of pork in six months. Up until the last 60 days of the feeding period the pigs got only ear corn and water soaked oats. At that time tankage was added to the ration, the animals being given all they could clean up nicely night and morning. They also had access to Sudan grass pasture.

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Time For Starting Official Tests Of Dairy Cows Is Close At Hand

This is the time of year when cows are about to freshen and, consequently, the time of year when dairymen are thinking about testing. Some breeders are thinking about starting testing this fall while others are going to wait until next year. It is well to encourage those breeders to get their testing started even though it may be on a small scale, for it takes some experience to develop cows with large records. Breeders should not become discouraged if they do not make large records the first year. Their cows may not have been in the best condition or may not have been developed to reach a maximum production. Another year they may do better after the owner has gained more experience in feeding for test.

To get started in testing work a breeder may write his breed association for detailed information about the rules and regulations governing testing or he may obtain this information from the person in charge of testing or at the Agricultural College. The important thing, however, is for him to have an application filed for a supervisor at least ten days or two weeks before the time desired. This will probably make it possible to get a man when the cows are ready.

The charges for a supervisor are enough to cover the expenses in connection with the work. The present rate of charge is $35 for a seven-day test or $12 for a two-day test which amounts to $144 per year. This is relatively low a cow when a breeder tests the maximum of six cows milking four times a day or eight cows milking three times a day. Therefore, a breeder should try to test as many cows at one time as possible to lessen the cost a record. - M. H. Campbell, associate in dairy husbandry, College of Agriculture, U. of I.

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Half-Ton Calf Club Draws Two More Entries - Interest Increasing

The total number of calves entered in the Illinois Half-Ton Calf Club has been brought up to four with the enrollment of two Shorthorns by Gross Brothers, Shorthorn breeders of Atwood, Piatt county, according to an announcement by F. T. Robbins, livestock extension specialist of the College of Agriculture, who has charge of the club.

Illinois beef cattle breeders and feeders are showing an increased interest in the club which was started this year by the college to demonstrate the worth of good breeding, proper feeding and the right kind of management in getting calves ready for the market at an early age in an economical way. In addition to the two most recent entries from Piatt county, inquiries regarding the club also have come in from breeders in other parts of the state and present indications are that the number of calves enrolled will be further increased in the near future. Fulton and Edwards counties are among those from which recent inquiries have come.

H. L. Gates & Son, Tuscola, Douglas county, are owners of the first two calves entered. Farm advisers in the various counties of the state are assisting the Agricultural College in conducting the work of the club. All breeders and feeders who enter calves will attempt to make the animals weigh at least a half ton each by the time they are a year old.

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Much of the exceptional quality of this year's apple crop in Illinois is attributed to improved orcharding practices which have been adopted in recent years, according to W. S. Brock, horticultural extension specialist of the College of Agriculture. Three times as many gallons of spray a tree are now being used as in former years and nearly all Illinois growers are following the spray schedule recommended by the Agricultural College.

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New Circular Issued To Check Danger Of Seed Corn Shortage

One of the most severe shortages of seed in years is threatening Illinois' leading crop as a result of one of the most unfavorable years for corn growing that this state has ever known, according to a warning which the College of Agriculture is issuing in the form of a new circular. From present indications, there is a real seed corn emergency in sight for next year and farmers will do well to gather an abundant supply of the best seed stock available this fall for next season's planting, according to the circular.

The importance of selecting seed ears from the standing stalk before heavy frosts and then storing them properly so that they will not be in danger of freezing if the temperature should drop before they are completely dried out, is stressed in the circular. It was prepared by J. C. Hackleman, chief of crops extension at the college.

A late, cold and wet spring not only delayed corn planting but also prevented the proper development of the corn that was planted, the circular explains in showing the seriousness of the situation. Seed used in many cases was inferior and this combination of a bad season and rather poor seed thinned the stand of corn, the circular continues. To make matters worse these thin stands in many cases contained hill after hill of weak plants. Development of the crop has been slow thruout the season because of continued cool weather and from present indications it seems that there is a real seed corn emergency in sight for next year, according to the publication.

The shortage threatens to be even more severe than the one in 1918, Mr. Hackleman believes. The emergency of that year was tempered somewhat by the fact that considerable old corn of good quality had been carried over and was available for planting. However, the corn crop of 1923 was so injured by frosts and subsequent freezes that good seed corn was hard to find this spring. There will therefore be practically no seed available from old corn next spring, he explains.

"Seed ears should be selected only from standing, vigorous stalks free from smut, leaf streaking, discolorations and abnormalities," the circular recommends. "Tilted and prematurely dead stalks commonly bear diseased ears. Ears growing on weak and broken shanks should be avoided as far as possible.

"This season it may be necessary to pick seed corn before it is fully matured in order to protect it from frost injury. In all probability it will be advisable to gather seed ears soon after they have reached the well dented stage. In case warm weather continues and frost is delayed it will be profitable to gather a second lot of seed which has had time to mature more fully on the standing stalk. From three to five times the amount of seed required to plant the farm should be selected.

"As soon as the seed ears have been gathered they should be placed in racks and stored in a well ventilated room. If the dampness of the season continues and cold weather sets in early some artificial drying will be profitable."

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

Ten Conferences On Seed Corn Selection Scheduled For State

Ten seed corn selection conferences have been scheduled for next week in different parts of the state by the College of Agriculture as part of its program to help farmers meet the threatened seed corn shortage which now seems inevitable as a result of the present unfavorable corn season. Three of the conferences will be held in southern Illinois, four in the central part of the state and three in the northern part. The meetings have been planned especially for farm advisers and leading farmers in their counties with the idea of giving them the latest facts on corn diseases and seed selection. The plan is for farm advisers to return to their counties and stage intensive seed corn selection campaigns with the help of these trained local leaders.

In southern Illinois, meetings will be held in Crawford county September 23; White county, September 24, and in Jackson county September 25. These conferences will be in charge of J. R. Holbert, agronomist in the federal department of agriculture.

The four meetings for central Illinois are scheduled for Sangamon county September 25; Tazewell county, September 25; McDonough county, September 26, and Greene county, September 26. Dr. W. L. Burlison, chief of the agronomy department of the agricultural college, will be in charge of the meetings in Sangamon and McDonough counties; J. C. Hackleman, chief of crops extension at the college, will be in charge of the Tazewell county meeting, and Mr. Holbert will have charge of the Greene county meeting.

The northern Illinois meetings will all be in charge of Mr. Hackleman and will be held in Will county September 22; Stephenson county, September 23 and Henry county, September 24.

A meeting similar to the ten which have just been announced recently was held here at the college with approximately 75 farmers and corn growers and four farm advisers present.

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Much Land Is Wasted When Stubble Fields Grow Up In Weeds

A count recently made of 136 central Illinois stubble fields by W. J. Fraser of the dairy department at the College of Agriculture, showed that only 51 of the fields, or 37½ percent of them, had been seeded to clover last spring. Letting these fields grow up in ragweeds, cockle burs and morning glories is a highly unprofitable waste of land, he believes. In many sections of the state both cows and land go into the winter in a half starved condition every year and in some poor parts of the state the only salvation of farming is thru the legume route, he pointed out.

"Even if more clover is raised than is needed for feed, it can be used to good advantage for soil improvement. Land all over the state and country is starving for nitrogen and vegetable matter to make it grow abundant grain crops the next year and the next. If clover is sown with all small grain there is no extra expense, except for seed, when the land is sweet or has been limed. The young clover plants get a start with the small grain and when the grain is cut they are well rooted and ready to make a vigorous growth that fall. This makes the finest kind of fall pasture and furnishes much greatly needed fall feed just when pastures are short and dairy cattle and other live stock are actually suffering from lack of feed.

"It also is just at that time of the year when stock need a liberal supply of good feed to put them in flesh and thrift to go into the winter. There is no possible way of supplying this much needed feed in anything like as economical a manner as with good clover pasture."

Stack Silage Offers Practical Means Of Saving Immature Corn

The capacity of Illinois' fifty thousand silos will be taxed far beyond the limit if early frosts nip this year's delayed crop of corn, according to crop specialists at the College of Agriculture. Fortunately for the owners of the three-fourths or more of the farms in the state on which there are no silos, stack silage offers a practical means whereby soft corn can be handled without the losses that might otherwise have to be taken. Ensiling soft corn is recognized as the best way of saving it and farmers who do not have standard silos can go a long way toward meeting the emergency by making stack silage.

"The stack method is not as satisfactory as the use of a regular silo, but it is one of the best ways in which farmers who do not have silos can preserve green corn. Many farmers have demonstrated that stack silage can be made successfully out of green bundle corn. Some prefer stack silage over bundle fodder corn.

"In making stack silage the stack is built about 20 feet in diameter and about 20 feet high. The center of the stack is kept lower than the outside until the top is reached and is then filled full. The labor of making stack silage can be lightened by using a swinging pole derrick and some two-rope or "common sense", slings with which to pull up the bundles of green corn. Three or four slings will be needed for each load of bundles. As the sling loads are dropped on the stack they help to pack it. The bundles may be distributed evenly over the surface with the butts laid to the outside. The stack then will settle evenly and firmly.

"When stack silage is being fed during the winter, the top of the stack is kept covered with a foot or two of wild hay which can be thrown back as the silage is taken off and then replaced after a day's feed has been thrown down. This covering of hay, together with the heat generated by the fermentation of the silage, prevents extreme freezing.

"Corn preserved in this way will rot in for about eight inches on the outside of the stack. However, this is at the butt of the stalks and the loss is not serious. Stack silage cures somewhat differently from common corn silage in that it seems to develop less acid. There is a sweet molasses odor and flavor which makes it palatable and all kinds of stock eat it readily."

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Tractor Must Save Enough Horse Feed To Pay Operating Costs

The corn belt farmer can afford to buy a tractor only when the machine will replace enough horses to make the saving in the cost of keeping them practically offset its cost of operation, according to P. I. Shawl, of the farm mechanics department at the College of Agriculture. This, of course, does not hold true when the tractor is to be used chiefly for belt work, he explained. The cost of keeping a horse at the present time is estimated at about $100.

"It is hard for corn belt farmers to make their tractors paying investments because many of the machines are designed only for heavy work, such as plowing and belt work, and are not suitable for corn and other row crop cultivation. Farmers owning machines of this type must keep extra horses thruout the year to take care of the peak load in cultivating and harvesting the corn crop or else they must buy horses for this work and then sell them at a slack period in the market. The extra horses and the tractor destroy the balance of power on the farm by furnishing more power than can be used economically."

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Will Launch Drive In 30 Counties Against Scrub Sires

A movement to replace the scrub and grade dairy sires on Illinois farms with good purebred bulls and thereby affect a saving of millions of dollars annually for farmers and dairymen of the state will be launched in 30 counties during the coming winter by the College of Agriculture, it has been announced by C. S. Rhode, dairy extension specialist, who is laying the plans for the work. At present not more than one calf out of every six or eight in the state is sired by a purebred bull, according to Mr. Rhode, who estimates that there is about one purebred sire to every 150 cows of producing age in Illinois.

Farm advisers and others interested in improved dairying will join in the drive against inferior breeding animals. County purebred sire campaigns, purebred bulls sales and the organization of bull clubs and bull associations will be important parts of the movement.

The average dairy cow in the state now gives a shade more than 3,000 pounds of milk a year, whereas some of the best grade herds in Illinois that have been built up by the use of good purebred sires average more than 8,000 pounds of milk a year, according to figures and records quoted by Mr. Rhode to show the possibilities for increased profits in the use of better breeding animals. If the average production of cows in Illinois could be boosted only ten pounds of butterfat a cow it would mean millions to the dairy industry of the prairie state, he said. This and much larger increases and consequently more profits can be brought about if better bulls are used, he explained.

"Illinois farmers are realizing more and more that cows are not just cows and that it takes high producing individuals to show a profit on the herd record sheets. Purebred sires will bring these profits if farmers give them a chance."

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Woodford Girls Win State Demonstration Team Contest

Two 16-year-old Woodford county girls, Izola Perrine and Anne Hunsinger, both of Eureka, won high team honors and the state championship in the girls' club demonstration team contest at the recent Illinois State Fair over 25 other county teams of two girls each. They demonstrated the proper use of color in girls' clothing and were coached by Irene Reynolds, Woodford county leader of girls' club work, and L. J. Berry, assistant farm adviser of the county. Each of the girls will receive a cash award of $15 to apply on their expenses of a trip to the coming Chicago International Livestock Exposition.

First honors in the bread baking contest went to the Hancock county team. McLean county won in the bread judging contest and first place in the clothing judging contest went to the Shelby county team. The six members of these three teams each will receive cash awards of $15 to apply on their expenses of a trip to the College of Agriculture next summer at the time of the annual junior club university tour.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director.*

Oiled Wrappers Will Protect Apples From Costly Scald

Apple scald, one of the most costly imperfections of this crop, can now be controlled by wrapping the individual apples in oiled paper, according to Dr. W. A. Ruth, pomologist at the College of Agriculture. This method of checking the losses caused by the scald has just recently been worked out by investigators in the federal department of agriculture and during the past storage season was tested and studied in the horticultural field laboratory of the college. Before the new control was found, the scald made it necessary for hundreds of apples to be sold out of storage prematurely.

Apple scald is the superficial browning which often occurs just after the apples have been taken out of storage. The most susceptible commercial varieties grown in Illinois are Grimes Golden, York Imperial, Rhode Island Greening, Kinnairds, Arkansas (Mammoth Black Twig), Stayman Winesap and Huntsman, Minkler, Rome Beauty, Winesap, Ben Davis and Gano also are susceptible but usually less likely to develop the imperfection. In fact, most varieties, if not all of them, will develop the disease under certain conditions of ripening and storage. The scald is caused by the action of the volatile materials which give apples their aroma. In trying to get a control for scald the investigators found that these materials can be absorbed by oils or removed from the storage room through ventilation. Absorbing them with oil proved to be the better method of checking the imperfection. The best method is to wrap each apple in oiled paper. This affords complete protection and greatly extends the storage period of apples that scald badly. A number of companies already are manufacturing oiled paper which can be used in this method of controlling the scald. The apples are best wrapped when they are first stored.

Green apples and the greener surfaces are the most likely to scald. For this reason, as well as for others, the development of color in apples should be encouraged as far as practicable by the proper cultural methods, including the thinning of branches of thick trees, not too heavy nitrogenous fertilization or too late cultivation, and reasonably late picking.

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Tests Show Good Silage Can Be Made From Immature Corn

Even if much of this year's corn crop does fail to mature before frosts come, it will make silage with good keeping qualities and high feeding value, provided the ears on it are well developed, according to Dr. W. B. Nevens, assistant chief of dairy cattle feeding at the College of Agriculture. Results of experiments made at the experiment station here have established this fact, he said.

The results were obtained in a feeding trial with dairy cows which was started at the experiment station last year. Silage made from late varieties brought up from the southern states was compared with silage made from varieties usually grown for grain in central Illinois. The late varieties from the south made corn that in many respects was about the type that much of the crop in the cornbelt will be this year. They developed large ears but failed to mature the grain. However, silage made from the corn of these late varieties was high grade and had good keeping qualities. There was no very marked difference in the feeding value of it and the feeding value of silage made from the Reid's Yellow Dent, a variety commonly grown for grain in central Illinois. There is a tendency for immature corn to produce silage somewhat higher in acid than that from mature corn, but the results of the feeding trial made here indicate that this was not an objectionable feature.

Tours Show Farmers That Legumes Increase Farm Profits

That a big acreage of legumes goes hand in hand with profits from farming was the outstanding lesson driven home to farmers who recently took part in farm management tours conducted in Wabash and Clinton counties by F. A. Fisher and Charles A. Rehling, the respective farm advisers of the two counties, in cooperation with the College of Agriculture. Seven farms were visited in Wabash county and four in Clinton and on most of these farms simple farm account records have been kept for one or more years. These records showed that the farms had been profitably managed, thus giving the visitors some convincing proof that the practices being followed were success-promoting ones.

The most common rotation on these profitable farms in Wabash county was found to be a four-year system of corn, oats, wheat and clover. In some cases red clover was used for a hay crop and on several farms where alfalfa was used for hay, sweet clover for pasture was grown in the rotation. Most of the farms had soybeans planted alone for hay and growing in combination with corn for silage and hogging down.

In Clinton county a standard six-year rotation with plenty of legumes sprinkled through it has been developed by Farm Adviser Rehling. In this system corn is grown the first year in combination with soybeans for silage, for hogging down and for protection against chinch bugs. Oats is grown the second year and the third year wheat seeded to a clover mixture for hay. On one of the farms visited this mixture had made close to one ton of hay an acre when cut as stubble hay. The mixture used was six pounds of red clover, two pounds of alsike and two pounds of alfalfa an acre.

The fourth year in this six-year rotation is given over to clover hay. Two cuttings of good hay or one cutting of hay and one of seed can be made. The fifth year wheat is seeded to sweet clover and the sixth year the land is left in sweet clover pasture. This rotation, like all other good ones, provides for the largest possible acreage of the more profitable crops, it maintains soil fertility, distributes labor evenly throughout the year, provides livestock food and protects crops from insect damage, Mr. Rehling pointed out.

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Average Poultry Flocks Return Farmers $85 Net A Year

Thirteen Champaign and Piatt county farmers last year each received average net profits of $85.80 from average flocks of 120 hens on their farms and in addition were paid 24 cents an hour for their labor in feeding and taking care of their chickens, according to records which they kept in cooperation with the farm organizat on and management department of the College of Agriculture. The records show that poultry is a worthwhile source of income on many Illinois farms, inasmuch as they are representative of those kept by many farmers in the state, according to K. H. Myers, who summarized the figures.

The operators on these farms who made a profit from their poultry enterprise were those who fed for egg production and yet kept their feed costs down by utilizing feed produced on the farm, culled to weed out the non-layers and paid attention to disease prevention and to the housing conditions of their flock, all of which have a direct effect on the net profits realized. The net profit from the poultry flocks on the 13 farms varied from $168.94 to a loss of $105.97.

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Average Farm Horse Works Only About 80 Days During The Year

On the basis of an eight-hour day, horses on Illinois farms work an average of about only 80 days a year, or less than three months out of the 12, according to representative records kept last year by 14 Champaign and Piatt county farmers in cooperation with the College of Agriculture. Each horse on the 14 farms worked an average of slightly more than 719 hours during the year, or an average of less than 2½ hours each work day. Horses which do little or no work to pay for their keep are a drain on the farm profits and should be gotten rid of as far as efficient farming will will permit, it is pointed out by K. H. Myers, of the farm organization and management department, who summarized the records.

"It is true, as many farmers contend, that the longer horses are kept at work the higher the feed bill for them will be, but at the same time the records show that the hourly rate and the net cost of horse labor for a crop acre decreases as the amount of time the horses work increases. On one farm each horse worked 127 days during the year at almost 15 cents an hour, or a total cost of $4.22 a crop acre. On another farm each horse worked only 53 days at almost 26 cents an hour, or $9.24 a crop acre. This difference of more than $5 an acre in the cost of horse labor can be charged up to the fewer number of hours worked by the horses on the latter farm.

"While the idle horse cannot be done away with entirely, more efficient organization and operation of the farm will do a great deal in cutting down the high cost of horse labor. A good rotation of crops, combined with livestock raising, which puts part of the land in pasture, will cut down the number of horses needed to handle the peak load of labor in the early spring.

"A big step toward saving a waste of time in getting to and from fields and thereby getting more actual work out of each horse in a day can be taken by the proper arrangement of fields and the farmstead. Poorly laid out fields and fields of small size require more time for field work. The horse labor rate an hour usually will be higher on brood mares, but the value of and returns from colts will offset this, and the older horses may be sold before heavy depreciation takes place.

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To Hold Two More Agricultural Conferences For Rural Pastors

Two agricultural conferences for rural pastors will be held in different parts of the state in the near future by the College of Agriculture, University of Illinois to promote cooperation between rural ministers and all individuals who are interested in improved living conditions on the farm and in the farm home. The first conference is scheduled to be held at Mt. Vernon, Jefferson county, October 13, for southern Illinois pastors, while the second will be held at Granville, Putnam county, October 15, for northern Illinois pastors. All churches and denominations having rural problems will be welcome to join in the meetings to which farm and home advisers, county superintendents of schools, vocational agriculture teachers, rural pastors, their wives and interested lay workers will be invited.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director.*

New Bulletin Gives Details Of Corn Diseases And Their Control

Farmers who plant inferior and infected seed corn can not do much better than get an average of four-fifths of a crop because of the ravages of the rot diseases of the corn root, stalk and ear and the losses caused by smut and rust, according to a new bulletin, entitled "Corn Root, Stalk and Ear Rot Diseases, and Their Control Through Seed Selecting and Breeding", which the experiment station of the College of Agriculture is preparing to distribute.

A loss of 20 per cent, or one-fifth, of the crop because of these diseases is a conservative estimate on the basis of the data presented in the bulletin and observations made throughout the state for a number of years, the publication points out. The losses frequently are much heavier than this, although sometimes they do not run this high, it says. The bulletin was prepared in cooperation with the federal department of agriculture, the authors being James R. Holbert, of the department, and W. L. Burlison, Benjamin Koehler, C. M. Woodworth and George E. Dungan, all members of the college agronomy staff.

Phases of the corn disease problem which are discussed in the new publication include the causes and symptoms of corn rot diseases; the economic importance of them; experimental data and conditions involved in the studies which are reported in the bulletin; the physical characters of seed ears associated with seed infection and non-infection, and the susceptibility and resistance of corn to the root, stalk and ear rot diseases. In conclusion, the authors outline two methods whereby farmers can improve their corn.

Corn root, stalk and ear rot diseases are sometimes called corn rot diseases and frequently simply corn root rot, according to the bulletin. In general most of these diseases reduce the stand of corn in the field, damage the health and vigor of the surviving plants and cut both the yield and quality of the grain that is produced, the authors explain. They may cause yellowing of the leaves, delayed silking and pollination, firing and general blighting of the plants, lodging, barrenness and nubbin production in various forms.

A larger part of the seed corn being used throughout the state is more or less infected with these diseases, according to the bulletin. Some of the most serious ones are scutellum rot, diplodia, ear rot and seedling blight; fusarium; black-bundle disease; bacterial wilt (Stewart's disease); gibberella root rot, ear rot and seedling blight; corn smut,and corn rust.

In general appearance, good seed ears that are apt to be free from these diseases are mid-sized, heavy, bright in luster, moderately horny to horny in kernel composition, and moderately smooth to smooth indentation, according to the bulletin. It points out the things that are to be looked for in the shank and tip of the ear and at the butt and adds that starchy seed is to be guarded against.

Selection must be extended beyond these physical characters, however, if the greatest improvement in resistance to diseases and in yield is to be obtained, the bulletin points out. Selection must be practiced in the field and at the germinator, always beginning with a strain which has possibilities for improvement, it adds.

Crop rotation with allowance for a liberal percentage of legumes is as important in determining yield of corn as are soil treatments, it is brought out in the bulletin.

Sloping Orchard Land May Be Badly Washed Unless It Is Terraced

As much as 40 tons of soil an acre may be washed out of the farm orchard in a single year when the trees are located on a slope where the grade is no more than four feet in a hundred, according to F. P. Hanson, a member of the farm mechanics department at the College of Agriculture. He points out that this is a heavy drain on land that is expected to raise fruit. The loss in soil and fertility would be even more on slopes with a grade of more than four per cent. Erosion is a serious problem in many orchards because the cultivation usually practiced in fruit growing keeps the ground in good condition to wash when there are heavy or sudden rains.

Terracing will check soil washing on slopes with grades of from three to 15 per cent, and those who plan to set out new orchards this fall on sloping land will do well to consider the possibilities of erosion losses and put in terraces to save their land and its fertility. The Mangum terrace is perhaps the most practical type to use in Illinois at the present time.

When slopes are properly terraced the problem of soil washing is solved through control of the surface water runoff. The Mangum terrace is designed to slow up the flow of this surface water and carry it away gradually, thereby preventing it from gaining the speed and volume which erodes the land.

The percentage of surface runoff increases when the organic matter and protective covering are removed from the soil. This means that erosion can be partially controlled by keeping the soil in good physical condition so that it will absorb as much water as possible. Contour cultivation and cover crops also help in checking erosion. However, unless sloping orchard land is terraced, gullies get started sooner or later and become a serious problem.

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Heifers From Good Sire Top The Milk Records Of Their Mothers

Striking proof that farmers and dairymen can build up the milk production of their herds in a systematic and practical manner and thereby add to their profits is found in the Holstein herd on the farm of the College of Agriculture. Emblagaard Tritomia Homestead was bought to head the herd several years ago and when his first ten daughters that freshened had rounded out their records as two-year-olds, it was found that they had bettered the average records of their mothers as two-year-olds by more than 3,912 pounds of milk and 160 pounds of butterfat.

As two-year-olds the daughters averaged 13,504.1 pounds of milk and 468.61 pounds of butterfat, whereas their mothers at the same age had averaged only 9,591.4 pounds of milk and 307.96 pounds of butterfat. This is constructive breeding and shows what a good purebred bull will do toward swelling the dairyman's profits, it is pointed out by C. S. Rhode, dairy extension specialist of the college, who is laying plans for a campaign against scrub and grade dairy bulls in 30 counties of the state during the coming winter.

"It is difficult to calculate what such a bull is worth", Mr. Rhode said in speaking of Emblagaard Tritomia Homestead. The increase in the milk flow alone of the ten daughters above what their mothers had given during a corresponding period was worth $980.10, figuring milk at $2.50 a hundred pounds. The value of the increased milk flow is only a small part of it. Heifers with better milk and butterfat records than their mothers command a higher price than their dams, especially if they are purebreds.

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Second Annual Swine Day To Be Held Friday, October 31

Recent findings of the College of Agriculture on the question of what type of pig makes the most economical gains and yields the best cuts of pork will feature the second annual swine day to be held at the institution, Friday, October 31. In addition there will be discussions on hog and corn markets, pork requirements of the meat trade and soybeans in pork production. The meeting has been set for the day before the annual university Dads' day and the Iowa football game, and several hundred hog breeders and feeders from all parts of the state are expected to attend.

K. F. Warner, of the federal department of agriculture, who is in charge of the government abattoir and meat investigations at Beltsville, Md., will speak on the pork requirements of the meat trade; Gilbert Gusler, of the Agricultural News Service, Chicago, will discuss the present market situation with special reference to corn and hogs, and C. M. Vestal, who is in charge of swine feeding experiments at Purdue University, Lafayette, Ind., will speak on the place of soybeans in pork production.

Experiments which the college has been conducting for three years to determine the type of pig that it pays the farmer to feed will be discussed by Sleeter Bull and R. J. Laible, members of the college animal husbandry department, during the morning of the meeting. Live animals that are still on feed in the experiment, together with carcasses and cuts of meat from hogs that already have been butchered, will be on exhibit.

Five types of Poland China pigs, including very chuffy, chuffy, intermediate, rangy and very rangy animals, have been studied in the three years of the experiment. Only chuffy, intermediate and rangy pigs were used during the first year of the experiment, the results of which favored the intermediate type. Last year, the second one of the experiment, all five types were used and the results showed that the intermediate and rangy types were on a par as far as rate and economy of gains were concerned. However, the carcasses and cuts from the intermediate type pigs were more desirable than those from the rangy animals.

The chuffy, very chuffy and extremely rangy types were eliminated from this year's test because these types were found to be uneconomical pork producers. Only the intermediate and rangy types are being studied and again, as in 1923, it seems that these two are about equal as far as rate and economy of gains are concerned. Just which type has the edge, if any, cannot be determined until the experiment is finally completed.

Five lots of pigs are being used in the comparison between the intermediate and rangy types this year. Two lots are being used to compare the two types of pigs when fed in the dry lot; in two other lots the types are being compared when self-fed and kept on alfalfa pasture, and in the fifth lot a start is being made to find out whether sows that gain economically can transmit this characteristic to their offspring.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director.*

Apple Varieties Best Adapted To Some Particular Use

Apples are still apples in the minds of many people, in spite of all the different flavors, sizes, shapes and colors that are to be found in the varieties commonly grown in this part of the country, according to W. S. Brock, extension specialist in horticulture at the College of Agriculture. Some people who do recognize a difference in apples get as far as to distinguish between "cooking" and "eating" ones. To get the most satisfaction out of this fruit it is necessary to know the best uses to which the different varieties are adapted, Brock said.

For instance, Grimes (Golden) has no superior for either cooking or dessert during this season of the year. As a purely dessert apple for this season Jonathan is in a class by itself. Neither of these are of the highest quality when overgrown and both should be of good color for the variety, that is a golden yellow for the Grimes and a solid red for the Jonathans. Another red apple of good dessert quality during the Jonathan season is Kinnaird. This variety is not yet well known on the market, but it bears acquaintance.

York (Imperial) is the best pie apple grown, according to those who have tried many varieties for pies. This variety usually can be bought cheaper than the strictly dessert apples, many of which are poor cookers. For example, Delicious, which is prized so highly as a dessert variety, is one of the poorest for culinary purposes. Delicious is in season the year around.

Varieties in season from February to June include Ben Davis, Winesap and Willow (Twig). Ben Davis is rated as poor in quality by many people, because when it is eaten out of the hand it does not taste as well as most of the standard sorts. However, for sauces, pies, baking and frying it is one of the very best. Willow (Twig) is slightly higher in quality, but should be classed as a cooking apple. Winesap as grown in Illinois ranks high as a dessert apple, but is poor for cooking purposes.

Rome (Beauty) is considered one of the very best varieties for baking; Northwestern is a good cooking apple; Salome is fine for dessert and cooking, while McIntosh vies with Jonathan for first place as a fall dessert apple. These last three varieties usually are found only on northern markets. One of the best flavored apples when it is well grown and colored is Stayman Winesap. It also ranks close to Grimes for baking, pies and sauce. Black Twig and Minkler, in addition to Winesap, Rome and Willow, are good varieties for those who like to put away a few barrels for the winter. All of these may be kept in good condition through April if they are put in a good cellar that is well ventilated and not too dry.

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Illinois Half-Ton Calf Club Gets Three More Entries

The number of calves on feed in the Illinois Half-Ton Calf Club has just been increased to seven with the enrollment of three Shorthorns from Edwards county, according to an announcement by E.T. Robbins, livestock extension specialist of the College of Agriculture, who has charge of the club. The club was started in the state for the first time this season by the college to demonstrate the worth of good breeding, proper feeding and the right kind of management in getting calves up to a marketable weight at an early age. All those who enter animals in the project will attempt to make them tip the scales at the half-ton mark or better by the time they are a year old. The three entries from Edwards county were secured by Farm Adviser H.C. Gilkerson. Two of the three entries belong to Loren Jack & Sons, of Browns, and the third to Gilbert Longlons, of Albion.

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Recommends Cleanup Of Garden As Aid In Insect Control

Cabbage, melon and onion insects have been especially abundant this year, but in general the insect situation has been about normal, according to C.C.Compton, assistant entomologist of the Natural History Survey. A big step can be taken just now toward keeping garden insects in check next season by cleaning up vegetable gardens and fields and thereby reducing the available hibernating quarters of the pests, he said. A few hours' time spent in a cleanup of the garden this fall may save much time and expense in dusting or spraying to control insects next season, he pointed out.

"Many of the most troublesome and destructive insects hibernate in the trash and rubbish which collects when plants and vines with heavy foliage are left in the field or garden after the edible part of the crop has been harvested. Piles of cucumber, melon and squash vines left in the field are first class places for the striped cucumber beetle and the squash bug to spend the winter. Cabbage stumps and leaves protect the various species of cabbage worms. The practice of cleaning up the cabbage patch in the fall will greatly reduce the possibility of damage to next year's crop by the harlequin cabbage bug, where this insect is a serious pest. When possible old cabbage stumps should be pulled and destroyed.

"The tarnished plant bug, which feeds on a large variety of vegetables, hibernates in all sorts of trash and rubbish in the field. Many other insects find shelter under nothing more than boards that are left scattered loosely around the field. Lumber of this kind should be gathered up, the useless boards destroyed and the good pieces piled compactly.

"Where onion sets are grown, it has been found particularly advisable to clean up the fields after harvest, especially the piles of onion refuse that collect where onions have been milled and screened. These refuse piles harbor large numbers of overwintering purparia of the onion maggot. In the early spring the onion maggot flies will be found coming out of these piles in large numbers. This refuse will burn quite readily immediately after the onions have been milled and screened. If the burning is not complete, it will be well worth the time and money to apply a little coal oil.

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Ten Good Cows Beat 36 Poor Ones In Stephenson County

During the year just past the 36 cows in the two poorest producing herds in the Stephenson county cow testing association looked $261.29 of returning their owners as much profit above feed costs as was returned by the ten Holsteins in the leading herd of the association, according to the yearly records of the association which have just been summarized by H. L. Jamison, assistant in dairy extension at the College of Agriculture. Vernon Heck, the owner of the leading herd for the year, received $1,475.20 over and above feed costs from the ten Holsteins in his herd, while the owners of the two poorest herds in the association received a total of only $1,213.95 above feed costs from the 36 cows in their herds.

This is a striking demonstration that a few good cows well cared for will pay more profits than a large number that are neglected, Jamison pointed out. Each cow in Heck's herd produced an average of 11,195 pounds of milk and 337 pounds of butterfat during the year and returned an average of $147.52 above the cost of the feed which she ate. In contrast to this, each of the 36 cows in the two lowest producing herds returned only $33.72 above the cost of feed, or $113.80 a cow less than was returned by those in the leading herd.

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Short Supply And Good Demand Brighten Prospects For Beef And Pork

Prospects of good prices for well finished beef cattle and hogs are brighter than they have been for many months as a result of probable shortages of them, in the opinion of H. P. Rusk, head of the animal husbandry department of the College of Agriculture. The good prices, of course, depend in part upon a continued demand for these products, but there is no reason to believe that there will be a dropping off in the good demand which has been shown during the past year.

Already the surplus hogs of the country have been marketed and the number being offered now at the large central markets is back to normal, he said. This is reflected in the strong advances in swine values during recent months.

In addition, there has been a reduction of about 20 per cent in the hog population of the country, according to recent figures from the federal department of agriculture. However, this reduction in numbers does not indicate the full extent of the slump in available pork. There not only has been a large reduction in the number of swine, but also the condition of the remaining animals, both as to health and weight, is far below normal. The corn-pork ration has not encouraged liberal feeding and swine have been neglected in many other ways.

"From all this it seems probable that swine will continue to be in a strong position in the market for several months because of the restricted supply."

As for cattle, it seems probable that most feeders will be cautious about putting in a large supply of feeder animals this fall, according to Rusk. Their recollection of high priced feeders and corn immediately following the war is still too vivid to be disregarded under present market conditions. The demand for feeder cattle therefore is likely to be rather slow, unless there is a large amount of soft corn due to early frosts, making it impossible to market a large percentage of the crop except through livestock, he explained.

"If fewer cattle go into feed lots this fall than normally, the price of good finished bullocks should work materially higher as the season advances."

Feeders who have definitely made up their minds to feed cattle this fall and who are prepared to do so probably will not profit by long delaying the buying of their cattle, in Rusk's opinion. If an early frost cuts the growing season short, feeders who already have purchased their cattle will indeed be fortunate, he added.

"Predications of good prices for finished beef cattle and hogs, of course, are based on the assumption that there will be a steady demand for meat products. It is true that the demand during the past year has been especially good and it would not be safe to anticipate as good an outlet during the next 12 months. However, there does not appear to be any immediate danger of a marked falling off in the demand for these products."

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Illinois Turns To Other States For Wood As Timber Supply Dwindles

Illinois' woodlands yield less than two and a half per cent of the lumber consumed in the state and less than one-third of the wood other than lumber and cordwood which is used by prairie state industries, according to a forest survey report of the state which has just been prepared by the State Natural History Survey. Including cordwood, the total production of wood in Illinois is about 115,000,000 cubic feet annually, according to the report.

Forty per cent of the state originally was covered with virgin forests,but the supply of available timber has been so badly depleted by fire and axe that the state must now import more than 97 per cent of its lumber and 65 per cent of the wood that is used in industries in forms other than cordwood, the report points out.

The report includes a suggested forestry policy for the state which provides for the teaching and investigation of forestry problems at the College of Agriculture, University of Illinois; the formulation of definite recommendations on forestry practices, which should be carried to farmers of the state; the curbing of forest fires, and the acquisition of 75,000 acres of forest land to be used as the basis of an educational project which would aid in reaching and influencing farmwood lot owners as rapidly and effectively as possible.

The report takes up the subjects of wood and the industries of Illinois, total consumption and production of wood in Illinois, the use of wood in manufacturing industries, the economic value of wood industries, the consumption of wood by steam railroads, the use of wood in mining, the consumption of wood on Illinois farms, sources of supply of lumber for Illinois consumers, the forests of Illinois and other related subjects.

At present the woodland area of the state covers about three million acres, of which about 89 per cent is in farm woodlots, the report continues. This area is comparatively small, and yet with the waste lands which might be forested it could be increased to around five million acres capable of producing at least 250,000,000 cubic feet of wood annually if properly handled, it is pointed out.

Continuing, the report explains that, "The stock of timber of forest capital is being exhausted with no thought of the future and no widespread application of sound principles of crop renewal and production. Grazing is progressively ruining the best forest areas and fires are destroying the poorer and less well protected tracts. Yet these forests are still supplying one half of the farmer's total needs for wood, one-sixth of the railroad ties used in the state's transportation system, 60 per cent of the timber used in mines, 30 per cent of the piling, 25 per cent of the farmer's fuel and one half of his fence posts."

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New Poultry Specialist To Attend Fall Conferences Of Farm Advisers

John Vandervort, newly appointed poultry extension specialist in the College of Agriculture, has arrived to take up his work and will attend the fall conferences of farm advisers. Before coming here he was poultry specialist in the Orange county, New York, farm bureau. He was graduated from Cornell University in 1923.

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The second annual swine day to be held at the College of Agriculture on Friday, October 31 will feature approximately two of the three years work that has been done in the swine type experiments. Only the results of the 1922 work were available for study last year at the first swine day.

Dormant Spray For Peach Leaf Curl Is Best Applied During The Fall

Giving peach trees a fall dormant spray with lime sulphur is the only safe way to check peach leaf curl, a disease which has taken a heavy toll in orchards of the state during the last few years, according to W. S. Brock, horticultural extension specialist of the College of Agriculture.

As far as scale insects are concerned, dormant sprays are most effective if applied in the early spring. However, the leaf curl disease starts to grow so early in the season that some, or even all, of the trees in a large orchard may not get sprayed soon enough for protection if the spraying is put off until spring, he pointed out. Lime sulphur diluted at the rate of 11 gallons of commercial concentrated lime sulphur in 89 gallons of water is 100 per cent effective in controlling the curl. if it is applied thoroughly and at the right time.

"Leaf curl winters on the twigs and bud scales of peach trees and starts to develop just as soon as the buds begin to swell in the spring, sometimes as early as February. A fall dormant spray therefore is the only safe way to control it. Trees should be sprayed just as soon as all the leaves have fallen. Much spray will be wasted if the work is done before all the leaves have fallen, but what is more important, perhaps, is the fact that the whole tree cannot be thoroughly sprayed if some of the leaves are still on. The spraying should be done when the temperature is above freezing and preferably when the thermometer will not drop below 32 degrees within 12 hours after the spray has been applied.

"One application of the lime sulphur will be enough unless scale insects are bad in the orchard. If the trees are badly infested with scale, an early spring application of oil emulsion or lime sulphur will be needed. This may be applied any time before the first buds are showing pink."

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Profits From Dairy Cow Rise As Amount Of Milk Produced Increases

Cows that give 10,000 or more pounds of milk in a year return their owners about four times as much profit as cows that give only from 4,000 to 6,000 pounds of milk, according to records collected by dairymen of the College of Agriculture from one of the score or more of cow testing associations in the state. These figures are typical ones that could be worked out in a study of almost any representative group of cows in the state, according to C. S. Rhode, dairy extension specialist of the college.

A classification of the cows in the association according to the way they produced shows that the returns above feed costs climbed steadily as the production of the cows increased. For instance, cows that gave only from 4,000 to 6,000 pounds of milk in a year returned only $38 over and above the cost of the feed they ate. Cows of a little better class, that gave from 6,000 to 8,000 pounds of milk in a year, paid their owners $73 above feed costs, while cows that produced from 8,000 to 10,000 pounds of milk in a year returned $110 above feed costs. The returns above feed cost costs jumped to $156 for cows that made more than 10,000 pounds of milk a year.

"The more milk a cow gives the more profit she pays, and the best way for farmers and dairymen to get high producing cows in their herds is to use good purebred bulls and raise the heifer calves that are produced", Rhode said in discussing dairying profits. He is planning to conduct a purebred bull campaign in 30 counties of the state during the coming winter.

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Poorly Housed Hens Lay Well Only During Natural Spring Season

Poor housing of farm hens during the winter plays a big part in keeping the production of the average Illinois hen down to about 50 eggs a year, according to John Vandervort, poultry extension specialist of the College of Agriculture. It takes contented hens to keep the winter egg basket full and poultrymen who do not insure the contentment of their fowls by getting their hen houses ready for winter are apt to get high egg production only during the natural laying season in the spring. It will be profitable for chicken raisers to spend time, and perhaps money, in repairing, or even remodeling, and thoroughly cleaning and disinfecting the old hen houses, he said.

Light and ventilation are two essentials for contented hens and high egg production, according to Vandervort. Continuing he said, "There should be plenty of window space in the front of the house, so that the sunlight will strike all corners of the floor. In order to get enough ventilation it may be necessary to substitute muslin for part of the glass or provide separate openings for muslin curtains. A warmer, better ventilated house can be had if a straw loft is used. Poles or boards may be laid across the plates and covered with straw, hay or corn stalks. The floor should be dry. A concrete or board floor is more sanitary than a dirt floor. Above all things, old dirt and litter should be replaced with fresh material. It is best to repair all leaks in the roof and sidewalls before winter, as dampness and drafts lead to colds and roup. A thorough cleaning of the house and its interior fixtures is essential. Some good coal tar dip can be used effectively in this connection."

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Use Of Limestone In Illinois May Reach Half-Million Ton Mark

Illinois farmers will use close to a half million tons of limestone this year in improving their land for bigger crop yields, according to F. W. Galt, a member of the agronomy department of the College of Agriculture, University of Illinois. The amount of this material used in prairie state farming has mounted from 32,000 tons in 1911 to an estimated tonnage of 500,000 for this year and during that time a total of more than 2,500,000 tons have been spread on farms of the state, he said. In the last five years alone more than 1,500,000 tons have been used. In keeping pace with this increased use, commercial limestone concerns of the state have swelled their output until in 1920 they produced 31 per cent, or almost one-third, of the agricultural limestone produced in the entire United States, according to Galt.

Experimental results obtained by the agricultural college in all parts of the state have played an important part in boosting the amount of limestone used by farmers, according to Galt. These results fix the value of limestone, as measured by increased crop yields in good farm practice, at approximately $10 a ton in central and northern Illinois and $20 a ton in the south third of the state. Limestone can be bought on the market for around $1.60 a ton. The amounts used during each year from 1911 to 1924 are: 1911 - 32,000 tons; 1912 - 46,000 tons; 1913 - 72,000 tons; 1914 - 82,000 tons; 1915 - 94,000 tons; 1916 - 113,000 tons; 1917 - 132,000 tons; 1918 - 200,000 tons; 1919 - 350,000 tons; 1920 - 200,000 tons; 1921 - 247,000 tons; 1922 - 250,000 tons; 1923 - 350,000 tons, and 1924 - 500,000 tons (estimated)

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Improved Orcharding Methods Call For More Space Between Trees

Twenty years ago most apple orchards of standard varieties were planted with the trees 25 to 30 feet apart, while 15 feet was a common planting distance between peach trees, according to W. S. Brock, horticultural extension specialist of the College of Agriculture. Time and experience have shown that the 30-foot distance for apple trees was at least three feet too close and that 22 feet is as close as peach trees can be planted with the best results. He recommends that both apples and peaches be planted on the square system with a distance of 38 feet between apple trees and about 28 feet between peach trees.

"On fertile soils such varieties of apples as Minkler, Willow and Black Twig will be crowded if planted 35 feet apart. As a result orchardists in some sections have adopted the square system of planting and the 38-foot distance for apple trees. Where other fruits, principally peaches, are planted as fillers between rows of apple trees, a common practice is to plant the permanent apple trees 40 feet apart on the square with a peach tree at each 20-foot intersection.

"Each tree in a peach orchard should stand at least 22 feet from its neighbor. There is a tendency to plant peach trees in rectangles, rather than in squares, with the idea of making it easier to manage the maximum number of trees which can be planted on a given area. In line with this a rectangle with one side 22 feet long has been accepted as more or less standard. The other diatance varies from 22 to 30 feet. However, the success of modern methods indicates that peach trees should be planted on the square system and that about 28 feet is better than any smaller distance.

"As a general rule the interplanting of peach trees to utilize the so-called waste area between apple trees is not profitable, because the filler trees usually are left in the orchard too long and damage the permanent trees. Double planting, which is common in the Ozark region, is the practice of planting twice the recommended number of trees on a unit area, the idea being to use the same species and variety of trees for fillers as are used for the permanent trees. This system is just as good as the man who uses it. A few orchardists will take out the extra trees before any harm is done, but most of them will leave them."

Trend In Swine Types Shows A Leaning Toward Intermediate Animals

Thicker fleshed, deeper bodied, intermediate type pigs, which have established their superiority in the swine type experiments at the College of Agriculture, University of Illinois, are coming back into favor with swine breeders, according to livestock specialists at the institution. The present tendency in breeding circles is to get away from the rangy, extreme type of porker, which was popular a few years ago, they report. This tendency to favor the intermediate over the rangy, more extreme type is a progressive one, in view of the fact that the intermediate type animals make at least as rapid and as economical gains as the more rangy pigs and at the same time produce a carcass and cuts of meat that are more to the liking of consumers, according to the specialists. This enables packers to pay a higher price for the live hogs of the intermediate type, they added.

Results of the swine type experiments at the college, which will be presented to hog breeders and feeders of the state at the second annual swine day, Friday, October 21, furnish convincing proof of the superiority of intermediate type hogs over rangy animals as meat producers. The third year of the experiment is just now being finished, but the results of two years' work already are on record.

Outdoor Cellar Or Pit Is Best For Long Storage Of Root Crops

Root crops are comparatively easy to store during the winter months. Although they may be successfully stored in the house cellar, an outdoor cellar or a pit is often better for storing them late in the winter. If the heating plant is in the basement, a house cellar usually is too warm and too dry to store root crops for several months. A vegetable room, shut off from the furnace room and with an outside ventilator, will aid in keeping the root crops for a long period in the house. Covering the roots with soil is an aid in successfully storing root crops indoors. The soil absorbs any odors in case the vegetables should start to decay, and also aids in keeping the roots crisp and plump and free from shriveling.

Root crops for winter storage may be divided into two classes: Those that are uninjured by freezing, and those that would be damaged by freezing and therefore must be protected. Parsnips, salsify and horse-radish are not injured by freezing, if thawed out slowly. They may be left in the garden over winter and dug early in the spring. However, this practically precludes getting at them while they are frozen in the ground, and it is better to dig them in the fall and store them in pits.

Beets, carrots, turnips, rutabagas and Irish potatoes may be stored in the fresh state for several months, but they must be protected from freezing. One of the best places to store these root crops is in an outdoor mound or so-called pit. This mound or pit should be located in a well drained place. First, a layer of straw should be spread on the ground about six inches deep. The root crops should then be placed on this straw in a long A-shaped pile. If the pile is made too deep or too wide there is danger of heating and spoiling. This long, low mound of roots should then be covered with about six inches of straw and just enough soil thrown over the straw to keep it from blowing away. If the mound is covered too deeply before settled cool weather there is danger of heating and rotting the vegetables. When light freezing weather occurs a two-inch layer of soil should be thrown over the mound, and when the soil begins to freeze this layer of soil over the roots should be increased to about one foot in thickness. When severe freezing weather occurs the mound should be covered with a layer of manure. Root crops stored in this way should keep in excellent condition until the following April. Another advantage of a long mound is that it may be opened from time to time throughout the winter and a portion of the vegetables taken out for use without disturbing the remaining supply.

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Full Fed Fall Pigs Sell On An Earlier Market At Higher Prices

Fall pigs that are pushed along on full feed are thriftier, they make their gains with less grain and they sell on a higher market than pigs that are fattened on scant rations during the winter, according to R. J. Laible, swine specialist of the College of Agriculture. To be profitable fall pigs must get plenty of proper feed right from the start and must have a sheltered place to eat it, he said.

The advantage in marketing is the chief reason for giving fall pigs a full feed. Poorly fed pigs may be able to live through the winter, but they will not be ready for market when prices normally are high in March and April. In contrast to this, the fall pig that has been full fed can be marketed at that time to good advantage. Pigs which were carried along on scant rations during the winter will have to be carried several weeks, or possibly months, longer and by that time, May or June, the market has dropped. Hence instead of being better paid for carrying his pigs a longer time, the owner of the poorly fed animals pockets less than he would if his pigs had been full fed and ready for earlier sale.

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Improvement Of Dairy Herds To Be Stressed By New Cow Club

Plans for an Illinois 500 Pound Butterfat Cow Club which will be organized to give the state's high class dairy cattle the credit that is due them and at the same time to demonstrate the worth of recommended dairy practices have been announced by C. S. Rhode, dairy extension specialist of the College of Agriculture, University of Illinois, who will have charge of the club. Two thousand cows are expected to be enrolled in the club during the coming year, Rhode said. Any farmer in the state who is a member of a cow testing association may enter any of his cows that he thinks can make 500 pounds of butterfat between January 1, 1925, and January 1, 1926.

The worth of any number of high class dairy cows in the state is passing unnoticed, and even dairymen themselves often do not know the true caliber of many cows in their herds, Rhode said in discussing plans for the club. If these cows meet the requirements of the club and demonstrate their ability to produce large quantities of milk they will point the way to improved methods in milk production, he explained. The value of practical and recommended methods which dairymen of the state are following in getting profitable production from their cows can be demonstrated to good advantage through the club. Such information should be of high value to Illinois dairymen in the matter of intelligent and profitable herd improvement.

Standards of the club are expected to be too rigid for many of the cows that are entered in the club, but these animals no doubt will lose their places in their respective herds as soon as their owners find they are not as profitable as they should be. All cows which win a membership in the club are expected to have about the same background for their success. In practically every case this background is expected to include high producing ancestors, especially good purebred sires; plenty of good feed, kind treatment and good working conditions.

Testers in the various cow testing associations of the state will keep records on cows entered in the club and all record blanks will be furnished by farm advisers. Each county will make its own arrangements for prizes which will be presented at the annual dairy day meeting or at some special meeting arranged for the purpose in the individual counties.

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Half Ton Calf Club Gets Eighth Entry From La Salle County

With the enrollment of a Shorthorn calf by Mason Hiltabrand, a La Salle county farmer living near Tonica, the number of entries in the Illinois Half Ton Calf Club has been boosted to eight. The club was started for the first time this year by the College of Agriculture to demonstrate the worth of good breeding, proper feeding and the right kind of management in getting calves up to a marketable weight at an early age. Those who enter calves in the club will attempt to make each of them weigh 1,000 pounds or more by the time they are a year old.

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Enlist Aid Of Rural Pastors In Progressive Farm Movements

Closer cooperation between country ministers of Illinois and those workers who are interested in improved living conditions on the farm and in the farm home is expected to follow the series of three agricultural conferences just held over the state by the College of Agriculture. The meetings, the first of their kind ever held in the state, were designed to bring farm and home advisers, farm and home bureaus, rural pastors and rural churches, teachers of vocational agriculture and rural schools closer together on a program which would improve the economic, social and religious life of farm families in the communities, touched by these agencies.

The first conference in the series was held earlier in the year near Decatur, but the other two have just been concluded, one at Centralia for southern Illinois pastors and the other at Granville for pastors in the northern part of the state. In all a total of 43 country ministers of nine different denominations and representing 20 counties of the state attended the two conferences. Nineteen pastors were present at the Mount Vernon conference from 10 different counties and 24 at the Granville conference from 10 counties. Denominations represented by pastors who attended the two meetings included Methodist, Catholic, Christian, Presbyterian, Congregational, Evangelical, Baptist, Lutheran and Mennonite.

In all a total of 122 people attended the two last conferences in the series. Those who registered included the 43 pastors, six pastor's wives, 12 teachers and superintendents of schools, 14 farm advisers, five home advisers and 42 other representatives. The first conference held early in the summer was attended by 56 ministers, nine farm advisers, five home advisers, 12 teachers, one county superintendent of schools and 24 farmers and their wives.

Much the same program was followed at all three conferences. In each case a farm adviser, a home adviser and a vocational agriculture teacher explained his or her work with special reference to cooperation with churches and following this some leading pastor explained his method of cooperation with these various agencies for better farms and homes. Services which the agricultural college can render were explained by representatives from the institution. The three district conferences will be followed by county conferences in which ministers of a single county will get together with their county representatives in agriculture and home economics work and map out programs of cooperative work for the future.

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Arranging Now For Clean Pastures Protects Pigs From Worms

A big step toward safeguarding pigs from intestinal worms next spring can be taken just now by arranging for clean pastures on which the growing porkers can be raised, according to A. J. Laible, swine specialist of the College of Agriculture. Pasturing pigs on clean ground which has either not previously been used by hogs or which has had a crop on it since so used is one of the main planks in the McLean county system of swine sanitation which is being used more widely every year throughout the state as an aid in paying pork production, he said.

Fall sown rye, bluegrass, red clover, second-year sweet clover and alfalfa are all crops that can be used in providing the clean pasture, according to Laible. Rye sown in the fall makes one of the best early pastures, while bluegrass is to be recommended because the turf which it forms keeps the young pigs out of the mud. Clover and alfalfa do not furnish the sod that bluegrass does and are not sources of green feed as soon as rye. Raising pigs on clean, worm-free pastures instead of in old lots may mean the difference between a pig crop and no crop on farms where the land is badly infected with worm eggs.

Trench Best For Storing Home Supply Of Celery Successfully

Commercially, celery is often stored from two to four months in the northern producing points or in cold storage warehouses at the larger markets. Celery from the home garden may be successfully stored until the holidays if kept sufficiently cool and moist. The house cellar generally is too warm for successful storage and the supply of celery for home use had best be stored in a trench. The trench should be about 12 or 15 inches wide and deep enough so that the tops of the celery are about two inches above the surface of the soil. The plants should be taken up with a mass of soil adhering to the roots and should be bedded close together in the trench. The soil should then be watered, but care should be taken not to wet the tops as this will cause rotting in storage. The trench should be covered with straw or with boards nailed together in an inverted V shape. The celery should not be covered too closely until freezing weather, but in cold weather, soil or manure should be banked over the trench to prevent the celery from freezing.

An empty hotbed or a root cellar also may be used for storing the home supply of celery. The celery should be taken from the field with the roots on and bedded in moist soil in the hotbed or on the cellar floor. The best temperature for storing celery is 32 to 35 degrees.

Commercially, celery is stored either in cold storage warehouses, outdoor cellars or in trenches. It may be kept for the longest period in cold storage. In this case the celery is stored "in the rough". As the plants are taken from the field the dried or decayed outer leaves are removed and the soil is shaken out of the roots, but the roots are not pruned off at this time. The celery is then placed in slatted crates and stored in a cold storage kept preferably at 31 degrees. When wanted for market the celery is taken from storage and trimmed and washed. It should not be washed nor the tops wet before being stored. - C. B. Sayre, College of Agriculture, U. of I.

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Woodlots In Illinois Supply Only Half Of Needed Fence Posts

Farm woodlots of Illinois have been depleted to the point where they are yielding less than half of the fence posts that are needed annually to replace worn-out ones on farms of the state, according to a forest survey made by the State Natural History Survey. Even when all the posts that are grown in the state are counted, the number produced is only a little more than 52 per cent of all those that are used, according to the survey. Under existing conditions a shortage of post timber has developed and will increase in severity, the report of the survey points out.

It is estimated that the average Illinois farm, containing 135 acres, requires almost 848 posts in good repair. With 31,974,775 acres of farm land in 237,181 farms, the total number of fence posts in place is 200,163,000. The average period of service of a fence post was found to be about 9-3/4 years, indicating an annual requirement by farmers in the state for renewals of 20,530,000 posts. This takes no account of the quantity used by other consumers. At present farm woodlands of the state, comprising 2,068,050 acres, are producing 10,031,860 fence posts a year or about half the number that are needed annually for replacements.

There is enough woodland on farms of the state to supply all the present needs of farmers for wood products if the wood lots are properly managed. In the absence of this improved management, however, the shortage of fence posts is being taken care of by importations of white cedar posts from the lake states, creosoted yellow pine posts from the south and locust and red cedar posts from Kentucky and Tennessee.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Swine Day Draws 350 For Study Of Pig Types

Approximately 350 farmers, swine breeders and feeders and vocational agriculture pupils attended the second annual swine feeders' day held last week in the livestock pavilion on the farm of the College of Agriculture. Swine type experiments which have been in progress for three years took up the main part of the program.

Results of the third year's work in the swine type experiments, which were announced during the day, are in line with those of former years and show that intermediate type pigs are superior to rangy and chuffy type porkers as economical producers of the most desirable carcasses and cuts of meat. In addition to being large and growthy, animals of this type have considerable thickness of fleshing, they grow well and utilize their feed as well as those of any type studied, R. J. Laible, of the college swine division, said in discussing the feed lot performance of the various types. Furthermore, animals of this type can be marketed at almost any weight, a point which cannot be overlooked by the feeder, he said.

Pigs of the intermediate type make their strongest bid for first honors as the best pork producers when the carcasses and cuts of meat produced by the various types are studied on the butcher's block, Sleeter Bull, of the college meats division, told the visitors. For instance, in the comparison made this year between intermediate and rangy pigs that were self fed on pasture the carcasses from rangy type pigs contained five per cent less fat, two per cent more lean, six per cent more hide and six per cent more bone than the carcasses of the intermediate type animals. Also the intermediate type carcasses this year were found to be fatter than those of the rangy type animals, but the difference was smaller than in the first two experiments.

W. H. Smith, state leader of farm advisers at the college, outlined the progress of the Illinois Ton Litter Club; Frank E. Brandt, in charge of Armour's General Test Department, discussed the requirements of the pork trade and Tage Ellinger, of Armour's Research Bureau, gave a brief discussion of this same subject.

Failure to supply adequate protein feeds in the rations which they use is one of the greatest mistakes made by hog growers in the corn belt, C. M. Vestal of the animal husbandry department at Purdue University, Lafayette, Indiana, told the visitors in another talk. The supply of commercial by-products, such as tankage and linseed meal, that can be fed to furnish protein is limited when the needs in livestock production are considered and farmers of the corn belt should grow more protein feeds, especially soybeans, he said. Soybeans rank at the top as a protein concentrate and one bushel of them fed with five to 10 pounds of a good mineral mixture will save from four to five bushels of corn when used as a supplement for fattening hogs.

In the concluding talk of the day, Gilbert Gusler, market analyst of Chicago predicted better hog prices. The hog industry is beginning to emerge from one of its periodical stages of excessive production and low prices into an era of lighter production with higher and more profitable prices, he said.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director.*

Plowing Old Poultry Lots Checks Fowl Coccidiosis

Outbreaks of coccidiosis, a fatal disease of chickens on many Illinois farms, can be largely prevented by plowing up infected lots during the late fall and early winter and using sanitary practices around the poultry house, according to Dr. I. B. Boughton, acting chief of the animal pathology and hygiene division at the College of Agriculture. Medicines are of little value in the treatment of coccidiosis and an ounce of prevention at this season may be worth many times more than a pound of cure after the next crop of chickens is infected, he said.

Coccidiosis, also known as bloody diarrhea, is a parasitic disease. Four to six weeks old chicks are most susceptible, the mortality among fowls of this age varying from 25 to 100 per cent. Affected chicks have a full crop but appear unthrifty. Diarrhea and leg weakness are common symptoms. A chronic type of the disease accompanied by only a few deaths often affects flocks during the late summer and fall months. Mature chickens may harbor the microscopic parasite which causes the disease without showing symptoms. Such birds act as spreaders of the disease, however, since their droppings contain the parasites. If this infection is allowed to remain in the soil and brooder pens, it may survive for many months and cause subsequent outbreaks.

Warm, rainy weather in the spring favors the development of the parasitic eggs remaining over from the previous season in unplowed soil and old dirty pens and houses. Unsanitary conditions and improperly drained premises also favor the growth of the organism. If practicable, young chickens should be put in new, clean lots and the old lots plowed and cropped in the spring. On premises where this cannot be done plowing the old lots in the late fall or early winter offers the best means of preventing subsequent outbreaks of coccidiosis. Thorough cleaning and disinfection of the houses at regular intervals during the year reduces the chances of infection.

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Bee Keeping Has Opportunities For Farm Youngsters

Bee keeping holds many opportunities in the way of profit and valuable training for farm boys and girls of Illinois, in the opinion of C. E. Gates, boys' club work specialist of the College of Agriculture. He is making a special effort to get more farm youngsters interested in this line of work and to that end is pushing the organization of bee clubs. Club work offers one of the best means whereby boys and girls can take advantage of these opportunities, he said. These opportunities are especially good in the fruit districts of southern Illinois, according to Gates.

Although bee keeping usually is considered a minor activity on the farm, the annual honey production for the state, as reported in the last census, totalled approximately 1,900,000 pounds, valued at $433,318. Out of 237,181 farms in Illinois, 27,850 reported that they were keeping a total of 162,230 colonies of bees, or an average of six colonies a farm for those reporting. The annual returns from bees in the state could be swelled by improved methods of bee keeping, according to Gates.

One opportunity for improvement in the bee industry of Illinois and one which young bee keepers can take advantage of is in increasing the average production of honey a colony from the present low figure of about 11 pounds to that of well kept colonies which produce as high as 100 pounds. Winter losses also can be materially reduced. The average loss in the middle west by winter killing is estimated to be about 13 per cent and for Illinois, 11 per cent. Careful fall management in seeing that the colonies go into the winter with a vigorous, young queen, a large proportion of young bees, ample food supplies of good quality, sound hives and proper protection against cold and dampness will lessen winter losses and increase the income of the owner for the next summer.

Cheaper Farm Power Aim Of Coming Tractor Schools

In an effort to help farm tractor and gas engine owners and operators keep their mechanical power costs down to a minimum the College of Agriculture is scheduling a series of tractor and gas engine schools to be held in different counties of the state during the coming winter. Manufacturers and dealers, county farm bureaus and the college will cooperate in holding the schools, which will be organized and directed by the farm bureaus in the various counties.

"It is a rather well known fact that tractors and gas engines should be overhauled and adjusted from time to time to avoid costly repairs and inefficient operation, but too often this work is not done at the proper time," F. P. Hanson, a member of the farm mechanics department of the college, said in discussing the schools. "The schools will be designed to correct this situation by giving tractor and gas engine owners and operators first hand information on the construction, operation and repair of tractors and gas engines."

The series of schools is expected to get under way sometime in December and continue through March of next year. However, these county schools will not take the place of the tractor short course offered at the college during January, according to Hanson, who pointed out that this course would be given as usual. Only tractors of one make will be used in the practice work at part of the schools, and in such cases the educational work of the school will be taken care of by representatives of the company manufacturing that tractor. At schools where there will be a variety of tractors used, competent local men will be secured to conduct the educational work.

There will be both lecture and practice periods at all of the schools. In the lectures such subjects as the principles of engine operation, motor parts and functions, ignition, carburetors, fuels, lubrication and engine and tractor troubles will be covered. In the practice work each man will work on the machine he owns or operates or else a machine of his choice. Enough schools are expected to be scheduled during the coming few months so that a large percentage of the tractor owners and operators in the state can get the benefit of the work which is being offered.

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Fall, Not Spring, Is Best Time To Start The Garden

Many gardens are failures because they are started too late. The best time to begin preparations for a spring garden is in the fall. The first thing to do is to select a location for the garden. If possible, a site near the house should be chosen since it will be much more convenient to care for the garden and harvest the products than if the gardening were done at a distance. A well-drained piece of land should be used for the garden if early planting and early crops are desired, preferably the slope should be to the south since this also promotes earliness.

Rich soil is required for satisfactory gardening. If a supply of manure can be secured it should be applied liberally to the land that is to be used for the garden. There is a decided advantage in applying the manure in the fall and plowing it under before the ground freezes. This gives the manure a chance to decay and become incorporated in the soil before the spring planting season arrives. The fall plowing has an advantage over spring plowing in that it takes less time in the spring to prepare the seed bed for early planting if the plowing has already been done. Often this makes the difference between an early garden and a late garden, since it often happens that the soil is in good condition for planting early in the spring for only a day or so and is then so thoroughly wet by a heavy rain that it is not in workable condition again for ten days to two weeks. Fall plowing makes it possible to plant the early vegetables as soon as the top soil becomes dry enough to work. - - J. W. Lloyd, College of Agriculture, U. of I.

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Sees "Spotted" Condition In Farmers' Buying Power

As a group Illinois farmers are in better financial shape this year than they were last, but the financial condition of individual farmers varies widely depending upon the section of the state in which they live, according to a statement issued by H. C. M. Case, head of the farm organization and management department of the College of Agriculture. The relation between the price of things which the farmer sells and the price of things which he buys is the best that it has been since the sharp drop in prices at the close of the war. Prices of a few products, including dairy products, have dropped this year, but the increased prices, especially those for grain and hogs, have been to the advantage of the farmer, even with the lower total production and with much corn of a low grade.

"However, the financial condition of farmers cannot be measured by farm prices alone nor by the relation between the price of farm products and the price of products which the farmer buys. Total production also must be taken into consideration. In view of the wide range in the yields and total production of crops in different sections of the state, the purchasing power of farmers as a whole, measured by their incomes, is bound to be spotted."

Corn, the principal crop of the state, furnishes a good example of the spotted nature of crop production this year. Statistics a month ago showed that the acreage of this crop this year was about two per cent larger than last year but that the total production in bushels probably would drop off as much as 12 per cent below what it was in 1923 and that much of the yield would be of inferior quality. A smaller yield from a larger acreage than was grown in 1923 will go a long way toward offsetting the advantage of a higher price for corn when the lower quality of the crop is taken into account.

Early frosts killed or injured corn in many sections of the state and much corn is of poor quality. In other parts of the state the yield was cut by unfavorable weather conditions in the spring which caused thin stands of weedy corn. Some parts of the state have a large crop of high grade corn. As for wheat the total winter wheat production of the state is more than 40 per cent under the 1923 figure and 30 per cent under the five year average of 1918 to 1922. Oats, on the other hand, show about a 20 per cent increase in total yield over last year and the figure is well above the five-year average.

The prices of these grains are from 20 to 50 per cent above what they were a year ago, but all producers do not share equally in the price advance because of the spotted nature of production. This is what is causing the variation in the financial condition of individual farmers and the spotted nature of their buying power.

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E. L. Johnson, formerly assistant adviser in Macoupin County, is now located at Bragg City, Missouri, a small town in the new drainage district of southeast Missouri. Johnson has gone into a business partnership with a Mr. McTerr of that city.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director.*

Ninety-Four Counties Have Students in Ag College

Ninety-four of the 102 counties in Illinois are represented by the 650 students who are studying either agriculture or home economics at the College of Agriculture, University of Illinois this year, according to registration figures announced by H. W. Mumford, dean of the college. Outside of Chicago and Cook county, and Champaign county, Vermilion county heads the list in number of students enrolled with a total of 27. McLean county is second in the list with 15 students, while Pike and Christian counties each have 12 students the next highest number. Chicago alone sends 48 students to the college and Cook county outside of Chicago is represented by 21. Champaign county furnishes 80 local students.

Other county registration figures are Iroquois and Sangamon counties, 11; LaSalle and Madison, 10; Edgar and Macoupin, nine; Bureau, Crawford, Piatt, Shelby, and Winnebago, eight; Adams, DuPage, Knox, Livingston, McHenry, St. Clair, Warren and Woodford, seven; Fulton, Kankakee, Kendall, Lawrence, Tazewell and Whiteside, six; Bond, Coles, Edwards, Henry, Jo Daviess, Lake, Logan, Moultrie, Peoria, Wabash and Will, five; Clinton, DeKalb, Douglas, Effingham, Franklin, Hancock, Lake, Macon, Marion, Marshall, Perry, Schuyler and Stark, four; Boone, Clark, Cumberland, Greene, Lee, McDonough, Massac and Whiteside three; Bond, Brown, Carroll, Clay, DeWitt, Ford, Gallatin, Grundy, Jasper, Kane, Kendall, Livingston, Richland, Rock Island, Saline, Washington and Union, two; Fayette, Henderson, Jackson, Jersey, Johnson, Ogle, Pope, Cass, Pulaski, Putnam, Scott, Stephenson and Williamson, one.

-V-

Rose Beds Best Prepared During The Fall Of Year

Now is the best time to prepare beds for a home rose garden, according to H. B. Dorner, chief of the floricultural division at the College of Agriculture. Rose beds need more preparation than is given to beds for other ornamental plants, and if the soil is worked during the fall months it has a chance to settle and decay before cold weather sets in. The freezing and thawing action during the winter months aids further in working the beds into good condition for planting the rose bushes the following spring, he said.

For best results, beds should be dug from 18 to 24 inches deep. If the subsoil is heavy or clayey, or other conditions cause poor drainage, the bed should be built up by artificial means. A six inch layer of broken brick or stone, or of gravel or cinders, placed at the bottom of the bed and covered with a six inch layer of medium fine manure will furnish the necessary drainage conditions. Then the bed may be filled up a little above the surface of the ground with a mixture of garden soil and well rotted manure. Building the bed up in this way allows for settling. Fresh manure can be used in the fall when planting is to be put off until spring, but best results will not be obtained if fresh manure is placed in contact with the roots of the spring planted rose bush.

-V-

Open Air Housing Of Tools Costs Farmers $1,387,500

Illinois farmers lose $1,387,500 annually through their failure to house farm machinery and protect it from the weather, according to R. I. Shawl, a member of the farm mechanics department at the College of Agriculture. Ten per cent, or $22,200,000 worth, of the farm machinery in the state is left out in the open. As a result the average life of it is reduced from 16 years to eight years, as shown in statistics gathered by agricultural colleges. Since this $22,200,000 worth of machinery lasts only eight years the annual depreciation on it is $2,775,000 whereas if it were properly housed and protected it would last 16 years and the annual depreciation would then be reduced to $1,387,500.

Water Systems Are Scarce In Illinois Farm Homes

Only about six per cent of the farm homes in Illinois have complete water storage systems, according to H. W. Lehmann, chief of the farm mechanics department at the College of Agriculture. Many farmers have gravity supply tanks to furnish water for their livestock but do not have water piped to the farm house. For small additional cost, running water could be put in the farm home. The big advantages of such a water supply system are the satisfaction and convenience of having water pressure in the house and the protection of health which comes with a good water supply and sewage disposal system. According to Lehmann, a water storage system also saves labor and time.

The simplest means of water storage is by the gravity supply tank system. The tank must be located high enough to give pressure at the highest point to which the water is piped. Many farmers in rolling country can take advantage of their natural conditions and place the tank on a side hill above the house. In level country the tank may be placed on a stand tower with a milk storage room underneath the tank, on top of a silo, incorporated in the windmill tower, in the haymow of the barn, or in the attic of the dwelling. The tank should be so located that there will be no danger of it or the main supply pipe freezing. Metal or wooden tanks are most common, although concrete or masonry structures are used. The tank should be covered to prevent the entry of foreign material and to keep out dirt.

When located in the house, the tank must be insulated to prevent its sweating. A false wall may be built around it and the hollow space between the walls filled with sawdust or newspapers. All open gravity tank arrays should have an overflow pipe to prevent flooding the house. On some farms a closed tank is used in the house and all the water from the well is pumped into this tank. The overflow is then piped to the livestock tanks, thus insuring a supply of fresh water for the house at all times.

The kind of power to use for pumping the water will vary with different farms, while the size of the storage tank depends upon the kind of power, Lehmann said. Windmill power requires more storage than a gas engine, while an automatic electric pump takes less storage than a gas engine.

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Weather Reports Help In Keeping Egg Basket Full

With cold weather close at hand farmers and poultrymen can use weather reports to good advantage in preventing costly slumps in the egg production of their flocks, according to H. L. Card, Chief of the poultry division of the College of Agriculture. Most poultrymen are depending on pullet flocks for an income at this season of the year and if these egg layers are subjected to undue exposure their egg production may be affected for many weeks to come, he pointed out.

"Drops in temperature sometimes come with such a rush that the pullets are subjected to bitterly cold weather before they have become hardened. During unsettled weather, especially, it is well to watch the weather reports and if there is danger of a cold wave during the night to make sure that the flock is as snug and warm as possible."

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The College of Agriculture will send 48 sheep, 45 hogs and six fat steers from its purebred flocks and herds to the twenty-fifth anniversary session of the International Livestock Exposition to be held in Chicago the first week in December, it has been announced by H. P. Rusk, head of the animal husbandry department.

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Manchu Soybeans Prove Worth As High Yielders In Edgar County

Manchu, a variety of soybeans which has been meeting with increased favor among Illinois farmers during the past few years, lived up to its reputation in Edgar county this year and on a number of farms in that section it produced some exceptionally good yields, according to reports which farmers in that county are making to the College of Agriculture. The average yield of beans from 460 acres grown by eight farmers who reported was a little better than 20 bushels an acre. The highest yield reported was obtained by William Colwell, near Kansas, who had 30 acres which averaged a shade more than 29½ bushels an acre. In all he grew a total of 118 acres of Manchus this year which averaged slightly more than 21 bushels an acre.

John Honnold, another Edgar county farmer, reported an average yield of 15½ bushels from 45 acres of Manchus; M. I. Delap, 23 bushels an acre from 60 acres; Walter Hodge 23 bushels an acre from 20 acres; Albert Welch, 19½ bushels an acre from 50 acres; R. D. Varner, 20 bushels an acre from 35 acres; J. E. Adams, 19½ bushels an acre from 90 acres and C. R. Boland, 12¼ bushels an acre from 20 acres. Part of the blame for the low yield obtained by Boland is laid to the fact that a bean harvester was used and that a large percentage of the beans were left in the field.

The yields reported by Edgar county farmers are in line with those obtained on the experiment station farm of the agricultural college where the Manchu variety has been tested for a number of years. During the time that it has been tested, the Manchu variety has yielded almost three bushels of beans more an acre than the next highest yielder. Champaign county farmers also are reporting Manchu yields that average around 20 bushels an acre. The Manchu variety not only is a high yielder, but also is high in oil content, which makes it a valuable commercial oil bean.

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Bankers' Association Boosts Corn Show With $500 Prize Offer

Following up its lead of last year, the Illinois Banker's Association again has posted $500 to be used as prizes for the winners in the annual Illinois Seed Grain Show, including the fifth annual Utility Corn Show, which will be held at the College of Agriculture, University of Illinois in connection with the annual Farmers' Week, January 12 to 16, 1925, it has been announced by J. C. Hackleman, crops extension specialist, who has charge of the show. As in former years, the Illinois Crop Improvement Association also will cooperate with the college in putting on the show this year.

Last year's show was the best one on record and plans already are under way to keep the coming exhibit up to the same high standard, according to Hackleman. The peck class for samples of shelled seed corn, which is an innovation in corn shows and which was introduced into the show here for the first time last year, will be continued this year, along with the class for farm bureau exhibits, he announced. The class for shelled seed corn is especially significant, since 80 per cent of the seed corn bought by farmers is shelled, Hackleman pointed out. All samples of corn will be judged by the utility score card which calls for a germination test of all corn entered.

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Pullets Need Good Start To Make Best Paying Producers Of Eggs

Hundreds of pullets in Illinois farm flocks develop into poor layers and unprofitable producers because they get off to a poor start at this time of the year, according to John Vandervort, poultry extension specialist of the College of Agriculture. By this time pullets should have been rounded up and put in winter quarters to receive the care and attention that is necessary if they make paying producers, he said,

"Heavy grain feeding is essential to get the birds in the best physical condition for heavy production during the winter months. A bird with little or no fat on its body cannot be expected to lay many eggs during the next few months, when eggs will be high priced. To keep pullets in condition for the production of these high priced eggs approximately two to four quarts of scratch grain for each 100 hens should be fed in the morning and from six to eight quarts in the evening. A scratch mixture made of five parts of corn by weight, three parts of wheat and two parts of heavy oats should give good results.

"A hen must have mash before her at all times and this is just as true of pullets as it is of hens. A good mash mixture can be made up of equal parts by weight of wheat bran, flour middlings, ground corn or corn meal, ground heavy oats and meat scrap. Some form of green or succulent feed should be supplied as well as grit, oyster shell and plenty of fresh water. It will be well to look the birds over occasionally for lice.

"Pullets may lay too heavily at the start of the season and as a result fall down in their production later in the year. A production of more than 50 eggs daily from each 100 birds may cause the pullets to slump later and go into a partial molt. It is best to examine a few birds from time to time. If they are laying too heavily and losing weight they should be brought back slowly to the proper weight and their production slowed up by increasing the amount of grain in the ration. It should be remembered that the young pullet is an extremely sensitive machine and that all changes in feeding and management should be made with caution."

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College Publications Good Source Of Winter Reading Material

With the approach of winter, workers at the College of Agriculture are getting ready for the added rush of requests which usually start pouring in from all parts of the state about this time of the year from farmers wanting bulletins, circulars and other information. Winter is the time when farmers and their families catch up on the reading which they have postponed from the hustle and heat of the summer months and the requests received at the college for reading matter will be heavier during the next few months than at any other time of the year, according to authorities at the institution.

Publications of the agricultural college and its experiment station are a source of sound information and a valuable aid in working out improved farm and home practices, the authorities believe. The list of available publications, most of which are free, include 240 bulletins and circulars on soils and crops, animal husbandry, dairy husbandry, horticulture, entomology, home economics and miscellaneous subjects. Soil and crop publications total 84; animal husbandry topics are discussed in 50 bulletins and circulars; dairy husbandry in 30; horticulture in 40; entomology in 11; home economics in 21, and miscellaneous subjects in four. Titles and numbers of the various publications can be obtained by writing for a list of available bulletins and circulars. All but four of the publications listed are free and may be secured by writing the college.

More Sawed Lumber Used Per Capita In Illinois Than In U. S.

Although Illinois is known as a prairie state, the per capita use of sawed lumber in this state is about [illegible] per cent [illegible] than the average for the country as a whole, according to a forest survey report [illegible] State Natural History Survey. The last available figures show that the annual consumption of lumber in [illegible] was 2,355,662,[illegible] board feet, or [illegible] for every [illegible] in the state. In contrast to this the per capita consumption for the country as a whole during the same year was 316 board feet.

However, the total [illegible] in the state includes not only sawed lumber, but also cordwood, crossties, [illegible], [illegible], lath, logs for veneer, charcoal, [illegible] and other forms, the report points out. For all these uses [illegible] cubic feet of lumber, or more than 55 cubic feet a person.

One acre of land for every person in the state, or [illegible],44[illegible] acres devoted to intensive forestry, would be needed to supply this quantity of wood perpetually, according to the report. Twice this area would be required to yield this quantity under the present neglectful, wasteful and injurious practices under which the lands of the state are handled, the report adds.

Almost 70 per cent of all the wood which is used in the state, or [illegible],77[illegible],000 cubic feet, goes into sawed lumber, while all other uses, including cordwood, ties, mine timbers, posts, cooperage, [illegible], shingles, poles and piles, require [illegible],[illegible]22,988 cubic feet, or a little more than [illegible] per cent of all the wood which is used.

In the Chicago district alone, comprising Cook and DuPage counties, an average of 1,[illegible] board feet of lumber was consumed annually during the decade from 1910 to 1920, according to the report. This gave a per capita consumption in that district of almost 474 board feet. The per capita consumption of sawed lumber for the remainder of the state is [illegible] board feet, while the per capita consumption of lumber on farms is approximately [illegible] board feet.

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Estimates Annual Insect Damage Bill In Illinois To [illegible]

Insect damage to Illinois crops amounts to between $[illegible] and $3[illegible],000 annually, according to an article by W. P. Flint, entomologist of the State Natural History Survey, in the last issue of the Illinois Agriculturist, student magazine of the College of Agriculture. Successful methods of control [illegible] are being worked out, but the annual loss on farms is still in excess of $[illegible] a year, he pointed out. The bill of $3[illegible] is [illegible] the total annual insect damage in the state by any means, according to Flint. [illegible], unless given some special treatment, [illegible] and in addition there are many insects which attack the [illegible] and animals, he explained.

"There are very few, if any, cultivated [illegible] plants which grow in Illinois that do not have one, but many insects which [illegible] them", he said in the article. "For instance, [illegible] is known to be attacked in this state by more than 70 different species of insects, corn by more than [illegible], the apple by about the same number and the oak by more than 1,[illegible]. [illegible] generally accepted estimate of the amount of damage done by insects in the leading agricultural states of the country is that they consume approximately 10 per cent of all farm crops. This is not true of every crop every year in Illinois. The damage by insects varies with the season and with the crop.

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Vol. VII Urbana, Illinois - November 26, 1924 No.48

Better Seed would Aid Potato Growing In Illinois

One of the problems of growing potatoes in Illinois is that of good seed. Experiments made at the Illinois Agricultural Experiment Station and also at other stations in the same latitude show that northern grown seed potatoes yield better than home grown. In experiments here the increased yield of northern grown seed over home grown is about ten per cent. In the southern part of Illinois, where potatoes are grown on a commercial scale, home grown seed is not used except where it has been grown under a mulch.

The potato is by nature a cool weather crop and probably because of the high temperatures which prevail throughout most of our state during the growing period, the potato degenerates to such an extent as to make it poor for seed. If, however, the potatoes have been grown under straw or some other refuse from the farm like clover hay, corn fodder or straw from the barn they make good seed stock for the coming year. Experiments show very little difference where both northern grown and mulched potatoes have been tried out together.

More and more emphasis is being laid on certified seed potatoes. Not only does certification mean that the potatoes are true to variety, but that they are strong, vigorous and free from disease. The question of disease has never been as serious in Illinois as it has in some of the northern potato regions, yet it is a factor which should be considered.

Good seed potatoes will continue to be good only as long as they are properly stored. Where seed potatoes are bought in the fall as is sometimes practiced, great care should be taken to store them properly. A potato that is sprouted and shriveled because of poor storage conditions will be a poor seed potato. The storage room for seed potatoes should be cool, dry, dark and well ventilated. The temperature should range from 34 to 38 degrees. The room should be dry enough to prevent mold from growing on the floors and walls. The storage room also should be dark to prevent greening of the potato. Whenever weather will permit, windows should be opened and the room properly ventilated. Because of the fact that potatoes are not as well adapted to this state as they are in the northern states, every effort should be made to give the crop as early and as rapid a start as possible. - John Pieper, Agronomy Department, College of Agriculture, U. of I.

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Lake County Cows Take Honors In October Production

A purebred Brown Swiss cow in the herd of Hawthorne Farms, Libertyville, Lake County, took high honors for October milk and butterfat production among the 9000 or more cows in the 21 county cow testing associations of the state when she produced 87 pounds of butterfat and 2,179 pounds of milk. Four purebred Ayrshires owned by Deerpath Farm, Lake Villa, also in Lake county, took high herd honors when they each averaged more than 52 pounds of butterfat and 1,305 pounds of milk for the month.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director.*

Tests Prove Legumes Should Be Basic Feed For Sheep

Legume roughages make a good basis for rations fed to pregnant ewes after pastures no longer are supplying nourishing feeds. No other single feed has been found that will carry pregnant ewes through the winter in as satisfactory a way as will good alfalfa or clover hays. Ewes have been given no feeds other than alfalfa hay and have produced vigorous lambs. Every investigation indicates that legumes should be the basic feeds for sheep.

Ewes which will lamb early will not become paralyzed just before lambing if they receive legume hays and are given plenty of exercise, water and salt. In feeding early lambing ewes, it often is found that legume hay is sufficient feed, together with what the ewes pick up in the pastures, until a few weeks before lambing. For a ewe weighing about 150 pounds, about one-half pound of grain a day may be necessary during the last month of pregnancy. This will, however, depend somewhat upon the condition of the ewe. Many shepherds state that some grain at this time is advisable as the milk flow is stimulated, much to the benefit of the lamb. The grain used may be of different kinds and mixtures, but for ewes that are not too high in condition and which are receiving alfalfa or clover hay, corn will be all right. A mixture of equal parts corn and oats will be more satisfactory and if a little bran is added to these during the last week of pregnancy one will have a very suitable ration.

Corn silage or other succulents may be fed to pregnant ewes. A good producing flock is always found on farms where good legumes are grown and where the farmer gives his flock the necessary attention and feed. - W. G. Hammlade, Animal Husbandry Department, College of Agriculture, U. of I.

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Three State Championships Awarded To Club Members

Three new state champions in different lines of boys' and girls' club work have been announced for 1934 by club workers at the College of Agriculture. They are Ruth Esther Bumgarner, 15 years old, of McNabb, Putnam county, in baby beef club work; Lloyd E. Graham, 16 years old, of Elmwood, Peoria county, in pig club work; and Helen La Rue, Springfield, in clothing club work.

As a result of their winnings each of the club members will receive $25 to apply on the expenses of a trip to the Chicago International Livestock Exposition next week. All three of the awards were made on the basis of the general character of work done by the youngsters in their respective projects, the records which they kept and the story which they wrote of their work.

In winning the state championship for the year in baby beef club work, Ruth not only won out over her own brother but also over all other club members of the state who fed baby beef calves as their club project. Her Hereford calf, Highland Laddie 2d, gained 475 pounds in less than eight months and at the time Ruth closed her records the calf weighed 955 pounds.

Young Graham, the new pig club champion, was enrolled in the sow and litter club and during the past summer raised a litter of four purebred Hampshires. By reason of Lloyd's winning, Peoria county gets the state championship in pig club raising for the second year.

Miss La Rue, the new clothing club champion, has made and repaired all her own clothing, having made a total of 26 garments in her club work. One of her dresses won first over 40 others at the Central States Exposition in Aurora this fall and first over 80 others at the State Fair at Springfield.

Lighting Hen Houses Practical Way To Get More Eggs

Artificial lighting of the hen house to lengthen the working day of hens is a practical means of swelling the egg production of the farm flock during the winter months when eggs are high priced, and could well be used on more Illinois farms, according to Dr. L. E. Card, chief of the poultry division of the College of Agriculture. The use of lights leads to increased production because it induces the birds to exercise more, eat more grain and mash and drink more water, he explained.

"The native hen of the tropical climate was accustomed to a uniform day and night each of 12 hours duration. Her digestive organs were developed to meet these conditions and consequently her gizzard is not large enough to store up the amount of food that she needs during the long winter nights in order to keep up heavy production. The fact that the ordinary farm hen is given her last feeding at about 4 or 4:30 in the afternoon makes it even harder for her to store up enough food to last thrcugh the night. If the daylight is supplemented with artificial light the working day of the hen is lengthened and she may be fed later in the evening or given an extra meal or evening lunch, in addition to the usual feeding. The latter method, that of giving hens an extra feeding in addition to the one in the afternoon, has proved satisfactory with many poultrymen and is a safe way to use electric lights.

"In this method the birds are allowed to go to roost at the usual time after the afternoon feeding and at either 8 or 9 o'clock the lights are turned on for an hour so that the hens can fill up on grain. It may be advisable to put the grain in troughs or hoppers so that the birds can easily get all the feed they want. More natural conditions can be provided for the hens if the house is lighted and the birds fed early in the morning. Morning lights make the hens more active, as it is a natural tendency for them to work hard as soon as they leave the roost. Some dimming device must be used with evening lights, as the birds will be left on the floor in the dark if the lights are turned off abruptly.

"Gasoline lanterns, gas lights and electricity can all be used to light the house, but no one system can be said to be best. The system that should be used is the one that is most convenient for the flock owner and the one that best meets his conditions. Lights should be used with extreme caution as any radical change in the amount of light given may prove disastrous in most cases and throw the birds out of production."

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29 Club Members Awarded Free Trips To International

Eighteen boys and 11 girls from 24 Illinois counties, the winners in various lines of boys' and girls' club work for the year just past, will receive free trips to the third National Boys' and Girls' Club Congress and the twenty-fifth annual meeting of the International Livestock Exposition in Chicago next week, according to an announcement by E. I. Pilchard, club work specialist at the College of Agriculture. Including leaders and the boys and girls who will have their expenses paid by interested concerns in their respective counties, the Illinois delegation of club members at the two events of the week is expected to number close to 80.

Chief among the attractions for members of the Illinois delegation during the week will be a rally of the club members from all states Monday night; a Four-H breakfast to be given Wednesday morning by the Illinois Agricultural Association; and a luncheon to be given Friday noon by the Chicago Association of Commerce. In addition there will be banquets and luncheons practically every day of the week and visits to the International, the packing plants, parks, museums, theatres and the Art Institute.

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

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Vol. VII Urbana, Illinois - December 3, 1924 No. 49

Can Exchange Scrub Dairy Sires For Purebreds Under New Plan

In line with the campaign against inferior dairy sires in Illinois, a bull exchange plan is being put into operation whereby farmers and dairymen will have an opportunity to trade in their grade and scrub bulls for purebred dairy bull calves. The plan, which will be carried out through the cooperation of dairy cattle breeders of the state, county farm advisers and the College of Agriculture, was worked out by T. S. Rhode, dairy extension specialist of the college. This is believed to be the first time that the idea has been developed on a large scale.

Breeders of the state who would be called upon to furnish the purebred bull calves have put their stamp of approval on the exchange plan, as shown by the replies received from them in response to a letter sent out by Rhode. Approximately 100 breeders were consulted and in practically every case the project met with favor and, in some cases, enthusiasm. Those in charge of the plan believe that it will be the means of replacing approximately 500 scrub and grade bulls on farms of the state with purebreds during the coming year. This is an average of about five for each county.

Under the terms of the project, farm advisers will be kept informed as to who the breeders are who are cooperating in the exchange plan and who have purebred bull calves for exchange. In this way farmers and dairymen who wish to make an exchange can conveniently arrange for it through the farm adviser's office. When an exchange has been arranged, the breeder will register, transfer and ship the calf, but the express charges will be paid by the farmer. After receiving the calf, the farmer will sell his grade or scrub bull and turn the sales slip and check over to the county farm bureau treasurer who in turn will send it to the breeder who furnished the purebred calf.

The need for more and better purebred bulls is seen by Rhode as one of the most pressing ones in the improvement of Illinois dairying, and it is believed that the bull exchange plan will go far toward solving this problem. At the present time not more than 20 per cent of the dairy bulls used in the state are purebred.

"Hundreds of purebred bull calves are vealed in Illinois every year because breeders feel that they cannot afford to raise them", Rhode said in pointing out the possibilities of the plan. "At the same time there are many farmers in the state who would be glad to exchange their grade or scrub bulls for these bull calves. Such an exchange should at least give the breeder veal prices for his young stock, while farmers, of course, would benefit from the fact that their herds would be built up on higher milk and butterfat yields through the use of purebred sires."

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Almost five and three-fourths per cent of all the lumber used in manufacturing in Illinois goes into agricultural implements and machinery. Because of the growing shortage of timber supplies, however, more and more of the parts formerly made of wood are being replaced by metal. It is difficult to predict how far the substitution will go.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

Improved Poultry Methods Make Grundy County Flocks Pay Well

Approximately 120 poultry houses built or remodeled according to recommended plans is one of the things that has been accomplished in Grundy county during the last seven years as a result of poultry work conducted by Farm Adviser F. E. Longmire in cooperation with the College of Agriculture. This is not all, however. In addition 95 feeding, culling and housing demonstrations have been held throughout the county, six poultry shows have been staged, eight general meetings featuring different phases of chicken raising have been held in different parts of the county, at least 19 flock owners have started keeping records on their hens, three poultry tours have been conducted to successful flocks in the county and many farmers and poultrymen have been given help in disease control and other poultry problems.

That all of this work has had its effect in putting poultry raising in the county on a better basis is shown by records which the college has compiled on 45 representative flocks of the state and on nine Grundy county flocks. Hens in the Grundy county flocks not only averaged more eggs than those in the 45 flocks, but they also paid their owners higher net receipts a hen than those in the 45 flocks did.

The movement for better methods of farm poultry keeping was started by Farm Adviser Longmire in 1918 with the holding of 12 culling, feeding and housing demonstrations at which flock owners were given new pointers on how to cull out poor layers, feed their hens for higher egg production and house them for more profits. A general poultry meeting also was held the same year.

Results of the movement began to show up the following year when four poultry houses were either built or remodeled. The first of the poultry shows was held in 1919 and the first tour in 1922. The keeping of records by some of the flock owners was started last year.

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Feeding Good Dairy Cows Liberally Is Economical Practice

The height of extravagance is reached when the feed of good dairy cows is stinted, in the opinion of W. J. Fraser, dairy farming specialist at the College of Agriculture, who points out that this practice makes unprofitable producers out of animals that otherwise would pay. The way to economy and profits in dairying is to keep fewer and better cows and feed them liberally, rather than limit the feed of a larger number of animals, he said.

In this connection it should be pointed out that roughages this year are of poor quality. Much hay harvested this year, especially that in the first cutting, was coarse and stemmy, and many farmers were compelled to make silage out of immature corn which contained a reduced percentage of grain.

"In view of the cheapness of roughages and the relatively high price of grains, cows should be given a liberal supply of this poor roughage at all times and should not be required to clean up the butts of silage stalks and the coarse stems of hay which have little feed value. In addition to the extra supply of roughage, heavy producing cows should be given a good allowance of grain."

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Degeneration of woodland as a result of grazing it with livestock may be prolonged over a period of half a century, but the forest is doomed as certainly as if it were allowed to burn over every year or two, forestry specialists say.

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Shrinking Timber Supply To Increase Industry's Wood Costs

A growing scarcity of timber has brought Illinois industries face to face with the prospect of higher prices for wood, according to a forest survey report of the State Natural History Survey. Even on the present basis of consumption, it would take the state 100 years or more to reach a condition of self support in wood production. Added to this is the fact that the timber supplies outside the state, on which Illinois industries are now drawing, probably will suffer heavy depletion within comparatively few decades, the report points out.

The maximum area which ultimately could be used for forest production in the state is not more than five million acres. Even if every acre of this area was devoted to the most intensive forest cultivation, the industries now dependent on wood could not exist without relying as at present on importations from outside the state, the report says.

Illinois therefore must continue to depend in a large measure upon regions having a greater percentage of true forest land, the report continues. It is hoped that timber may continue to be exported from these states, provided a surplus is produced within them. Because of the favorable location of the state, Illinois industries are assured of a continued supply of raw materials until such time as these supplies fail at the source because of lack of proper conservation and lack of renewal by forestry measures, the report points out. That such failure may occur and that the available supplies of virgin timber, especially of the hardwoods, which make up 50 per cent of the demands of Illinois manufacturers, will in all probability suffer great depletion within comparatively few decades are facts not open to question, it adds.

When importation and the growing of local timber fail to supply the enormous quantities of wood needed by Illinois industries, there will be a basic change in industry and perhaps very serious consequences in standards of living and even in the growth and distribution of population, the report continues. It recommends the development of forests on soils unprofitable for food crops wherever such soils are found, so that the state may produce as large a percentage of home-grown timber as possible. It also advocates a lively interest in national forestry problems and policies which tend to encourage forest production in other states and in the nation at large.

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Soybeans Are Featured In College's Exhibit At International

A hundred pounds of whole soybeans have a feeding value equal to that of 90 pounds of soybean oil meal or 65 pounds of tankage, and 100 pounds of soybean hay are equal to 85 pounds of clover hay, 80 pounds of alfalfa hay or 250 pounds of soybean straw. These facts, along with others concerning soybeans, were brought out in the exhibit prepared by the College of Agriculture for the International Livestock Exposition.

How the acreage of soybeans in Illinois has increased since 1919 until this state now is the leading soybean producing one of the country was shown in another part of the exhibit. It was shown that in 1919 Illinois grew 16,000 acres of soybeans alone, 37,000 acres in 1921 and 229,000 acres in 1923. The range between the yields made by the highest and lowest yielding varieties in tests conducted by the college also was shown in the display.

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Overcrowding Common Error In Winter Poultry Housing

The farm flock often is overcrowded because the farmer wishes to keep just as many birds as possible throughout the winter, regardless of results. As much profit often can be made on a flock of 100 birds properly housed and cared for as on one of 200 which is crowded into a small house. Crowded conditions are usually found in a filthy, poorly ventilated house. The result is low egg production and usually disease. A bird under ordinary farm conditions should be allowed approximately four square feet of floor space. Without the proper amount of floor space for each bird the litter becomes damp and dirty quickly and if it is not removed frequently and clean straw supplied, a drop in egg production can be expected.

Hens give off more moisture a hundred pounds of live weight than any of the farm animals and it is essential that this moist air be carried off if the house is to stay dry. There should be plenty of fresh air in the house but no drafts. It therefore is essential that there be no openings except in the front of the house, unless a circulation of air is needed during hot weather in summer. Some of the openings in the front should be of glass to let the sunlight penetrate the back of the house and some space left open to be covered with a muslin curtain only when the weather is stormy and extremely cold. If the muslin is kept clean some air will pass through. Birds can endure rather severe weather, but the air must be dry.

There is plenty of straw on the average farm and yet very little of it is used for litter in the hen house. Deep, dry litter will make the birds scratch for their grain, thus helping to keep them healthy and working off some of the surplus fat on the body of the hen that has been fed too heavily on corn.

A count should be made of the birds that are to be kept through the winter. If there are more than can be comfortably housed, the surplus ones should be taken out of the flock. The sickly, late-maturing birds should be culled out first as they will not be profitable layers. They may lay a few eggs during the spring but high-priced winter eggs cannot be expected from them. The essentials of good housing are cleanliness, dryness, freedom from drafts, plenty of room and plenty of sunlight. The house should be a comfortable home for the hens. - John Vandervort, Poultry Extension Specialist, College of Agriculture, U. of I.

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McHenry County Nominates First Cows For Select Club

Illinois' 500 Pound Butterfat Cow Club, launched this year by the College of Agriculture to give the state's select dairy cows the credit that is due them and at the same time to demonstrate the merits of recommended dairying practices, is off to a good start with 26 entries sent in from seven herds in McHenry county by Farm Adviser A. J. Gafke. It is significant that dairymen in the leading dairy county of the state have jumped to the front in nominating cows for membership in the new club. To win a membership in the club, each of the 26 McHenry county cows, like all others that are entered, must produce at least 500 pounds of milk between January 1, 1925 and January 1, 1926.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

Barrows Weighing 225 Pounds Best For Home Slaughter

In selecting hogs for home slaughter, pick smooth barrows weighing around 225 pounds. Avoid very fat animals, boars, stags, old sows and piggy gilts. Omit the evening feed on the day before slaughter.

Stun the hog with an ax or a shot from a .22 caliber rifle. It is really better to have some one hold the hog on his back while another sticks him without previous stunning, or to shackle the live hog around one hind leg with a light rope and then hoist him with a block and tackle. The animal will bleed better if this method is followed. In sticking, insert an 8 inch knife, edge down into the middle line of the throat, three inches in front of the breast bone. Run the knife in and down until the lower edge of the breast bone is located. Then push it slightly under the bone and cut back toward the head, severing the veins and arteries. Avoid getting the knife out of the middle line and sticking the shoulder.

Frequently the water for scalding hogs is heated in a kettle over an open fire and the animal scalded in a barrel. A better method, especially when several hogs are to be butchered, is to set a small galvanized watering tank on bricks or over a shallow pit so that a fire may be built under it and the water heated directly. The water should not be too hot. The hand should be dipped into it three times in rapid succession. If the temperature is uncomfortable the third time, the water is all right for scalding. The proper temperature for scalding is about 150 degrees.

A scraping platform is set alongside the tank and the hog is rolled off the platform into the water and onto a rope, the ends of which are fastened about three feet apart to the platform. The hog should be rolled about and removed from time to time to see if it is ready. Clean the feet and head first. After the hair is removed, hang the hog upon a gambrel stick inserted through the tendons of the hind pasterns just so the head clears the ground. Pour hot water over the carcass and shave it. Then pour cold water over it.

In dressing, begin with the twist (between the hams) and cut down to the pelvic bone. Then split down the middle to the breast bone, taking care not to cut too deeply and into the guts. Next cut through the exact center of the pelvic bone, being careful not to cut the bung just beneath. Pull down and out on the penis or uterus while cutting around the bung. Then the intestines, liver and stomach may be removed without much difficulty. Next split the breast bone by inserting the knife a little to one side of the center and cutting downward. Remove the heart, lungs, gullet and wind pipe. Thoroughly wash the inside with cold water and allow the carcass to cool over night before cutting it up. However, do not let it freeze.

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Club Work Starts Woodford Youngster On Farming Career

Now that he has made a good start in boys' club work, Everett Armstrong, 13 years old, who lives near El Paso, Woodford county, intends to become a farmer and raise pigs and calves on a larger scale. In summarizing a report which he has just made on his year's work to the College of Agriculture, University of Illinois he wrote, "Surely I shall become a farmer and raise pigs and calves". He is one of the outstanding club members in the state, having just won $25 toward the expenses of a trip to the recent International Livestock Exposition at Chicago. This made him a member of a select group of 29 farm boys and girls from 14 counties of the state who either received free transportation from various railroad companies or else cash awards of $25 for a trip to the Chicago show.

Outlines Five Steps For Making Farm Shop More Useful

It is pleasant, especially if one has a natural liking for mechanical work, to think of all the things that could be done if the farm shop were as completely equipped as some of the repair shops seen in town. It is easy to forget that such completely equipped shops represent a considerable investment and that the small extent to which much of the equipment would be used on the average farm might not justify the expense. Very often the best way to increase the sum total of one's wealth is to make that which one already has more valuable and perhaps this will apply to a good many farm shops. A few things that perhaps might be done to make the present shop more useful are:

1. Improve the general arrangement of the shop. Have a place for all tools and see that they are put there in good condition when the job is finished. Have plenty of small boxes for different sizes of such supplies as nails, bolts, nuts and rivets. Strive to keep the shop orderly.

2. If the shop is dark, put in a window or two where needed.

3. Nothing will add more to the usefulness of a shop in the winter than a stove. A stove may increase the fire risks slightly, but not to any great extent if properly installed. It should be placed as far as possible from that part of the shop in which wood work is done. If the shop walls are reasonably tight and doors are kept shut, even a small stove will help wonderfully to make the shop a more comfortable place in which to work.

4. It goes without saying that tools are most useful when kept in good shape. This means keeping them free from rust, and if they are edged tools, sharp. No man can learn to use poor tools efficiently.

5. Use judgment in deciding what jobs to attempt. In this be influenced by (a) the extent to which your shop is equipped, (b) your own ability as a mechanic, and (c) the amount of time available. During the winter season one might well attempt jobs that during the rush season had better be taken to a professional repairman. - A. L. Young, Farm Mechanics Department, College of Agriculture, U. of I.

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Illinois Must Call On Other States For Lumber Supply

Less than two and a half percent of the lumber required in Illinois is home grown and part of what is grown is shipped to Indiana and Missouri, according to a forest survey report for the state which has been prepared by the State Natural History Survey. Of the 2,353,662,000 board feet of lumber consumed in the state, 2,310,453,000 is imported and only 43,209,000 board feet grown and consumed within the state.

More than half of the lumber shipped into Illinois comes from eight southern states including Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Oklahoma and Texas. In 1920 these eight states shipped in 50.85 percent of the lumber consumed in the state. Two states, known as the Northern Pacific group, shipped in the next largest percentage in 1920. These two states were Washington and Oregon and they furnished 18.58 percent of all the lumber consumed in the state in 1920.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Vol. VII. Urbana, Illinois - December 17, 1924 No. 51

Reduced Railroad Rates Granted For Coming Farmers' Week

Reduced railroad rates of a fare and a half for the round trip have been granted by the Western Passenger Association for the annual Farmers' Week to be held at the College of Agriculture January 12 to 16. The rate will be effective January 10 to 19 inclusive and will apply on practically all steam roads operating within the state. The reduction will apply from points in Illinois wherever the regular round trip is $1 or more and also from St. Louis.

Plans are being made for an unusual gathering of farmers and agricultural leaders at the college during this year's Farmers' Week. The Illinois Agricultural Association will hold its annual meeting at the college during the week and has scheduled sessions for January 15 and 16, while an extension school for farm advisers and other extension workers of the agricultural college will be held January 12, 13 and 14. A meeting for members of the executive committees of the county farm bureaus in the state also is being scheduled for the week.

Besides these attractions there will be the annual Illinois Seed Grain Show, including the fifth annual Utility Corn Show, which promises to surpass all previous records in interest and number of entries. The Illinois Bankers' Association, which is cooperating with the college and the Illinois Crop Improvement Association in staging the show, has posted $500 for cash awards. Corn that is to be entered in the show must be received at the agricultural college not later than December 31. One evening during the week is to be given over to a "Little International" in the livestock judging pavilion on the college farm. Livestock from the herds and flocks of the college will be on display and exhibits of various kinds will be made by the different departments of the college. Tentative plans are to have Eugene Davenport, dean emeritus of the agricultural college, talk Monday night, January 12; and H. M. Gore, secretary of agriculture, Tuesday night, January 13.

In line with the tendency of farmers to give more and more attention to the business side of farming, this subject has been given a prominent place on the program. Discussions bearing on this subject have been scheduled for the whole of the first afternoon of the meeting and among the speakers will be H. C. M. Case, head of the farm organization and management department of the college; M. L. Mosher, a member of that department; C. L. Stewart, in charge of farm economics work at the university; and L. J. Norton, a member of the university economics department. Mosher will speak on "Finding the Leaks in the Farm Profits"; Case will tell"What Farm Cost Studies Show"; Norton will discuss "Changes in Prices of Farm Products"; and Stewart will speak on "Factors Affecting Prices of Farm Products".

Practical information that has been worked out during the last 12 years by the farm organization and management department of the college in its farm accounting work and in cost of production studies which it has made over the state will form the basis for the first two of the four talks. Among other things, the farm accounting work in 11 counties last year showed that the best third of the farmers were making around $2,000 more apiece than was being pocketed by the farmers on the least profitable third of the farms.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

Two Farm Mechanics Short Courses Scheduled for January

Two short courses, one for tractor and thresher operators of the state and another for those interested in gas engines and tractors, will be held by the farm mechanics department of the College of Agriculture during the middle of January. The course for tractor and thresher operators will be held January 12 to 17 at the time of the annual Farmers' Week, and the gas engine and tractor course the following week, January 19 to 24.

Because of limited workroom facilities, only about 35 can be accommodated in the practice work that is to be given as part of the courses, but as many as 200 can be taken care of in the lecture work which is to be given during the first part of the tractor and thresher operators course. Those who wish to take the first course have been asked to register by noon, January 12, while the first 35 who register will be enrolled in the second. A fee of $3 will be required in the first course and one of $7.50 in the second to cover the cost of materials used.

Work given in the first course will be designed primarily for those who operate threshing outfits. The first two days will be devoted to lectures and demonstrations bearing on such subjects as varieties and selection of seed grain; dockage, grading and cleaning of grain; threshing investigations now under way at the agricultural college; the selection, use and care of belts; care and adjustment of threshing machines and the handling and threshing of soybeans. The last three days of the first course will be given over to lecture and practice work on the gas tractor, during which time such topics as the timing of engines, ignition, magnetoes, carburetors, lubrication, engine adjustments and trouble work will come in for consideration.

In the second short course, which will deal with gas engines and tractors, the time of those who enroll will be divided evenly between lecture and practice work. Construction, theory, operation, adjustment and repair of gas engines and tractors will be taken up in the lectures, while engine and tractor operation, magnetoes, carburetors, engine timing, ignition wiring, trouble work and adjustments will get first attention in the practice work.

Thirty-five different makes of gas engines and 16 tractors of the most representative types will be available for the use of those who take the course. The farm mechanics work rooms also are well equipped with magnetoes, carburetors, and engine parts.

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Farmers Can Save $13.32 A Hog By Slaughtering Own Pork

With hogs worth 8½ cents a pound on the farm, the farmer can save $13.32 on the pork from a 225 pound hog by slaughtering his own meat instead of selling the animal and buying the pork from a butcher, according to figures worked out by Sleeter Bull, in charge of meats at the college of agriculture, on 35 hogs which have just been slaughtered and cut up in experiments at the college. This saving does not figure any cost for labor or overhead charges.

By applying retail prices to the average amount of the different cuts of meat in the 35 hogs, it was found that the consumer pays $32.44 for the meat in a 225 pound hog when the animal is sold across the block by the retailer. At 8½ cents a pound for the live hog the farmer would get only $19.12 for the hog, making a difference of $13.32 on a 225 pound hog which would go into the farmer's pocket if he butchered his own hogs. This $13.32 does not all go to the packer or the butcher as net profit. Among the things which must be paid out of this amount are freight, commissions, yardage, freight on the meat from the packer to the retailer, the packer's expenses and profits and the retailer's costs and profits.

Hog Carcass Should Chill 24 to 48 Hours Before Cutting

Before hogs that are butchered on the farm are cut up, the carcass should be allowed to chill thoroughly for from 24 to 48 hours and should then be split down the center of the back with a meat saw. Many farmers split the hog on each side of the back bone with a cleaver or ax. This method spoils the best cut in the carcass - the loin. The head should be cut off about a half inch behind the ear or at the atlas joint. This may be done before or after splitting. Then lay the skin side down upon a table and cut off the feet just above the knee and hock. Make a square cut between the third and fourth rib to cut off the shoulder. The layer of fat on top called the clear plate, may be cut off and used for lard. The neck bones and ribs are then taken out. The upper part of the shoulder, or butt, may be cut off squarely just above the joint of the shoulder blade and cooked fresh as a roast or boned and used for sausage. The lower part, or picnic, may be boned for sausage or cured. The entire shoulder may be cured without division.

Cut off the ham about three fingers in front of the pelvic, or H-bone, holding the saw about perpendicular to the line of the hind leg. Then trim it smooth so there are no loose, thin, ragged shreds of meat on it. Also trim off the tail and flank. If the ham is very fat, trim off some of it. However, be sure to leave about a half inch of fat over the lean. Hams are usually cured. Strip out the leaf fat for lard. Cut the loin from the belly by sawing through the ribs parallel to the back bone, just below the large muscle of the back. Then remove the "fat back" from the loin with a sharp knife. The fat back is used for lard. The loin may be used for roasts or cut up into chops. It may be allowed to freeze and then used as needed. It will keep indefinitely while frozen.

The spare ribs are cut from the belly and used fresh. The belly is then trimmed so that all corners are square, all edges are straight, and all ragged meat is removed. If the carcass is that of a female, trim off enough meat from the lower edge to remove the nipples. The front, or brisket, and the upper part of the belly piece are not as good as the lower flank and side portions. Hence, they are often cut off and used for sausage and lard. The trimmed bellies are cured for bacon. All fat trimmings should be used for lard and all lean trimmings for sausage. No bloody trimmings should be used. - Sleeter Bull, Meats Division, College of Agriculture, U. of I.

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First Trade Under Bull Exchange Plan Made In Franklin

Robert Ward, a Franklin county Holstein cattle breeder living near Benton, has the honor of furnishing the purebred bull calf which figured in the first trade made under the bull exchange plan recently launched by the College of Agriculture to give farmers and dairymen a chance to trade in their grade and scrub bulls on even terms for purebred dairy bull calves. The exchange, which took place between Ward and a Franklin county farmer, was arranged by H. A. deWerff, Franklin county farm adviser.

Individual dairy cattle breeders, county breed associations and others interested in improved dairying are lining up behind the bull exchange plan and it is expected that it will be the means of substituting purebreds for at least 500 grade and scrub dairy bulls on Illinois farms during the coming year, according to C. S. Rhode, dairy extension specialist of the agricultural college who has charge of the plan. Farm advisers of the state will be kept informed as to who the breeders of the state are who have purebred bull calves for exchange, and when a trade has been arranged between a dairyman and a breeder, the breeder will register, transfer and ship the purebred calf to the dairyman, who will pay the express charges. The dairyman in turn will sell his grade or scrub bull and see that the sales slip and check go to the breeder who furnished the purebred calf.

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Vol. VII Urbana, Illinois - December 24, 1924 No. 52

Farmers' Week To Stress Improvement Of Dairy Herds

A purebred Holstein cow that is well on her way toward breaking the present state record for milk and butterfat production by junior two-year-old heifers of any breed is being groomed by dairymen at the College of Agriculture, University of Illinois for one of the feature attractions during the annual Farmers' Week to be held at the college, January 12 to 16. Her name is Illini Homestead Piebe Bonheur and she will be used as one of the headliners on the dairy part of the program to show the value of good purebred sires in building up herds for profitable milk and butterfat yields. At the time of the Farmers' Week she will be on the last lap of her race for the state honor and if nothing unforeseen happens she will wind up her year in February with a record of around 10 tons of milk and 900 pounds of butter to her credit.

Herd improvement through sound breeding and careful selection is to be one of the things that will be stressed by the dairy department. Its program will be given Tuesday morning, January 13, and Illini Homestead Piebe Bonheur will not be the only heavy milker that will be on parade. In addition practically all of the principal dairy breeds will be represented by high producers which have been bred and developed in the college herd through the use of good purebred sires.

Pasture problems, one of the important ones with which dairymen and farmers have to contend, will be taken care of in an address on "Sweet Clover Pastures", to be given by W. J. Fraser, dairy farming specialist of the college. Profitable pastures are coming in for more and more attention, in view of the fact that one-sixth of all the land in farms in Illinois is untillable and best suited only for pasture. Sweet clover is gaining in favor as one of the best pasture crops for land of this kind.

The fallacy of buying high priced commercial mineral mixtures and vitamin remedies for the dairy herd will be explained in an address to be given by W. B. Nevens, assistant chief of dairy cattle feeding at the college, on the subject, "Vitamins and Minerals in Feeding Dairy Cattle". He also will compare dairy rations which are high and low in lime.

In the final talk of the dairy program, I. B. Boughton, acting chief of the animal pathology and hygiene division of the college, will speak on "What the Farmer Should Know About Livestock Sanitation". He will tell how to clean up farm lots and buildings to keep down disease and what to do in case an outbreak occurs.

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Three Judges Appointed For Annual Seed Grain Show

Judges who will name the new "corn king" of Illinois at the Illinois Seed Grain Show, which will be held at the College of Agriculture, University of Illinois during the annual Farmers' Week, January 12 to 16, include J. L. McKeighan, of Yates City, winner of the show's highest honor for the past two years; William Webb, of Joliet, and Benjamin Koehler, crop pathologist of the college, it has been announced by J. C. Hackleman, crops extension specialist of the institution, who has charge of the show.

Knox, Warren Farmers Find Alfalfa Best Paying Crop

Alfalfa paid Knox and Warren county farmers better than any crop they grew last year, according to cost of production figures secured from 18 representative farms in the two counties by the farm organization and management department of the College of Agriculture, University of Illinois. Figures just compiled show that this crop returned a profit of $23.78 an acre, according to H.C.M.Case, head of the department. As an average for the 18 farms, the value of the alfalfa hay and pasture produced, was $52.77 an acre, while the cost of producing it amounted to $28.99. This sum included all costs in harvesting the crop, taxes, a charge to cover a fourth of the cost of seeding the crop and a charge of about $10 an acre to take care of five per cent interest on the value of the land. The average yield of alfalfa on the 18 farms was a shade more than three tons an acre and it was valued at about $17.50 a ton on the farm.

The big advantage of alfalfa as a profit making crop lies in the fact that the value of the crop produced far exceeds the value of other crops on an acre basis. It costs just about as much to grow an acre of alfalfa as it does an acre of corn or wheat. In fact the cost of making alfalfa hay mounts when three crops are cut during the season, but this charge is partially offset by the fact that when alfalfa is grown there is no annual cost of preparing the ground for seeding and not much expense for cultivation, as there is in the growing of grain crops. In addition alfalfa is valuable on any farm in helping improve and maintain the fertility of the soil.

"Although the Knox and Warren county figures cover only one year, much importance can be attached to them, because they are in line with ten-year averages obtained in cost of production studies made by the department in Hancock county. In that county the ten-year average profit obtained by farmers on their alfalfa was $12.20 an acre, the highest net profit shown by any field crop grown in that county during that period. The most profitable grain crop was corn which showed a net profit of about $9 an acre as an average for the ten-year period. The good showing of alfalfa as a money crop in Hancock county was made in spite of the fact that the average yield for the ten-year period was only about two tons an acre. This low yield was due to the fact that some of the men growing alfalfa did not give as much attention to liming, fertilization or cultivation as is required in getting best results from the crop".

Sanitation Is Aid In Checking New Poultry Disease

Sanitation, coupled with proper housing and the right kind of feed are at present the only hopes for checking the mysterious poultry disease which has developed in the Middle West within the last two months and which has since resulted in New York, Maryland and California placing embargoes against live chickens from Illinois, according to Dr. I. B. Boughton, acting chief of the animal pathology and hygiene division of the College of Agriculture, University of Illinois. Some of the more common names given to the disease are avain diphtheria, chicken flu and roup.

Sick birds that show symptoms of the disease should be killed and, together with the chickens that already are dead, should be burned. Thorough disinfection of the pens, houses and lots should be carried out immediately and faulty house construction corrected so that the chickens will be protected from drafts and cold and damp floors. Grain rations should be reduced and laxative feeds substituted. Individual treatment is not practical and may even be dangerous, inasmuch as sources of infection would thus be left.

Brine Method Safer Than Dry Method For Curing Pork

The pork cuts which usually are cured are the hams; shoulders, or picnics and the bellies, or bacon. For home use these are usually sugar cured. This may be done either in a brine or dry cure as desired. A standard reciepe for a sweet pickle is 12 pounds salt, three pounds sugar (either granulated or brown) four ounces saltpeter and six gallons water for 100 pounds of meat. Thoroughly mix the salt, sugar and saltpeter together and rub a coating of it over all the meat and allow it to lay in a cool place over night. Add the remainder of the salt mixture to the six gallons of water and allow it to boil. Skim off any scum. Pack the meat as compactly as possible, skin side down, in a stone jar or hardwood barrel. The top layer of meat should be placed skin side up with a weight upon it. Then pour in the cool brine. Make sure that all the meat is completely covered. For curing meat which is to be kept until the following summer, each piece should remain in the brine three and a half to four days for each pound it weighs. Meat which is to be eaten during the winter may be given a milder cure by removing it after it has been in three days for each pound it weighs.

Overhaul and repack the meat at the end of the first and again at the end of the second week, using the same brine. If the brine sours or becomes ropy, remove the meat, scrub it thoroughly in warm water and pack it in a clean barrel with fresh brine. A cool cellar, above freezing temperature, is the best place for curing. After curing, remove the meat and allow it to soak three minutes in warm water for every day it was in cure, then thoroughly scrub it with a stiff brush and string for the smoke house. Hang it in the smoke house and allow it to dry over night.

A standard reciepe for dry cured pork is five pounds salt, two pounds sugar, (granulated, brown, or molasses), two ounces saltpeter and pepper to suit the taste for each 100 pounds of meat. Mix the ingredients thoroughly and rub one-third of the mixture into the meat and pack it in a tight box. After three days rub another third of the salt mixture into the meat and repack. After another three days rub in the remainder of the salt mixture and repack again. It should remain there for 12 to 15 days after which it should be removed, washed and dried, as described above. This is not as safe a method as the brine method, but the meat has a milder flavor. It works best in a cool, moist cellar.

Smoke over a cool fire of hardwood, such as hickory or maple, or corn cobs, smothered with hard wood sawdust. Use green wood if possible as it gives the meat a better color than dry wood. Avoid pine wood or sawdust, as it will give the meat a resinous falvor and make it black and sooty. The meat should be hung so that none of the pieces touch and far enough from the fire - six to eight feet - so that it will not get too warm. Bacon should smoke 24 to 36 hours and hams and shoulders 60 to 90 hours. It is better to extend the smoking period over several days rather than to keep a continuous smoke for the required length of time. Fresh sausage in casings may be smoked for several hours to improve its palatability. It also will keep several weeks longer after smoking. - Sleeter Bull, Meats Division, College of Agriculture, U. of I.

Ninety Illinois dairy cattle breeders already have agreed to lend their support to the bull exchange plan recently launched by the College of Agriculture, University of Illinois, as a means whereby farmers and dairymen might replace their grade and scrub bulls with purebred dairy bull calves. The 90 breeders, together with others who are expected to cooperate, will furnish the purebred bull calves which will go to farmers and dairymen who trade in their grade and scrub bulls under the terms of the exchange plan.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Vol. VII Urbana, Illinois - December 31, 1924 No.53

Farmers' Week Program To Consider Rapid Decline In Farm Orchards

More than half of the farm orchards in Illinois have disappeared within the last ten years as a result of the toll taken by fruit diseases, insects and general neglect, according to members of the horticultural department of the College of Agriculture, University of Illinois. How to check these ravages and put the small orchard back on a paying basis where it will furnish the farmer and his family with the fruit they need is becoming a more pressing problem every year. One step toward solving the problem has been taken by placing orcharding problems, along with gardening and other related ones, in a prominent place on the program for the annual Farmers' Week to be held at the college, January 12 to 16. The whole of the Wednesday morning session, January 14, will be given over to fruit growing and gardening subjects.

The question of what shall be done with the farm orchard will be answered by W. S. Brock, horticultural extension specialist of the college, in the first of a series of talks. He will outline a program of pruning, spraying and management designed to keep the small orchard on a profitable basis. Bacterial shot hole, one of the worst peach diseases, will be discussed by H. W. Anderson, assistant chief of pomological pathology at the college. Some of the more important diseases which are proving to be limiting factors in the profitable production of small fruits will be taken up and discussed in detail by A. S. Colby, associate chief of pomology.

C. B. Sayre, another member of the college horticultural department, will tell the visitors about recently developed disease-resistant strains of vegetables which are now making it possible for farmers and market growers to grow vegetables on land where ordinary varieties would fail. Following this talk, J. W. Lloyd, chief of olericulture at the college, will speak on the subject "Reducing the Costs of Marketing Fruits and Vegetables". J. C. Blair, head of the horticultural department of the college, will close the morning program with a discussion on Illinois landscapes.

The Central Passenger Association has just recently granted reduced rates for those who wish to attend Farmers' Week and as a result it will be possible for visitors to make the trip on practically all steam roads in the state at the rate of one fare and a half for the round trip. The annual meeting of the Illinois Agricultural Association, a "little International" livestock show and exposition to be staged by students and faculty members, and the annual Illinois Seed Grain Show are among the features which are being planned for the week.

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Crop Association Schedules Feature Addresses For Farmers' Week

L. H. Newman, cerealist for the Dominion of Canada and president of the International Crop Improvement Association, and George E. Farrell, of the federal department of agriculture, will be speakers at the annual banquet and business meeting of the Illinois Crop Improvement Association to be held here Wednesday, January 14, in connection with the annual Farmers' Week at the College of Agriculture, University of Illinois.

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[illegible]ching, Crushing and Grinding Cattle Feeds Is Of Minor Importance

Probably no question connected with the fattening of cattle is more seriously regarded by the inexperienced feeder than that of the proper preparation of feeds. So much propaganda has been put forth by manufacturers and distributors of feed grinders and crushers, and cooking apparatus, that it is not surprising that this phase of cattle feeding has received [illegible] attention.

As a general [illegible] the form or way in which the feeds used should be fed is of minor importance. [illegible] they should be fed in the form that involves the least labor. However, situations occasionally arise in which a more or less elaborate preparation [illegible] into the ration is justified. Such a situation [illegible] to run with the cattle to utilize the corn that passes through [illegible]. [illegible] grinding of feed increases its digestibility, [illegible] waste.

Cattle [illegible] crushed or ground than when fed whole. The whole grain [illegible] the thick, fibrous hull surrounding the kernel. [illegible] not to exceed ten per cent of their market value, [illegible].

More [illegible] of calves than of older cattle. It is [illegible] broken ear corn, since their mouth parts are [illegible]. Instead, the corn should be fed as shelled corn, finely [illegible] or as sliced ear corn. In the last case the ears are cut into [illegible] with a corn knife or a corn slicing machine. As the [illegible] of calves is limited the presence of the cob in the ration is somewhat [illegible]. The space which it occupies in the digestive tract [illegible] palatable roughage such as alfalfa or clover hay. For this reason [illegible] it is preferable to slice corn or corn and cob meal for calves.- R. R. Snapp, Assistant Chief of Beef Cattle, College of Agriculture, U. of I.

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Will County Brown Swiss Breeder Has Entire Herd In New Cow Club

Henry W. Bischoff, of Lockport, one of the leading Brown Swiss breeders of the state, is the first dairyman to nominate cows of that breed for membership in the Illinois 500 Pound Butterfat Cow Club and the only one up to the present time who has entered his entire herd in the race for the honors which the club will bestow upon successful animals, according to an announcement by C. S. Rhode, dairy extension specialist of the College of Agriculture, University of Illinois, who has charge of the club. Bischoff has just sent in entry blanks for each of the eight purebred Brown Swiss cows in his herd.

The 500 Pound Butterfat Cow Club recently was started by the agricultural college for the dual purpose of finding the state's high producing cows and demonstrating the worth of recommended methods in more efficient milk and butterfat production. Any farmer who is a member of a cow testing association may nominate any of his cows which he thinks can produce 500 pounds of butterfat in a year. Bischoff's herd is in the Will County Dairy Herd Improvement Association and last year stood second among all those in the association with a record of almost 387 pounds of butterfat produced by each cow.

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Price Conditions Add New Importance To Economical Dairy Feeding

With corn selling for approximately 50 per cent more and butter for six to eight cents a pound less than a year ago, dairymen and feeders must figure feeding costs closely during the coming winter if they expect to receive an adequate return for their feeds by marketing them through dairy cows.

Cows capable of high production are more necessary than ever, for with feed costs as they are at present, it is doubtful if cows producing but small amounts of milk can pay for their feed, to say nothing of labor and other costs. The greater the amount of milk produced a cow the smaller will be the proportion of the feed used to maintain the animal, and hence the greater will be the opportunity for profit.

The higher the cost of feed, particularly of the low protein feeds such as corn and oats, which form the bulk of the concentrates, the greater the need for careful balancing of the ration and for the use of protein supplements. Wheat bran, cottonseed meal, gluten feed, linseed meal, and soybean oil meal at their present price levels continue to be economical protein supplements, while hominy feed, molasses, dried beet pulp and alfalfa meal are relatively expensive. A suitable concentrate mixture for use with clover hay and silage or corn stover as roughages, consists of 200 pounds of corn and cob meal, 100 pounds of ground oats, 100 pounds of wheat bran and 100 pounds of linseed or cottonseed meal, one pound of the mixture being fed for each two and one half pounds of milk produced.

The amount of feed required may be reduced to a minimum by protecting the cows as far as possible against exposure to storms and extreme cold and by housing them in comfortable, well-ventilated quarters. - W. B. Nevens, Assistant Chief of Dairy Cattle Feeding, College of Agriculture, U. of I.

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Revival Of Fighting Spirit Seen As Farmers' Biggest Gain In 1934

A revival of their fighting spirit, and not bigger crops nor higher prices for their products, was the most significant gain made by farmers during the year just ended, in the opinion of H. W. Mumford, dean of the College of Agriculture, University of Illinois, and director of its agricultural experiment station.

Five New Year's resolutions which he suggests as sound ones for every farmer to make at this time are:

I resolve to do a better job of minding my own business - farming - than I have ever done before.

I resolve to be encouraged by the accomplishments of farmers' organizations rather than discouraged by their mistakes and failures.

I resolve to contribute something toward making life more pleasant and attractive for my family.

I resolve to cultivate and practice cooperation in business affairs of the farm.

I resolve to take pride in my community and to help make it a better place in which to live.

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Size of Farm Investment Shows Need For Careful Bookkeeping

A majority of the farmers in many Illinois counties are operating a business representing from two to five times the investment of the average business man in their county seat towns, according to members of the farm organization and management department of the College of Agriculture, University of Illinois, who point out that the only way to know what a business of this size is doing is to keep a good system of accounts on it. The average investment in every farm in Illinois is estimated at between $20,000 and $30,000, while the average farm investment in many entire counties in the northern and central part of the state is from $35,000 to $60,000.

In order to aid farmers of the state in keeping more uniform and satisfactory accounts, the college has just issued a new edition of its simple farm account book and is now ready to furnish the book to interested persons. The new issue is coming out just at the time of the year when inventories of the farm business should be made and the accounts started for the year. The book, which was prepared by members of the farm organization and management department of the college, has been developed from the experience of hundreds of Illinois farmers who have used it during the past few years. It not only furnishes the information which the farmer needs to study his business but it also gives him the facts which he needs for his income tax report.

"Every progressive farmer must keep an account of his farm business if he is to know at the end of the year whether he has made or lost money after all expenses are paid", specialists of the farm organization and management department point out. "He also must have such an account as an aid in studying his business and making such changes in its organization and operation as are most important from the standpoint of increased profits. In short, if the farmer is to conduct his business intelligently he must have the facts about it. Copies of the revised farm account book may be obtained from county farm bureaus or direct from the college for 20 cents to cover the cost of printing and mailing."

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Schedule Nine Tractor Schools In Interests of Lower Power Costs

Nine tractor schools designed to help farmers keep down their mechanical power costs already have been scheduled by the College of Agriculture, University of Illinois for eight different points in the state, according to an announcement by F. P. Hanson, farm mechanics extension specialist of the college. One school will be held in each of Gallatin, Wabash, Clark, Johnson, Union, Edwards and Cass counties. In addition the college is planning a tractor and thresher operators' short course to be held January 12 to 16 during the annual Farmers' Week and another course for gas engine and tractor operators to be held January 19 to 24. Schools for other counties of the state are expected to be scheduled in the near future. The schools will be designed to teach the details of construction, operation and repair of tractors and gas engines. Applications for enrollment in the schools to be held at the college should be sent to the institution while enrollment applications for the county schools should go to the county farm bureaus, Hanson announced.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director*

Farm Week To Show The Value Of Sanitation In Livestock Raising

Pigs raised under the sanitation system advocated by the College of Agriculture, University of Illinois in many cases have gained twice as fast as workers have reared under the poor methods common on many farms, according to E. T. Robbins, livestock extension specialist of the institution. Not only does sanitation lead to quicker gains, but also it makes it possible for farmers to raise larger litters. Cases are on record where twice as many pigs were raised in litters handled according to the sanitation system as were saved under common methods.

Sanitation will do much the same thing for other classes of livestock that it does for hogs, according to members of the college animal husbandry department. They are planning to stress this point during their part of the program which is being prepared for the annual Farmers' Week to be held January 12 to 16. Tuesday afternoon, January 13, has been given over to livestock subjects and a half dozen or more discussions bearing on the question of sanitation have been scheduled. A feature of the program will be an evening address by H. M. Gore, secretary of agriculture.

The Tuesday afternoon program will be opened with a discussion by W. A. Foster, a specialist on rural architecture at the university, who will tell how to build and locate farm buildings for the highest degree of sanitation around the farmstead, and following this Dr. I. E. Boughton, acting chief of the animal pathology and hygiene division, and E. J. Laible, acting chief of the swine division, will give a demonstration showing how to clean and disinfect hog houses. Laible will then outline a system of swine management with particular reference to sanitation. Robbins will tell how swine sanitation is working out to the benefit and profit of different farmers and hog raisers in Illinois. Sheep sanitation will be discussed by W. G. Kammlade, assistant chief of sheep husbandry at the college, and sanitation for the farm poultry flock by Dr. L. E. Card, chief of poultry. The program will be closed by Dr. Elmer Roberts, assistant chief of animal breeding.

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Warns Against Feeding Large Amounts of Frozen Silage to Cattle

Considerable frozen silage is to be expected at the low temperatures that prevail during mid-winter, especially in wooden or metal silos that are exposed to north and west winds. To discard all frozen silage as unfit for feed would result in much unnecessary waste, inasmuch as freezing itself has but little effect on the feeding qualities of the silage. The damage results during the period when the silage is thawing out, at which time it moulds and decays from the bacterial action produced by its exposure to the air.

Frozen silage should be removed from the walls of the silo as soon as it is possible to knock or pry it loose. If the pieces are small and not too numerous, they may be piled in the center of the silo after the morning's feed has been removed and here they often will thaw out before night. With a large quantity of frozen silage, however, or with temperature much below freezing, this method will not be practical. Instead, the frozen silage should be piled just outside the silo where it can be carefully watched and fed as soon as it is reasonably well thawed out. To leave it longer will result in its becoming mouldy and unfit for use.

The presence of small pieces of frozen silage in the ration need occasion no alarm, as no trouble is usually encountered from them. To feed any considerable quantity of frozen silage, however, is highly inadvisable. Not only is such material highly unpalatable and eaten with considerable difficulty, but also it is likely to cause serious derangements of the digestive tract. Excessive scouring is one of the common after-effects of feeding frozen silage. - R. R. Snapp, Assistant Chief Beef Cattle, College of Agriculture, U. of I.

Improper Management Cited As One Cause Of Light Egg Production

Winter eggs are a scarce article on Illinois farms and one of the main reasons for this is improper management. Contrary to the opinion of the average farmer, proper methods of management do require but little more time than poor methods. Pullets rather than hens should be relied upon to furnish most of the winter eggs. Late molting hens need from two to three months of rest and many eggs should not be expected from them until January.

In order to be good winterlayers, pullets should be hatched in March or April, grown well through at the summer and brought into production in the fall by being supplied with the necessary kind and amount of feed for the manufacture of eggs. The average farmer is interested in utilizing home-grown feeds or those which are readily available at his local feed store. With that in mind the following ration is recommended as one that has been found to be uniformly satisfactory; five parts of corn, three parts of wheat and two parts of oats supplemented with a mash mixture of 100 pounds each of wheat bran, wheat middlings, ground oats, corn meal and tankage or meat scrap.

It is a common practice to overfeed on grain, corn or the ear being kept before the birds at all times. This is a mistake as the birds will fill up on grain early in the day, become inactive and usually overfat. Grain alone will not supply the necessary amount of protein for egg production and consequently it is necessary to keep a mash mixture before the birds at all times. Chickens like the grain mixture better than mash and will fill up on grain unless the amount is limited. At this time of year 100 hens should be fed approximately two to four quarts in the morning and six to eight quarts in the evening. These amounts can be varied with the birds' appetites, and it is better not to follow the rule too closely. A small amount of grain should be fed in the litter in the morning to induce exercise. More mash will be consumed if the grain feeding is restricted in the morning. The mash should be kept before the birds in an open hopper and enough hopper space furnished so that approximately one-third of the birds may eat mash at one time. Some kind of succulent green food such as cabbage, mangels or sprouted oats should be supplied during the winter. These serve as an aid to digestion. Plenty of fresh water, grit and oyster shell should be before the birds at all times.

Pullets will respond to good management. This means proper housing conditions as well as proper feeding. The amount of grain and mash fed should be regulated so that approximately equal parts of them, by weight, are consumed. - John Vandervort, Poultry Extension Specialist, College of Agriculture, U. of I.

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Illinois Club Members Win Full Share Of Cash At International

Illinois club members who entered the competition at the recent Chicago International Livestock Exposition collected a total of $424 in cash prizes in the junior department of the show and $152 in the open classes, where they competed against adult breeders and feeders, according to a tabulation of their winnings made by E. I. Pilchard, club work specialist of the College of Agriculture, University of Illinois. In addition the youngsters won a silver cup, six congressional medals and three silver medals offered by the Institute of Meat Packers.

Among the leading winners were John Lemon, Edwin Brown and Floyd Weihler, all of Aledo, and Alvin Helms of Belleville.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Vol. VIII Urbana, Illinois - January 14, 1925 No. 2

Ton Litter Project Closes With 63 Litters Making Required Weight

Results of the Illinois ton litter project for 1924 which have just been tabulated by W. H. Smith, state leader of farm advisers at the College of Agriculture, University of Illinois, who has charge of the work, show that 63 litters in 27 counties of the state were successful in making the required weight of a ton in 180 days. This gives Illinois the lead over all other states for the second consecutive year in the ton litter work. The state championship litter for the year was produced on the farm of W. T. Rawleigh, Freeport, with 17 purebred Poland Chinas that were fed for an official weight of 3,368 pounds in six months. Owners of the 63 winning litters will each receive official medals, while Rawleigh received an award of $50 from the Illinois Poland China Breeders' Association to apply on the expenses of a trip to the annual Farmers' Week which is going on at the college this week. Three hundred litters from 53 counties were entered in the contest last spring.

Results of the contest bear out those obtained in the work in 1923 and show clearly how good breeding, proper feeding and the right kind of management pave the way to economical pork production. The contest is conducted by the college to show the merits of these three factors in getting pigs up to a marketable weight at an early age. Each one of the 63 ton litters was produced at a profit, in spite of the prices of corn and hogs which prevailed, according to Smith.

The three heaviest litters of the 63 were all purebred Poland China ones. The second was owned by Farris Rowcliff, Princeville, Peoria county, and was composed of 11 pigs which reached a weight of 2,989 pounds, while the third was owned by I. J. Cerwak, Zion, Lake county. The 11 pigs in it reached a total weight of 2,924 pounds. Johnston Brothers, McLean county, produced the heaviest litter of Duroc Jerseys with 11 pigs that made a weight of 2,814 pounds, while the heaviest spotted Poland China litter was produced by C. M. Reynolds, Sangamon county, who fed 11 pigs of this breed for a total weight of 2,699 pounds. In the Chester White breed, honors for the heaviest litter went to Blaine Hodges, Marion county, on a litter of 11 which weighed 2,542 pounds, while B. F. Harris Farms, Champaign county, reported the heaviest litter of Tamworths - 12 pigs that weighed 2,350 pounds. Thurman Collins, Sangamon county, reported the heaviest litter of Hampshires. He had 11 porkers of this breed that he fed for a weight of 2,230 pounds.

Thirteen of the 63 ton litters were produced in Sangamon county; seven in McLean county; four in Stephenson county; three each in Edwards, Brown, Champaign, Adams and Knox counties; two each in Peoria, Lake, Clark, Douglas and Logan counties, and one each in St. Clair, Marion, Randolph, Scott, Kendall, Clay, Livingston, DeKalb, Henry, McDonough, Coles, Cass, Warren and Jackson counties. Almost a third of the 63 ton litters had 11 pigs in them, 22 of the litters being of this size. Eighteen of them had 10 pigs, nine of them 12 pigs, seven of them nine pigs and four of them 13 pigs. There was one litter each of 17, 16 and 14 pigs. Practically all of the principal breeds of hogs were represented in the 46 litters that were strictly purebred. Twenty of them were Duroc Jersey, eight of them Poland China, six of them Chester White, five of them Hampshire, five spotted Poland China and two Tamworth. Berkshires were represented by one crossbred litter.

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Dairy Manufacturers Course Will Stress Quality In Dairy Products

Among the short courses which will be held at the College of Agriculture, University of Illinois this winter for various agricultural interests of the state will be one for butter and ice cream manufacturers. It will be held from January 26 to February 7 and will be designed to give dairy manufacturers the latest pointers on new developments in their field. The course is an annual event and this year it will stress the matter of quality in manufactured dairy products. Special attractions which have been scheduled for the course include an explanation of the investigations which the experiment station of the college is making at the present time in an effort to work out new facts on a variety of dairy manufacturing problems and lectures by prominent commercial men on topics which are of special interest to butter and ice cream manufacturers. The program of the course provides for both lectures and practice work.

Testing of dairy products and the manufacturing of butter are to be given attention during the first week of the course. The testing of milk and cream for acidity, the handling of cream before pasteurization, creamery side lines, the packing and marketing of butter, cream stations and station shortages, checking cream stations and the judging and scoring of butter are some of the topics that have been listed for this part of the program.

During the second week, those taking the course will turn their attention to the manufacturing of ice cream. Subjects scheduled on this part of the program include, among others, the standardization of ice cream mix, ice cream defects, refrigeration, preparation and freezing of mixes, marketing ice cream and the judging of ice cream.

Those taking the course will be given the use of the college's commercial dairy plant, which is recognized as one of the best equipped college dairy plants in the country. It has a complete line of the different types of machinery used in the manufacturing of dairy products.

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Gains Quickened And Feed Saved By Giving Hogs A Balanced Ration

Feeding pigs a balanced ration not only saves feed but also results in faster daily gains. Experiments are on record where it took 642 pounds of corn alone to make 100 pounds of pork, whereas in the same experiment this much pork was produced by only 387 pounds of corn when 42 pounds of tankage werefed as a supplement. In other words, the feeding of the 42 pounds of tankage saved 255 pounds of corn on each 100 pounds of pork that were produced. A ration of corn alone will not make profitable pork producers out of fall pigs.

Corn and tankage make an excellent ration for pigs weighing 100 pounds and up, and they will balance their own rations if given access to tankage in a self-feeder. For pigs under a hundred pounds it will pay to feed some green feed in addition to the corn and tankage. This may be supplied in the form of good alfalfa or clover hay placed in a rack. If the alfalfa can be ground it can be mixed with the tankage. A mixture of 75 per cent tankage and 25 per cent ground hay, by weight, is all right. Soybeans can be used in place of tankage, but a mineral mixture should be fed. There are two simple mineral mixtures that will give good results. One of these can be made from three parts, by weight, of limestone, two parts of ground rock phosphate or steamed bone meal and one part of salt. Another mixture which is easier to make up is composed of three parts of limestone, two parts of wood ashes and one part of salt. - R. A. Smith, animal husbandry department, College of Agriculture, U. of I.

Recommends Combination Floor Of Concrete And Tile For Hog House

Contrary to a common belief, the hog is not a beast that likes filth and thrives in it. The building habits of farmers force them to breathe, eat and sleep close to the ground [illegible] but when they are given range and choice they invariably choose the [illegible] and select a dry, warm bed. They may survive in filth, but they do not [illegible] for it.

In view of this there are a number of requirements that must be met by a good hog house floor. It [illegible], a protection against rodents, warm, dry, free from drafts [illegible] inexpensive to build. Most of these requirements can be met [illegible] floor. It is permanent, sanitary and easily cleaned, inexpensive [illegible], but it is often cold and wet, two serious disadvantages. However, these [illegible] can be overcome by putting hollow tile in or under the concrete [illegible] floor. This breaks the capillary action in the concrete, [illegible] flow of heat from the animals and at the same time stopping the rise of moisture to the floor surface.

The first step in building a combination floor of this kind is to put a tile drain under the fill [illegible]. From four to six inches of cinders or gravel should then be [illegible] inch of sand spread over the fill and [illegible] then laid close together on this sand cushion [illegible] with a short [illegible]. About three-fourths of an inch of rich cement mortar, made from one part of cement to three parts of screened sand, is then spread over the tile and floated to a surface. The floor should be sloped an eighth of an inch or more per foot for drainage. - W. A. Foster, farm mechanics department, College of Agriculture, U. of I.

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Farmers Take To New Bull Exchange Plan In Getting Rid Of Grades

Farmers in various parts of the state are taking an increased interest in Illinois' new bull exchange plan whereby grade and scrub bulls can be traded for registered purebred dairy bull calves, according to [illegible], dairy extension specialist of the College of Agriculture, University of Illinois, who has charge of the plan. Will and Gallatin county farmers are the most recent ones to take advantage of the plan.

Four Gallatin county farmers, [illegible] B. Sherrer, [illegible], Herman Fowmen and T. J. Downen, [illegible] steps to trade the grade sires which they are using at present for purebred [illegible] bull calves, according to a report from S. T. Simpson, Gallatin county farm adviser. Another farmer in the same county, [illegible] Hubbard, has a trade under way whereby he will get a purebred Jersey bull calf for the grade he is now using.

Walter L. Warner, a Will county farmer living near Lockport, has [illegible]ed a grade Guernsey bull for a purebred Brown Swiss bull calf, [illegible] Henry W. Bischoff, also of Lockport, according to a report of Farm Adviser, [illegible] Hedgcock.

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More than half of the total crop production on the average Illinois prairie farm is roughage such as corn stalks, straw, hay and grass, which is [illegible] for livestock feeding, E. T. Robbins, livestock extension specialist of the College of Agriculture, University of Illinois, points out in showing the importance of livestock in profitable farming.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Tests Show White Corn Falls Short As Dry Lot Feed For Porkers

White corn is so lacking in vitamine A that nine out of ten fall pigs in a dry lot feeding test at the College of Agriculture, University of Illinois would have starved to death with white corn and tankage for them at all times in a self feeder, according to R. J. Lovett of the college swine division. This vitamine A can be supplied in the alfalfa and clover leaves which fall at the bottom of the hay chute and when these leaves are added to a ration of white corn and tankage pigs will grow and feed out as well as the same lot will on a ration of yellow corn and tankage. Farmers have long contended that yellow corn is stronger than white corn, or in other words, that it had a higher feeding value. Experiment stations have now found out what this difference is and have worked out means whereby the deficiencies of white corn may be met with for growing pigs.

Yellow corn contains enough of the vitamine A to meet the requirements of growing pigs, but the amount of this element contained in white corn is not large enough to properly nourish the animals. This difference in the feeding value of white and yellow corn causes no trouble under summer feeding conditions when pigs have the run of a pasture. They can get all of the vitamine A they need from the green forage. However, this is not the case when the animals are kept in a dry lot under winter feeding conditions and therefore the lack of vitamine A in white corn must be supplied in some other way. One of the most practical ways of doing this is to mix the clover and alfalfa leaves with the tankage that is fed as a supplement to white corn. When this is done just as good results can be obtained with white corn as with yellow. It should be pointed out that young growing pigs will be affected by a lack of vitamine A much sooner than older animals will.

-M-

More Milk From Acre Of Feed Possible By Growing Alfalfa And Corn

Many Illinois dairymen could double the milk production which they get out of each acre of feed they grow by substituting alfalfa and corn for some of the less efficient dairy feeds now commonly grown on scores of farms in the state, according to W. J. Fraser, dairy farming specialist, College of Agriculture, University of Illinois. These two feeds produce from two to four times the amount of digestible nutrients an acre than is produced by other crops commonly raised. Land and labor cost money and it is just as necessary that each acre produce a big yield of raw material to be manufactured into milk as it is that each cow in the herd should be an efficient machine for turning feeds into milk.

Corn is widely grown in this state and most cows are fed a large amount of it, but the difficulty with corn is that this grain is high in carbohydrates and low in protein. Alfalfa is the best crop to grow to supply this protein which is lacking in the corn. An acre of alfalfa will produce ten times as much protein to balance corn as will timothy. In view of this, as much as possible of the dairy cow's ration should be made up of corn and alfalfa, while the low yielding crops commonly raised should be reduced to a minimum that is in keeping with the requirements of a good rotation.

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Fall Freshening Cows Pay Owners $32 More A Year Above Feed Cost

Cows in the McLean County Herd Improvement Association that freshened in the fall or early winter returned their owners an average of $32.50 more above feed costs than cows that freshened in the summer, according to figures worked out by L.E. Jamison, dairy extension specialist of the College of Agriculture, University of Illinois, on records kept by the association in cooperation with the college.

Forty-one cows in the association which freshened in November each returned their owners an average of [illegible] year over and above the cost of the feed they ate, while those that freshened in December made almost as good a record by returning $102.92 each above the cost of their feed. This was an average return of $106.98 from each of the [illegible] December freshening cows.

In contrast to this [illegible] cows in the association which freshened in July returned their owners an average of only [illegible] over the cost of the feed which they ate, while those that freshened in August paid $70.81 each above feed costs. This made the average return from [illegible] of the July and August freshening cows only $74.39 a year, or [illegible] paid by the November and December freshing cows. The difference in the amount [illegible] feed costs paid by the November freshening cows and those that freshened in August was $[illegible].

These figures are in line with a condition that progressive dairymen have recognized for years, Jamison said. They know that a cow freshening in the summer is severely handicapped by the extreme heat, the annoyance of flies and the pasture shortage just at a time when she should be doing her best as a paying milk producer. On the other hand, the cow that freshens in the fall or early winter, if given good shelter can be expected to milk comparatively good all winter and spring. Flies, heat and pasture shortage during the following summer do not hurt her milk production because by that time she has reached the advanced stages of her lactation period when the milk flow naturally shrinks.

-V-

Late Development of Scale Calls for Dormant Spraying This Spring

As much San Jose scale developed in Illinois orchards during the last few months of the year just past as in the two preceding months of the year and orchardists will be called upon to do an especially good job of spraying this spring, according to S. C. Chandler of the state natural history survey at the College of Agriculture, University of Illinois.

A late brood of the scale began hatching out about the middle of the past October, and favored by the exceptionally mild weather, the little yellow crawlers continued to hatch out until late in the month. In one peach orchard in Union county large numbers were seen on November 10 and some were found as late as November 12. An inspection made last month showed that the majority of these late hatched scales had reached a stage in which they can safely pass the winter. As a result many orchards that were only moderately infested the first of October now have enough scale in them to make a serious problem, unless the trees are thoroughly sprayed.

Newly hatched scales have reached a stage in which they can safely pass the winter when they lose their white color and turn to the black, or grayish black, color with which the orchardist is most familiar, Chandler explained. When the young first crawl out from under the old mother scale they move about for a few hours, or even a day, to find a suitable place to settle down. After their beaks have once pierced the bark, however, they never move. They lose their eyes and legs and cover themselves with a waxy secretion which is white in color and which later turns black or grayish black, indicating that the insect has reached the safe stage for winter.

Woodford Farmer Improves Oats Strain For 80-Bushel-An-Acre Yield

Purity and quality of seed have played the leading role in helping S. E. Unzicker, a Woodford county farmer, improve and build up a strain of oats to the point where 80 acres of it last year yielded 14 bushels more an acre than any other crop threshed by the ring of which he is a member. His yield was 80 bushels an acre. Unzicker's work of improving the strain of oats started several years ago when M. L. Mosher, who is now extension specialist in farm management at the College of Agriculture, University of Illinois, was still farm adviser in Woodford county. The strain which he used was Iowa 103, which has been one of the highest yielders in tests made at Urbana by the agricultural college, but Unzicker has been able to still further improve its yielding qualities by systematic and practical breeding.

In starting to build up the strain, Unzicker, with the help of Mosher and a representative from the College of Agriculture, University of Illinois, selected 7,000 desirable heads of oats from a field of Iowa 103 and the next spring planted this seed by what is known as the head-to-row system. Under this plan the seed from a single head is planted in a row to itself so that the plants from each head can be compared with those from all the other heads. At harvest time this seed plot containing the plants from the 7,000 heads was carefully inspected by Unzicker and Mosher. At that time the plants in the different rows showed that 2,000 of the heads were slightly different than the rest and consequently they were thrown out, thus keeping the remaining 5,000 heads true to one type. For three years Unzicker has grown nothing but oats of this type and each year he has produced the best crop in his community. The 80 acres which he grew last year was inspected before harvest by a representative of the Illinois Crop Improvement Association and found to contain no appreciable variation from the type adopted as a standard by Unzicker when he started his work with the strain.

-M-

Belt Delivers Best Service Under Rough Farm Use If Kept Pliable

Power belts used on the farm get many hard knocks and unless they are kept pliable and in good condition will not give the best service and transmit the most power, it is pointed out by I. P. Blauser, of the farm mechanics department, College of Agriculture, University of Illinois. Among other things the farm power belt must stand up under heat, cold, moisture, friction and strain.

Leather belts that have become dry and hard can be made pliable again if they are kept cleaned thoroughly and rubbed with neats foot oil. Belts of this kind can be kept in the best condition if they are kept dry and free from mineral oils. The smooth, or hair, side of a belt should always be run next to the pulley as there is more give to the flesh side of the leather.

Canvas belts must be kept clean and be given a rather frequent application of a good belt dressing prepared by a reliable manufacturer. Above all things, rosin, dirt, cinders or ashes should not be used on a belt in an attempt to keep it from slipping. Soap and water will clean canvas belts and they should then be given a coating of red elastic paint or a good grade of linseed oil paint. In using a canvas belt it is important to see that the edges do not rub, as the belt is made up by one layer being folded on another and after the edges are worn the belt goes to pieces quickly.

Rubber belts are made up of alternate layers of rubber and canvas stitched together and then vulcanized under high pressure. The vulcanized seam always should be run away from the pulley. These belts are less susceptible to moisture than leather belts, but they should be cleaned frequently. They will give their best service and last longest if they are kept free of belt dressings of all kinds.

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Woodford Farmer Improves His Strain [illegible]

Purity and quality of [illegible] have played the leading role in helping [illegible] **loker, a Woodford** County farmer, [illegible] **nt where 60 acres** of [illegible] **p surpassed by the** [illegible] **loker's work of** [illegible] **her, who is now** [illegible] **o, University of Illinois,** [illegible] **ch he used was** [illegible] **Urbana by the** [illegible] still further **rove its yielding** [illegible].

In starting to build up the [illegible], with the help of [illegible] **epresentative from** the [illegible] University of Illinois, selecte[d] **00 desirable** heads of [illegible] next spring [illegible] **e seed by what** is known as the [illegible] plan [illegible] **ingle head is** planted in [illegible] **pared with those** from all [illegible] **ning the plants** from the [illegible] **.** **At that time** the plants [illegible] **e slightly** different [illegible] **ping the remaining** [illegible] **ave nothing but** [illegible] **community.** The 60 acres [illegible] **epresentative of the** Illinois [illegible] **ppreciable** variation [illegible] **rted his work** with the strain.

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Belts Deliver Best [illegible]

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Beef Clubs Solve Fresh Meat Problem For Farm Families

The fresh beef problem is not easily solved on the farm. Cured meats, both pork and beef, may be prepared by the farmer, but a regular supply of fresh meat is hard to get. The most satisfactory method of obtaining fresh beef of high quality throughout the entire year is through the activities of beef rings, or clubs. Such clubs have been successfully operated in several states for many years, a number of them being more than 30 years old. The success of these rings seems to depend on a few fundamental factors among which are a desire on the part of a number of farmers for a regular supply of high quality beef, the willingness on the part of the farmers concerned to cooperate readily and allow for some little inequalities that always arise, the services of a reasonably good butcher, preferably a member of the ring, and the handling of the affairs of the ring on a business-like basis.

Beef clubs vary in size from 16 to 40 members, but the most satisfactory size seems to be 20 members. Whenever enough farmers in a community desire to form a beef ring they should first of all meet and perfect an organization. A manager or managing committee should be elected. The business of the club is cared for by this committee, subject to the approval of the club members. Supposing a beef club consists of 20 members, each member agrees to deliver one beef, the time for each member to be determined by lot. In turn, he receives his apportioned share of beef each week, the weekly share of each member to be decided by the managing committee. A record of the weight and value of the animal contributed by each member and the amount and value of the meat received by him must be kept. At the end of the year a meeting is held and all differences settled.

High quality beef is essential to success of the club. Hence each animal delivered for slaughter must be inspected and passed by the managing committee before slaughter. The suitability of the carcass should be determined by the butcher. All animals should be of such size as to dress about 400 pounds. The carcasses should always be cut the same way and the cuts made so as to provide for as near an even distribution to all members as possible. The various cuts should be rotated among the members so that each member will receive each cut once during the 20 weeks.

The butcher may be paid for his labor in meat or by-products, but a uniform cash wage is more satisfactory to everyone concerned. The animal should be delivered to the butcher the day before the meat is to be delivered. The butcher can then kill the animal in the evening, allow it to chill over night and have it cut up early the next morning so that each member may get his share before the day gets warm. He should also sell the hide and turn the proceeds over to the manager.

The advantages of such a beef club may be summed up as follows: (1) The club members can obtain high quality, really fresh beef regularly, (2) The cost of such beef will be less than that paid to the local butcher for inferior meat, and (3) A spirit of cooperation, of great value to the community, is fostered. - J. H. Longwell, meats division, College of Agriculture, U. of I.

Printed in cooperation with the Agricultural Extension Act of May 8, 1914. H. W. Mumford, Director.

Success With Chicks Hinges On Proper Brooding Methods

Chick hatching will soon be in full swing on Illinois farms and much of the success which poultrymen have with their young stock will depend upon how well it is brooded, it is pointed out by F. P. Hanson, farm mechanics extension specialist of the College of Agriculture, University of Illinois. Any money that the chicken raiser puts into a properly built colony brooder house is well spent, he said.

"Since the efficiency of a brooder house depends more upon the application of correct principles of construction rather than on its first cost, a low priced house is not necessarily the cheapest. The most important essentials of a good brooder house are portability, rigid construction, plenty of fresh air and light, tight walls, a tight and warm floor and plenty of floor space. It would be false economy to sacrifice some of these essentials just to cut the first cost a little.

"A 10 by 12 brooder house will be large enough for brooding chicks in flocks of from 300 to 500. The usual practice is to allow a square foot of floor space for each four chicks, but a better arrangement would be a square foot for each three chicks. Making the house portable is a big aid in sanitation as the chicks can be grown on a different patch of ground each year. The portable house, of course, must be well built in order to stand up when it is being moved.

"The matter of having plenty of ventilation and light in the house cannot be slighted if the chicks are to develop into strong, thrifty fowls. Four sash, each two feet four inches by two feet nine inches, will give enough sunlight in a 10 by 12 house, while ventilators at the floor and at the plate line in the north wall will admit fresh air.

"Tight walls and a tight floor in the brooder house are big items in successful brooding, inasmuch as they help keep the house warm. A double floor with tar paper between the two will be well worth while. No. 2 shiplap may be used for the sub-floor and No. 2 tongue and groove flooring for the top floor. Dropsiding, if properly put on, will make a tight wall.

"For low cost and simplicity of construction, the brooder house should have a shed roof. The back wall need not be more than four feet six inches high and the front wall not more than seven feet high. It is best to keep the cubical capacity of the house low by keeping down the height of front and rear walls."

-M-

First Half Ton Club Calves Putting On Required Weight

Weighing a quarter of a ton each at the age of six months, the first two calves that were nominated for the Illinois Half Ton Calf Club are now safely past the half way mark and well on their way toward winning the first membership in the club for their owners, H. L. Gates & Son, of Tuscola, Douglas county. The two calves are both Shorthorns and to win a membership in the club they must reach a weight of at least half a ton each by the time they are a year old.

-M-

Hog Feeders With Short Corn Crop Can Substitute Barley

Barley makes a good substitute for corn in the ration of breeding and fattening hogs and can be used to advantage by farmers whose short corn crop will leave them with a feed shortage this year, according to swine specialists at the College of Agriculture, University of Illinois. Ground barley or barley which has been soaked from 12 to 24 hours is about 90 per cent as valuable as sound corn on the pound for pound basis, while barley chop mixed with skimmilk or tankage and a little water makes a first class slop for brood sows or fattening hogs.

Chapter Seven: Sleeping Under the Stars

Chapter Eight: Rainy Day Activities

Home Butchering Makes Saving of $26 on 675 Pound Steer

Whether or not it will pay the farmer to kill his own beef depends largely upon whether or not the entire beef carcass can be utilized before it spoils. However, at least during the winter months, it seems feasible for several neighbors to kill a small beef and divide the carcass without waste. This will not only furnish a supply of choice beef but it can be done at a decided financial saving.

If the farmer purchased the meat from a 675 pound steer of good quality at a retail meat market, it would cost him about $72.67. This statement is based upon the following weights and prices of the different cuts:

Rump	12.00 lbs. at	$0.25 =	$ 3.00
Rump soupbone	3.00	.08	.24
Round steaks	50.24	.30	15.07
Round soupbone	2.50	.04	.10
End of round	7.50	.20	1.50
Hind shank	9.00	.03	.27
Sirloin steaks	30.00	.35	10.50
Porterhouse steaks	18.00	.45	8.10
Short porterhouse steaks	9.88	.40	3.95
Flank steak	2.50	.25	.62
Suet	5.12	.04	.20
Rib roast (rolled)	26.76	.35	9.37
Plate	33.50	.10	3.35
Chuck roasts	57.24	.18	10.30
Chuck round bone	2.62	.03	.08
Neck stew (boned)	11.62	.15	1.74
Fore shank	10.76	.08	.86
Hamburger	17.12	.20	3.42
Total			$72.67

In addition, if the steer is killed at home the farmer has the following offal:

Hide	45.00lbs. at	$0.13 =	$ 5.85
Liver	8.00	.10	.80
Heart	3.00	.10	.30
Tongue	4.00	.10	.40
Sweet breads and brains	1.00	.20	.20
Head meat	4.00	.05	.20
Total			$ 7.75

Adding the value of the offal to the value of the meat gives a total of $80.42 for the beef. Assuming that the 675 pound steer is worth eight cents a pound on the farm makes him worth $54. In other words the farmer makes a saving of $26.42 by killing the beef at home, allowing nothing for the labor involved. It should not be assumed that this saving represents the profit of the butcher. Out of it must be paid shipping and transportation expenses, yardage, commission, packers' costs and profits and the retail butcher's costs and profits. This example simply illustrates the fact that we can make a material saving in many instances by doing things at home which we are accustomed to hire done for us. - Sleeter Bull, meats division, College of Agriculture, U. of I.

-M-

Florists' Week at the College of Agriculture, University of Illinois and the annual spring meeting of the Illinois State Florists' Association have been combined this year and will be held at the college during the first week in February.

-M-

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Tests Show That Early Varieties Of Oats Outyield Late Ones

In general early varieties of oats outyield late ones, according to variety tests which the experiment station of the College of Agriculture, University of Illinois has made over the state. However, much of the difference in the yields from the two classes of oats - early and late - depends upon seasonal conditions, according to R. W. Starr, of the college agronomy department. Some idea of how important it is for farmers to plan the right variety when they are getting ready for oats seeding at this time of the year can be gained from the fact that the yields from different varieties vary all the way from five to 25 bushels an acre, he said.

Iowar has produced the largest average yield during the four years that it has been tested on the DeKalb experiment field in the northern part of the state and last year it made a shade more than a hundred bushels an acre on this field, according to Starr. Iowa 103 and Iowa 105, both of which have been grown on the DeKalb field longer than Iowar, ranked second and third in the average yield for a number of years. These varieties do not lodge as badly as the taller late varieties and they also serve excellently as nurse crops for clover.

Among the late varieties which have been tested on the DeKalb field, Silver Mine has been one of the leaders. Big Four, a leading early maturing variety, also has made a fine record. Garton 456, which was grown on the field for the first time in 1924, made 34 bushels an acre. The lowest yielding variety on the field in 1924 made only slightly more than 6½ bushels an acre.

In central Illinois tests made on the Urbana field during the last four years, Iowa 105 has given the highest average yield with almost 61 bushels an acre to its credit. Iowa 103, Burt and Sixty Day, all early varieties, followed in the order named. During the same period, Iris Victor, the best yielding late variety, produced about 4½ bushels an acre less than Iowa 103. Minota has been grown on the Urbana field during the last two years and its average yield has been slightly above that of Iowa 105.

Variety tests in the southern part of the state indicate that Iowa 103 also is well adapted to that section. However, on the rich soil, taller and more vigorous growing varieties, even though they mature later, have certain advantages and have proved nearly as high yielders.

-H-

Expect 1,000 Juniors to Feed Baby Beef Calves During 1925

Enrollment of Illinois farm boys and girls in baby beef clubs probably will reach the 1,000 mark this year, according to advance reports which have come to junior club workers at the College of Agriculture, University of Illinois from 26 counties of the state. Those who enroll in this line of club work for the year will feed and develop baby beef calves under a project plan worked out by the agricultural college. The first enrollment report came from Coles county, where 36 junior feeders have placed their names on the roster to feed a total of 57 Hereford calves.

Printed and mailed under the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*

Thousands of Cows Are Put To Test In Herd Improvement Work

Approximately 12,000 Illinois dairy cows are now enrolled in 24 dairy herd improvement associations that have been organized in almost a score of counties by farm advisers, dairymen and the extension service of the College of Agriculture, University of Illinois in the interests of improved dairying, according to C. S. Rhode, dairy extension specialist of the college, who has charge of the associations. Membership in each of the associations ranges from 25 to 50 farmers and dairymen, and in each case the object of the organization is to help members feed and handle their cows more efficiently and locate and get rid of the boarders in their herds. Among the associations which have been organized most recently are those in DeKalb, Lake, Peoria, DuPage, Edgar-Vermilion and Lee-Whiteside counties. The new associations in Lake and DuPage counties are the first to be formed for each county and renewed interest is being shown so that a third association may be formed in each county soon.

Organization of these dairy herd improvement associations is one of the major dairy projects being pushed by the agricultural college and the testing of the 12,000 cows which are enrolled this year is merely a continuation of the work done in the past. Last year almost as many cows were tested and from eight to ten per cent of them found lacking as profitable producers. In DeKalb county alone last year, 77 head belonging to members of the association in that county were sent to the butcher because the records of these animals showed that they failed to measure up to standard.

In Crawford county the herd improvement association has been operating for more than a year and a half and the members of the organization can now see that they are better off without these boarder cows, according to Rhode. During the first five months of the first year that the association operated the average monthly butterfat production of each cow was only 24 pounds. During the corresponding five months of the second year, after some of the low producers had been disposed of the average monthly butterfat production was almost 27 pounds of butterfat a month a cow, or an increase of only more than three pounds a month a cow. On a ten-cow herd this increase would amount to 360 pounds of fat a year and with fat at 40 cents a pound the increase would be worth $144.00.

-M-

Bankers Back Movement to Replace Grade Sires With Purebreds

Illinois' new bull exchange plan, which helps farmers and dairymen can trade their grade dairy sires for registered pure-bred bull calves, now has the support of the state's bankers. Thirteen banks in different parts of the state already have gone on record as being in favor of and ready to support the plan. The exchange system was worked out by dairymen of the College of Agriculture, University of Illinois and is being pushed as the main line of work in the campaign which the college and interested co-operating agencies are waging against scrub and grade dairy sires on farms of the state.

Banks that are behind the plan include the First National Bank, Catlin; First National Bank, Belleville; Ashley State Bank, Ashley; Hennepin State Bank, Denver; First State and Savings Bank, Galena; Union State Savings Bank, Kewanee; First National Bank, Henry; First National Bank, Shabbona; Marine Trust Company, Cortland; National City Bank, Ottawa; First National Bank, Savanna; A. F. Gerhant Banking Company, West Brooklyn and the First National Bank, Tuscola. Although he no longer is connected with a banking institution, A. J. Guerrettaz, of Dubois, and formerly cashier of the state bank there, has written his approval of the exchange plan and sent the names of two farmers in that section of the state who wish to trade their grade bulls for pure-bred bull calves.

Fewer Hogs And Shortage Of Corn May Strengthen Pork Prices

With fewer hogs on farms of the country and the last corn crop a short one, 1925 should bring highly satisfactory hog prices as the season advances, in the opinion of R. J. Laible, of the swine division of the College of Agriculture, University of Illinois. March and April, and August and September will bring the highest markets of the year, if 1925 is at all like other years, he said. A study of the hog feeding business in other years indicates that farmers can get from $1 to $3 more a pig if they push their spring crop along on full feed from the start. Under this method the porkers can be marketed in September or early October on a relatively high market. It will take high priced feed to do this, but the returns also are high and experience would indicate that the practice is justified.

"Some feeders, of course, will find it impossible to fatten their spring crop for the early fall market because of a feed shortage, while others have the feed on hand but question the advisability of full feeding spring pigs with such high priced feed. The very fact that some farmers who ordinarily would push their spring pigs for the early fall market will not be able to do so this year because of short feed supplies, gives those who have the necessary feed a decided advantage. For this reason alone farmers who have corn to feed should well consider the advisability of crowding their spring pigs for the early fall market.

-M-

Water Dilution Separators Condemned as Big Wasters Of Cream

So-called water dilution milk separators leave from ten to 50 times as much butterfat in the skimmilk as efficient centrifugal separators do and yet some farmers are using the water dilution method in the belief that they are getting efficient separation of cream and skimmilk, according to Dr. H. A. Ruehe, head of the dairy department of the College of Agriculture, University of Illinois. The efficiency of the method that is used in skimming milk may be a big factor in determining whether or not the farmer makes a profit on the cream which he markets, he pointed out.

Some of those who are still using the water dilution method of separating may think that they are not losing by it because the skimmilk is fed to hogs or chickens which will make good use of the butterfat that is left in the milk. However, butterfat is a rather expensive feed for hogs when it is worth from 40 to 50 cents a pound. Furthermore, the water dilution separator produces a cream that is very inferior in quality to that produced by a centrifugal machine.

Even when a centrifugal separator is used it should be tested occasionally to make sure that it is skimming as closely as it should. This test can be made by having the skimmilk tested for butterfat. Letting the cream stand to see whether or not a cream layer will form is not an effective way to determine the efficiency of the separator. If the machine is not operating properly, it should be taken to the dealer and the necessary adjustments made. If this is not done the butterfat lost in the skimmilk may cause a real loss in profits.

-M-

Sees Bright Prospects In Sheep Industry For The Coming Year

With wool in a strong position throughout the world and the national demand for quality lamb far from over supplied, 1925 promises to be a very favorable year for the sheep raiser, according to W. G. Kammlade, assistant chief of sheep husbandry at the College of Agriculture, University of Illinois. The prospects are brightened by the fact that there has not been an unwarranted increase in sheep in this country during the year just past.

-M-

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Names 18 Apple Varieties That Are Relatively Free Of Disease

At least 18 of the desirable apple varieties are relatively free of one or more of the diseases which take the heaviest toll in orchards and by selecting these varieties fruit growers can make a big reduction in their spray bill, Dr. H. W. Anderson, associate chief of pomological pathology at the College of Agriculture, University of Illinois, pointed out in discussing the matter of selecting trees for the orchard at this time of the year. Spraying is the largest single item of expense in caring for bearing fruit trees and the best time to reduce this expense is before the orchard is planted, when varieties that are highly susceptible to the various diseases can be discarded, he explained.

"Scab is perhaps the most serious apple disease in Illinois and included among the varieties which are susceptible to it are Ben Davis, Delicious, Early Harvest, Kinnaird, Red June, Maiden Blush, Rome Beauty, Snow (Fameuse), Willow Twig, Northwestern Greening and Winesap. Varieties which are resistant to scab include Jonathan, Grimes, Akin, Benoni, Huntsman, King David, Minkler, Duchess, Salome, Stayman, Wealthy, Yellow Transparent and York Imperial.

"The apple disease of next importance in the state is blotch. Varieties which are susceptible to it are Ben Davis, Benoni, Early Harvest, Huntsman, Maiden Blush, Missouri Pippin, Northwestern Greening, Duchess and Willow Twig. Blotch resistant varieties are Akin, Jonathan, King David, Kinnaird, Minkler, Red June, Rome Beauty, Delicious, Stayman, Wealthy, Winesap, Yellow Transparent and York Imperial.

"Blight attacks most varieties in a bad year, but varieties other than Jonathan, Benoni, Yellow Transparent, Early Harvest and Wealthy rarely blight badly. Cedar rust is present to a damaging extent only where the red cedar grows abundantly. Jonathan, Wealthy, Benoni and Rome Beauty are the varieties especially susceptible in Illinois, all other varieties being fairly resistant.

"Blister canker is to be feared only on Ben Davis. Other varieties are attacked by this disease but not to a damaging extent unless they are planted near a Ben Davis orchard. Bitter rot is confined to the southern part of the state and consequently need not be taken into consideration in planting orchards north of Effingham. Ben Davis, Grimes, Jonathan, Huntsman and Willow Twig are especially susceptible, although other varieties may be attacked.

"Unfortunately no variety of apples is entirely resistant to all diseases. On the other hand, the Ben Davis variety would be discarded at once because it is susceptible to all diseases. From the disease standpoint Grimes is one of the best varieties, especially where bitter rot is not a factor.

"Sometimes varieties are spoken of as being resistant to a certain disease and yet if they are left unsprayed in a year favorable for the disease they will be attacked. As a rule, however, such varieties can be easily protected by a few sprays while susceptible varieties would need many more."

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*

Little Difference Between Oats And Wheat As Clover Nurse Crops

Tests made for many years by the experiment station of the College of Agriculture, University of Illinois show that there is no marked difference between winter wheat and oats as nurse crops for clover, according to H. J. Snider, assistant chief of the soil experiment fields which are maintained in different parts of the state by the institution. Farmers who plan to sow red clover this spring can seed it in either of these grains and get about the same results, provided other conditions are equal and favorable for the growing of clover, he said.

"In a rotation of corn, oats, wheat and clover on the McNabb experiment field in Putnam county, red clover has been seeded in winter wheat for 17 consecutive years, from 1907 to 1924, and out of these 17 seedings more than 70 per cent of them have been successful. On the Rockford field, Winnebago county, in a rotation of corn, corn, oats and clover, red clover has been seeded in oats for 15 consecutive years, 1905 to 1919, and out of these 15 seedings, almost 60 per cent of them have been successful. On the Davenport plots here at Urbana, clover has been seeded in oats for 22 consecutive years, 1903 to 1924, and more than 77 per cent of these seedings have been successful.

"Although the question as to whether or not winter wheat or oats affords the best nurse crop and seed bed for red clover is a point open to argument, the results of these long continued experiments indicate that there is little difference between the two. Throughout the corn belt of the state, clovers are seeded mainly in wheat and oats, as they are the principal small grain crops of this region. As long as they continue to be such prominent nurse crops, there can be very little selection of nurse crops for clover. It is very seldom, although it is sometimes the case, that a farmer seeds small grains mainly for the purpose of getting a suitable nurse crop for clover. When only oats are used as a small grain crop, as is the common corn belt practice, the only choice in the matter of a nurse crop for clover is the selection of a variety of oats which may give the greatest advantage to the young clover."

-M-

Many Cows To Try For Membership In New Club Of High Producers

A total of 512 cows from 16 counties of the state will try for memberships in the Illinois 500 Pound Butterfat Cow Club during the coming year, it has been announced by C. S. Rhode, dairy extension specialist of the College of Agriculture, University of Illinois, who has charge of the club. Nominations for the club are closed and to win a membership each of the cows must produce at least 500 pounds of butterfat in a year. In addition to giving the state's high producing cows the recognition that is due them the club is expected to be a valuable means of demonstrating the worth of recommended dairy practices in efficient and profitable milk production. Of the 16 counties represented in the nominations, DuPage county has 105 cows on the list, the largest number from a single county. McHenry county dairymen nominated 51, Ogle county dairymen 47 and Will county dairymen 43. Other counties represented are Franklin, Marion, JoDaviess, Kane, Union, Lake, Lee, McLean, Peoria, Stephenson, Whiteside and Fayette.

-M-

Sixth Conference for Veterinarians To Be Held February 16, 17.

The sixth annual two-day conference for graduate veterinarians of Illinois will be held at the College of Agriculture, University of Illinois, February 16 and 17. European fowl pest, the poultry disease which recently resulted in a New York embargo being placed against poultry from several western states, is to receive attention along with numerous other poultry and livestock diseases.

-M-

Gives Price Comparison Of Commercial Nitrogenous Fertilizers

Illinois fruit growers each year are using increased amounts of nitrogenous fertilizers. Nitrogen may and should where possible, be drawn from the air by legumes, butthere are, however, many conditions under which the use of commercial forms of nitrogen is justifiable.

Two forms of commercial nitrogen are recognized as having particular value to the fruit grower. These are, sodium nitrate and ammonium sulfate. The former is imported as Chile saltpetre and contains approximately 15 per cent nitrogen. Ammonium sulfate is a coal by-product and contains from 20 to 20 3/4 per cent nitrogen. It will thus be seen that pound for pound sodium nitrate contains about one-fourth less nitrogen than ammonium sulfate. When buying either of these fertilizers the prices should be compared on the basis of the nitrogen content.

For convenience the following table is given showing the comparison of sodium nitrate and ammonium sulfate prices, or the price at which one should be bought to equal the other in value:

Price per ton of sodium nitrate 15.5 per cent nitrogen.	Price per ton of ammonium sulfate 20.75 per cent nitrogen.	Price per ton of sodium nitrate 15.5 per cent nitrogen.	Price per ton of ammonium sulfate 20.75 per cent nitrogen.
$75.	$100.40	$59.	$78.99
74.	99.06	58.	77.64
73.	97.74	57.	76.30
72.	96.38	56.	74.96
71.	95.47	55.	73.62
70.	93.70	54.	72.29
69.	92.37	53.	70.95
68.	91.03	52.	69.60
67.	89.69	51.	68.20
66.	89.64	50.	66.93
65.	87.01	49.	65.59
64.	85.03	48.	64.24
63.	84.33	47.	62.91
62.	81.70	46.	61.58
61.	81.66	45.	60.24
60.	80.32		

Since sodium nitrate has been in use much longer growers by experience have learned the amount of nitrogen to use in terms of this product. Very often in applying ammonium sulfate the first time there is a tendency to use almost as many pounds per tree as was formerly applied in the form of sodium nitrate. The following table is given to show the amount to apply in order to get a like result:

Sodium nitrate formerly used in pounds per tree	Pounds of ammonium sulfate to be used per tree	Sodium nitrate formerly used in pounds per tree	Pounds of ammonium sulfate to be used per tree
1	.74	9	6.72
2	1.49	10	7.42
3	2.24	11	8.21
4	2.98	12	8.96
5	3.68	13	9.71
6	4.48	14	10.45
7	5.22	15	11.20
8	5.97		

-W.S.Brock, horticulture extension, College of Agriculture, University of Illinois.

Gives Price Comparison Of Commercial Nitrogenous Fertilizers

Illinois fruit growers each year are using increased amounts of nitro[illegible] [illegible]lizers. Nitrogen may and should where possible be drawn from the air by le[illegible] [illegible]ere are, however, many conditions under which the use of commercial forms of n[illegible] [illegible]n is justifiable.

Two forms of commercial nitrogen are recognized as having particular [illegible] [illegible]e fruit grower. These are sodium nitrate and ammonium sulfate. The former i[illegible] [illegible]ted as Chile saltpetre and contains [illegible] per cent nitrogen. Am[illegible] [illegible]sulfate is a coal by-product and contains from 20 to 20 3/4 per cent nitrogen. [illegible] [illegible]ll thus be seen that pound for pound sodium nitrate contains [illegible] [illegible] nitrogen than ammonium sulfate. When buying either of these fertilizers [illegible] [illegible]e should be compared on the basis of [illegible]

For convenience the following table is given showing the comparison of [illegible] [illegible]m nitrate and ammonium sulfate prices, or the price at which one must be [illegible] [illegible]t to equal the other in value.

[illegible] per ton of [illegible]m nitrate [illegible] per cent [illegible]gen.	Price per ton of ammonium sulfate 20.75 per cent nitrogen.	Price per ton of sodium nitrate [illegible] per cent nitrogen.	Price per ton of ammonium sulfate [illegible] per cent nitrogen.
75.	[illegible]	[illegible]	[illegible]
74.	[illegible]	[illegible]	[illegible]
73.	[illegible]	[illegible]	[illegible]
72.	[illegible]	[illegible]	[illegible]
71.	[illegible]	[illegible]	[illegible]
70.	[illegible]	[illegible]	[illegible]
69.	[illegible]	[illegible]	[illegible]
68.	[illegible]	[illegible]	[illegible]
67.	[illegible]	[illegible]	[illegible]
66.	[illegible]	[illegible]	[illegible]
65.	[illegible]	[illegible]	[illegible]
64.	[illegible]	[illegible]	[illegible]
63.	[illegible]	[illegible]	[illegible]
62.	[illegible]	[illegible]	[illegible]
61.	[illegible]	[illegible]	[illegible]
60.	[illegible]	[illegible]	[illegible]

Since sodium nitrate [illegible] [illegible] the amount of nitrogen to use in [illegible] [illegible]monium sulfate [illegible] [illegible] as was formerly [illegible] [illegible] to show the amount to apply in order [illegible]

[illegible] nitrate [illegible] used in [illegible] per tree	Pounds of ammonium sulfate to be used per tree	[illegible]	[illegible]
[illegible]	1.40	[illegible]	[illegible]

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Lists Desirable Apple Varieties Relatively Free Of Disease

Rated by a disease-free standard, Ben Davis is one of the poorest varieties of apples for Illinois, while Grimes is one of the best according to Dr. H. W. Anderson, associate chief of pomological pathology at the College of Agriculture. Unfortunately no variety of apples is entirely resistant to all diseases. There are, however, at least 18 desirable varieties which are relatively free of one or more of the most serious diseases attacking fruit trees in the state and by planting their orchards with these varieties growers can make a big saving on their spray costs. The biggest item of expense in caring for bearing trees is spraying and the best time to reduce this expense is before the orchard is planted, at which time varieties that are highly susceptible to the various diseases can be discarded.

"At least 11 varieties, including Ben Davis, Delicious, Early Harvest, Kinnaird, Red June, Maiden Blush, Rome Beauty, Snow (Fameuse), Willow Twig, Northwestern Greening and Winesap, are susceptible to scab, which is perhaps the worst disease of apples in Illinois. On the other hand there are 13 varieties that are resistant to this disease. These include Jonathan, Grimes, Akin, Benoni, Huntsman, King David, Minkler, Duchess, Salome, Stayman, Wealthy, Yellow Transparent and York Imperial.

"Next to scab, blotch is the most important apple disease in Illinois and among the varieties which are susceptible to this disease are Ben Davis, Benoni, Early Harvest, Huntsman, Maiden Blush, Missouri, Missouri Pippin, Northwestern Greening, Duchess and Willow Twig. The blotch resistant varieties include Akin, Jonathan, King David, Kinnaird, Minkler, Red June, Rome Beauty, Delicious, Stayman, Wealthy, Winesap, Yellow Transparent and York Imperial.

"Most varieties are attacked by blight in a bad year, but varieties other than Benoni, Yellow Transparent, Early Harvest and Wealthy rarely blight badly.

"Cedar rust, another of the important apple diseases in the state, is present to a damaging extent only where red cedar grows abundantly. Jonathan, Wealthy, Benoni and Rome Beauty are the varieties especially susceptible in Illinois, all other varieties being fairly resistant.

"Blister canker is to be feared only on Ben Davis. Other varieties are attacked by this disease but not to a damaging extent unless they are planted near a Ben Davis orchard.

"Bitter rot is confined to the southern part of the state and consequently need not be taken into consideration in planting orchards north of Effingham. Ben Davis, Grimes, Jonathan, Huntsman and Willow Twig are especially susceptible, although other varieties may be attacked.

"Even though some varieties are spoken of as being resistant to certain diseases they may be attacked in a year favorable for the disease if they are left unsprayed. As a rule, however, such varieties can be easily protected by a few sprays while susceptible varieties would need many more."

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*

Next Move For Better Butter May Put Premium on Quality Cream

Creamerymen on almost every hand are making a determined effort to improve the quality of the butter which they manufacture and it is entirely likely that within the near future they will take another step in this direction by inaugurating the practice of buying cream on a quality basis, according to P. H. Tracy, dairy manufacturing specialist of the College of Agriculture. This already is being done in some localities, the quality of the cream, as well as the butterfat content of it, being taken as the basis for payment.

"Manufacturers must have high quality cream to start with before they can produce a high grade butter. Trained scientists have been employed to help solve the chemical and bacteriological problems involved in the making of high quality butter. New processes have been worked out and new machines invented for the purpose of producing a high class product. However, no matter how conscientious a manufacturer may be nor how well equipped his plant may be, he cannot produce a high grade butter unless the cream which he buys is of high quality.

"If the buying of cream on a quality basis becomes a general practice, farmers, of course, will have to produce better cream in order to get the maximum returns for their product. One of the first things that can be done toward producing a high quality cream on the farm is to avoid contaminating it with dirt in every way possible. It should be kept away from all odors such as cooking cabbage, coal oil, gasoline and such disinfectants as those containing creosote.

"Another aid in producing high quality cream is to wash all utensils thoroughly with hot water and washing powder (not soap) and rinse them with scalding water. They should be rinsed with scalding water again before they are used. The utensils never should be covered so that the air cannot circulate around them. If possible they should be stored in the sun. They also should be kept dry, as this will avoid rusting and keep them in a sweeter condition.

"The cream itself should be kept in a cool, well ventilated place. However, it should not be allowed to freeze. Freshly separated cream should cool before it is added to previous skimmings. Occasional stirring will speed up the cooling and keep lumps out of the cream.

"The separator should be washed each time that it is used. A dirty separator may incubate millions of bacteria which will contaminate the cream and cause an off flavor. Cream should be marketed at least once a week during cold weather and three times a week during warm weather."

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Testing Of Seed Oats Will Have Added Importance This Year

Illinois' supply of seed oats this spring is of such poor quality that many farmers who have made germination tests on their stock are finding from one-fourth to one-half of the seed dead, according to J. C. Hackleman, crops extension specialist of the College of Agriculture. Germination tests should be made of all oats that is to be seeded this spring and if there is any doubt about its vitality an attempt should be made at once to locate seed of known purity and germination, he recommended.

The poor condition of the seed oats this spring dates back to the continued wet weather last summer just after oats harvest and before threshing. Many farmers had to leave their oats in the shock until as late as the first of September, while many of those who did thresh on time threshed their grain when it was too wet, with the result that it heated in the bins and destroyed the vitality of the seed.

Next Move For Better Butter May End Illinois Quality Plan

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Testing Of Seed Oats [illegible]

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Points out Unsoundness of Changing From Cows To Corn Now

Higher prices that are being paid for corn and lower prices for milk and butterfat have led many corn belt farmers to consider changing from cows to corn, according to H. E. Jamison, assistant in dairy extension at the College of Agriculture. Those who contemplate a change of this kind should remember that there is a tendency for the rise and fall in milk and butterfat prices to lag somewhat behind the rise and fall in feed prices. In other words, the price of milk and butterfat can be expected to rise and remain at a higher level for a time even after feed prices begin to decline. "It also is evident that if the shifting of the farm enterprise away from dairying is general throughout a locality the cows will have to be sacrificed when offered for sale, thereby causing a loss for those who quit. Then when prices tend to make dairying more profitable, a general shift toward it will result in higher prices for quality dairy stock and those who wish to get back will have to pay more for cows than they received when they sold out.

"Another result of the high corn and other feed prices is that many farmers are cutting down on the amount of feed for their cows. This practice can have but one result, a reduction in profits. A sharp reduction in milk flow together with a thin condition of cows is almost sure to follow when their feed is cut down below their natural requirements. The result is that they make little or no profit for the remainder of the lactation period. Contrasted to this false economy, those farmers who are feeding enough of the right kind of feed are still making money in spite of the high feed costs. They are watching feed prices and compiling the cheapest rations that will supply their cows with the necessary nutrients. Furthermore, these farmers cull their cows a little more closely when dairying is less profitable but continue to build up their herds by selecting calves from the cows that have the best milk and butterfat records on the herd improvement association books."

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Tests Show Different Clovers Adapted To Certain Conditions

Success in growing clovers depends to a large extent upon selecting a kind that is adapted to the particular conditions under which it is to be grown, according to results which the College of Agriculture has obtained on the soil experiment fields which it maintains in different parts of the state. For instance, on the Odin experiment field, in Marion county, alsike clover failed approximately 11 times out of 15 seedings, while sweet clover grown by the side of the alsike did not fail once. In both cases the clovers were seeded on well limed and otherwise treated land. "This is by no means an extreme case", H. J. Snider, assistant chief of the college's soil experiment fields pointed out. On these light southern Illinois soils it seems that the small rooted clovers, like red and alsike, fail almost discouragingly, while the heavy rooted sweet clovers are almost 100 per cent successful.

"Natural fertility of the soil also has much to do with the success of clover growing. On four experiment fields red and alsike clover seedings averaged 78 per cent successful on limed land which when untreated produced corn yields averaging 44 to 72 bushels an acre. These averages cover a period of from 12 to 15 years and give a very encouraging average of success. On four other fields, however, red and alsike clover seedings averaged only 39 per cent successful on limed land which, when not limed, produced corn averages of from 13 to 31 bushels an acre. The results in this case cover an average of ten to 15 years and are poor enough to discourage clover seeding. One of the significant things about the clover tests on the fields which have been mentioned is the fact that biennial sweet clover averaged approximately 100 per cent successful."

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Vol. VIII | Urbana, Illinois - February 25, 1925 | No. 8

Good Clover Seed Has Half Dozen "Ear Marks"

Good clover seed has at least half a dozen "ear marks" which cannot be mistaken and if farmers will watch these points in buying seed at this time of the year they can go a long way toward avoiding thin stands and scant yields, according to seed authorities at the College of Agriculture, University of Illinois. Germination, size and development, color and luster, purity, and adaptation are some of the things to consider, they say.

Of all these points, germination is put at the top as most important. Seeds which will not germinate are worthless and those which produce weak seedlings may be even worse. The germination test is simple and inexpensive and may be the means of avoiding a complete clover failure.

Size and development of seed are important because large seeds must necessarily contain a larger amount of reserve food material. Small or shriveled seeds produce plants which are stunted in the early stages of their growth and which never recover in time to make normal plants. Large seeds usually are mature and are more likely to make a strong, vigorous growth.

Color and luster are reliable indicators of the age and vitality of the seed. New clover seed that is strong in vitality has a bright lustrous appearance, while old seed is dull and turns to a reddish brown with age. In the case of red clover seed, it has been proved quite definitely that the purple seeds are larger and heavier than the yellow seeds and will remain viable longer.

Impurities in seeds have been the source of more grief than any other factor. Many of our worst weeds have been imported from foreign countries in crop seeds and many a farmer has given himself a lifetime job by sowing seed which contains seeds of such weeds as Canada thistle, bull nettle, bindweed and field sorrel. The farmer cannot afford to take chances with these pests and to this end it pays to inspect clover seed thoroughly for impurities, the specialists point out.

As for adaptation, each year many bushels of European clover seed, which is not suited to conditions here, are imported into this country. Experiments at the College of Agriculture and at other institutions show that foreign seed is not as reliable as home grown seed and may be decidedly inferior. It is not possible to look at clover seed and tell whether or not it is adapted to certain conditions, but much can be done toward getting adapted varieties by buying seed from reliable sources.

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Three counties, Rock Island, Woodford and Lee, recently have employed new farm advisers. S. S. Garrey, of the agronomy department, College of Agriculture, University of Illinois, has begun work in Rock Island county. Woodford county has secured H. A. deWerff to take the position formerly held by P. E. Johnston, who resigned to take up graduate work in farm management in the university. deWerff has been farm adviser in Franklin county for the past five years. Lee county has employed Charles E. Yale, who has been in charge of the agricultural work in the Amboy Township high school for four years. All these men are graduates of the College of Agriculture.

Simplest Of Tandem Hitches Has Good Points

With the rush of spring work close at hand, the tandem system of hitching horses will soon come into its own again among farmers who are looking for ways to get the most work done with the horses and men that are available, according to A.L. Young, of the farm mechanics department, College of Agriculture, University of Illinois. One of the simplest ways to make a tandem hitch is to fasten a comparatively short bar, or evener, to whatever is being pulled and let the rear horses pull on one end and the front horses on the other, the load being attached at a point that will distribute it properly between the front and rear teams, he said. In some respects this sort of a tandem hitch is better than those in which a pulley is used.

"It is true that eveners of this type do not permit as much seesaw action between the front and rear horses as do those using pulleys, but they usually are more satisfactory in this respect after the horses get used to working in tandem.

"Then too, there is a tendency on eveners of this type for that end of the short bar on which the rear horses pull to be lifted until the other end almost drags on the ground. This often is looked upon as an objectionable feature, but in reality it does no particular harm unless the lower end drags excessively. On the other hand, this condition helps materially to make the trace angle more nearly equal for the front and rear horses."

"Even if one end of the short bar in this simple tandem hitch is lowered so much that the horses in front pull from a point just above the ground, the trace angle is still less than it should be, but it is better than when they pull from a point on a level with the point where the hitch is attached to the plow or other implement that is being pulled. As for the trace angle of the horses in the rear, it is true that raising that end of the evener to which these horses are hitched may make their trace angle smaller than it should be, but at that it is never smaller than for the horses in front."

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Utility Corn Boosts Both Yield and Quality

Fred W. Halm, a LaSalle county farmer living near Peru, not only has topped the corn yields of many of his neighbors but also has succeeded in producing grain that weighs heavier and grades higher than the average. During the last four years he has grown a special strain of the utility type corn, which is recommended for this state by the College of Agriculture, University of Illinois, and among other things he has made a special effort to keep it as free from diseases as possible. His yields last year averaged about 70 bushels an acre, or considerably more than the yields of neighboring farms, according to a recent report which he made to the Illinois Crop Improvement Association in submitting seed corn for certification. Furthermore, when he shelled his corn and hauled it to the elevator, he found that a 28 inch wagon box load contained 57 bushels, or about four bushels more than a load of this size ordinarily contains. It graded higher than No. 6 which was about average for 1924 corn.

The utility type corn is harder and hornier than ordinary corn, and contains a smaller amount of soft starch and this accounts for the fact that Halm's corn averaged four bushels a load more than is common, J. C. Hackleman, crops extension specialist of the agricultural college, explained when he visited this county recently. He also pointed out that a large amount of soft starch in the kernels usually is associated with diseased corn or corn that is more susceptible to disease than the utility type. It is not uncommon for utility type corn to grade two points higher than ordinary corn, Hackleman said in discussing the high grade which Halm received for his grain. This advantage in grade is a big point in favor of utility type corn which farmers often overlook, he added.

Herd Improvement Gives Results In Crawford

Improved dairying practices which they have adopted during the last year and a half have helped the 24 members of the Crawford County Dairy Herd Improvement Association build up the production of their herds to the point where each of the 275 cows in the association produced an average of almost four pounds more of butterfat a month than cows in the organization produced the year previous, according to figures which have just been compiled from the records of the association by H. E. Jamison, assistant in dairy extension at the College of Agriculture, University of Illinois. This improvement has been brought about by culling out low producing cows and giving the remaining animals in the herds better feed and care.

During the first four months that the association was operating the average production of all cows belonging to members of the organization was 21.2 pounds of butterfat a cow a month. As a result of the improved practices which were adopted during the year, the average production of each cow in the association during the corresponding four months of the second year was 24.9 pounds of butterfat, or an increase of 3.7 pounds of butterfat a cow. This was an increase of 17.5 per cent and on a conservative estimate would be worth $1.45 a cow. For an average sized herd of 10 cows the increase would be worth more than $17 a month, or $200 a year, and for the 275 cows in the association it was worth about $400 a month, Jamison pointed out.

"The fact that members of the association are getting more efficient production from their cows is not the only benefit which they are deriving from the organization. Among other things, the value of each cow on which a record is kept is substantially increased because her ability to produce is definitely known and is not guessed at. Then too the feed and labor expended on unprofitable cows is saved through discovering the poor cow and selling her. Money is saved on feed by learning about and using more efficient rations. Leaks in the business are detected and plugged. The total value of this work in Crawford county and in the 24 other counties of the state where it is being done, cannot be measured because its benefits will continue for years and will result in better herds with much greater ability to produce milk and butterfat economically."

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Early Spraying Needed For Peach Leaf Curl

Most of the headway which peach leaf curl, one of the serious diseases of peaches, has made in Illinois orchards during recent years has been due to the fact that orchardists put off their spraying in the spring until the buds begin to swell, Dr. H. W. Anderson, associate chief of pomological pathology, College of Agriculture, University of Illinois, pointed out here today. Spraying for this disease should be completed before March 20 in the southern part of the state and not much later than this in other parts of the state, as the peach buds start very early, he said. "Warm days are not necessary before the spray for peach leaf curl can be put on. No harm will result as long as the temperature does not fall below freezing within two or three hours after the spray is applied. There usually are many warm days in February and March when conditions are favorable for this spray.

"Peach leaf curl can be controlled with lime sulphur as weak as one to 16, but it usually is best to apply a stronger solution if scale is present. Oil emulsion alone will not control peach leaf curl and even though this has been applied it will be necessary to spray again for the control of the leaf curl.

"Even if a crop of peaches is not expected this season, growers should spray for leaf curl since this disease may cause serious damage to the trees and reduce the crop next season."

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The Extension Messenger

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Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Fifty-Seven Counties Are Behind Swine Sanitation Movement

Plans for a state-wide movement to stress the value of sanitation as an aid in profitable pork production are now complete with farmers in 57 counties enrolled to conduct swine sanitation demonstrations on their farms during the coming spring and summer, according to an announcement by E. T. Robbins, livestock extension specialist of the College of Agriculture, University of Illinois. Farmers will cooperate with their county farm bureaus and the agricultural college in staging the demonstrations, which will follow a definite project outlined by livestock specialists of the institution. As many as 30 demonstrations will be conducted in some of the counties.

The list of counties in which the demonstrations will be held includes Adams, Bond, Brown, Bureau, Carroll, Champaign, Christian, Coles, Crawford, Cumberland, Douglas, DuPage, Edgar, Edwards, Gallatin, Grundy, Hancock, Henderson, Henry, Jackson, Jersey, Kendall, Knox, Lake, LaSalle, Lawrence, Lee, Logan, Macon, Macoupin, Marion, Marshall, McDonough, McLean, Menard, Mercer, Monroe, Montgomery, Morgan, Moultrie, Ogle, Peoria, Piatt, Putnam, Sangamon, Schuyler, Scott, Shelby, Stark, Stephenson, Tazewell, Wabash, Warren, White, Whiteside, Will and Winnebago.

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Condemns Common Flour Sacks As Screens For Poultry House

Muslin screens that are made out of common flour sacks may do more harm than good toward ventilating the poultry house, according to F. P. Hanson, farm mechanics extension specialist of the College of Agriculture, University of Illinois, who is finding many farmers and poultrymen out in the state who do not understand what the muslin screen ventilator is supposed to do. In a recent visit to one county he found a small overcrowded poultry house whose owner thought that he had practically solved his ventilation problem by tacking flour sacks over the lower part of each window after the sash had been raised. The owner's attention was called to the fact that no air was passing through the flour sacks and on close inspection it was found that the openings in the material were filled with lint and dust.

"Muslin screens are used for ventilators and in order to give the best results it is necessary that they admit fresh air, remove excess moisture, carry away odors and remove the products of respiration," Hanson pointed out. "Flour sacks are too closely woven to do all these things, but loosely woven gunny sacks will give good service if they are clean and the lint has been removed. A closely woven fabric may do more harm than good because it may admit little, if any, fresh air and keep the house colder.

"There also is a tendency on the part of some poultry house owners to keep their houses shut up too much during the winter months. As a matter of fact there should never be a time when some provision is not made for ventilation. The open front house is being used more and more and during extremely cold weather the openings in such a house can be covered with gunny sack or muslin screens. During most weather, however, part or all of the openings in such houses had best be left open."

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*

Start Tests To Get Facts On Farm Electricity Uses And Cost

An investigation designed to furnish authentic information on the many questions pertaining to the use of electricity in agriculture has just been put under way in a community six miles south and two miles west of Champaign by the College of Agriculture, University of Illinois and the electrical power interests of the state, according to an announcement by H. W. Mumford, dean of the college and chairman of the state committee which is sponsoring the project. The Illinois State Electric Association and the Central Illinois Public Service Company will cooperate with the institution in making the investigation, which will be carried on as a regular research project of the college farm mechanics department. The study probably will cover a period of three years.

Ten farms in the community will be electrified, but before the investigation is started a survey will be made of each one and a complete record taken of all farming operations, the living conditions on each farm and the economic status of each farm. This will be used as the basis for the installation of motors, wiring and other equipment and from the research work which is done on the 10 farms it is planned to work out definite facts on at least eight questions pertaining to the use of electrical power in farming. Among the things which will be considered in the study will be rural power line construction and maintenance costs, the adaptability to electric power of different farm operations, the amount used in these different operations and the cost of it, possible new uses of electric power on the farm, the possibility of the farmer using electric energy when the city or industrial load is light and the use of the small unit electric plant.

Each of the ten farmers whose forms are to be electrified will pay $360 toward the cost of building the power line, but the remainder of the cost of constructing it, as well as all costs in maintaining and operating it, will be paid by the Central Illinois Public Service Company. On each of the farms a separate meter will be used for measuring the power that goes into the various operations and all electricity that is used strictly for experimental purposes will be furnished free by the company. Equipment in the way of ranges, washing machines and other appliances that are used in the investigation will be furnished by various manufacturing concerns on a loan basis and at the end of the experiment the farmers will have an opportunity to buy this equipment. A fund of $5,000 has been furnished by the Illinois Electric Light Association to pay the expenses of an additional man on the farm mechanics staff of the college and defray other expenses of the investigation.

The state committee which is representing the various interests in the investigation and which is acting in an advisory capacity in the conduct of it includes J. P. Clayton, vice-president of the Central Illinois Public Service Company; B. H. Peck, president of the Illinois State Electric Association; H. E. Worden, of the Central Illinois Light Company; J. P. Stout, H. H. Parke and E. A. Eckert, all farmers; Mrs. H. M. Dunlap, home economics, and H. W. Mumford, E. W. Lehmann and H. C. M. Case, of the agricultural college. Implement manufacturers who would have a direct interest in the application of new power to machines now driven by steam or gasoline engines have been invited to cooperate in the investigation.

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Dr. I. B. Boughton, who has been a member of the animal pathology and hygiene division of the College of Agriculture, University of Illinois since September, 1919, has been appointed director of the veterinary science department of the republic of Haiti and will resign his present position in time to take up his new work on the island about May 1. Dr. E. R. Frank who was graduated from the Kansas State Agricultural College in 1918, will take Dr. Boughton's place here.

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Lack Of Moisture In Incubator Decreases Size of The Hatch

One of the main reasons why incubators sometimes fail to give good hatches is the fact that their operators fail to regulate the amount of moisture in them according to the rate at which the machines are ventilated, according to Dr. L. E. Card, chief of poultry at the College of Agriculture, University of Illinois. The rate of ventilation is determined by the make of the incubator and those machines that have a rapid rate of ventilation must get more moisture than those that operate with a slow circulation of air, he said.

"When the air going into the incubator is heated from about 70 degrees to 103 degrees it becomes relatively drier than it was at the lower temperature and consequently some moisture is certain to be taken up from the eggs. If the rate of ventilation in the incubator is rapid, more of this heated air passes through the machine than if the rate of circulation is low and consequently more moisture is taken from the eggs. So much may be drawn from the eggs that there is not enough left for the developing chicks and consequently a poor hatch results. By candling a few eggs every day or two the operator can soon learn to judge fairly accurately whether or not they are drying down at what might be considered a normal rate.

"In case the eggs seem to be drying out too fast, there are several methods that can be used to get more moisture into the machine, depending upon the make of it and the conditions under which it is being operated. The floor on which the machine stands may be sprinkled occasionally or it may even be necessary to sprinkle the eggs themselves. There are other methods that can be used with different types and makes of machines.

"Ventilation of the incubator cellar also is important. A constant supply of fresh air in the room or cellar in which the machine is being operated will make it fairly certain that the developing chicks will get enough oxygen at all times."

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Good Garden Should Supply Vegetables Every Day In The Year

Good gardening means gardening that will give a large production of high quality vegetables in continuous supply throughout the year. Human health is best conserved if at least two kinds of vegetables besides potatoes are served every day.

The home garden can furnish these vegetables better than the grocery store. To have vegetables every day in the year it is necessary to plant a number of different kinds, some adapted to growing in cool weather and some in hot. Some vegetables also should be included that will stand considerable drought for there are likely to be dry spells every year and the garden should be made to furnish a daily output even in unfavorable weather. In addition to furnishing fresh vegetables every day from the time asparagus and rhubarb are ready in April until the hard freezes of November kill the Swiss chard, New Zealand spinach and kale, the garden should supply plenty of vegetables to can and store for winter so that a continuous supply may be available the full twelve months of the year.

The vegetables most readily canned are tomatoes, sweet corn, string beans, lima beans and beets. Vegetables grown for winter storage should include carrots, parsnips, salsify, beets, turnips, sweet potatoes, onions, cabbage and squashes. There is no use in letting the garden be merely a three-months or even a seven-months affair. A good garden should supply the table with vegetables every day in the year - J. W. Lloyd, Chief, Olericulture, College of Agriculture, U. of I.

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Lack Of Moisture In Incubator [illegible]

One of the main reasons why incubators [illegible] that the [illegible] ing to the rate at which the [illegible] of poultry at the College of Agriculture [illegible] is determined by the make of [illegible] rate of ventilation must not [illegible] circulation of air, he said.

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New Bulletin Shows Deep Tillage Methods Are Unprofitable

Crop yields are not swelled to any marked degree by subsoiling, deep tilling and subsoil dynamiting and consequently these practices are not paying ones for Illinois farmers to follow, according to a new bulletin which the experiment station of the College of Agriculture, University of Illinois now has ready for free distribution to farmers and other interested persons.

Complete results of investigations which the experiment station has made for a number of years are reported in the new bulletin, which was prepared by Dr. R. S. Smith, associate chief of soil physics at the college. The investigations include subsoiling experiments which were conducted on gray silt loam on tight clay at Odin, Marion county; subsoiling, deep tilling and dynamiting experiments on gray silt loam on tight clay at Toledo, Cumberland county, and deep tilling experiments on brown silt loam here at Urbana.

Good plowing often is taken to mean deep plowing, but the two are not associated and before the farmer decides to increase the depth of plowing beyond about seven inches, he should consider whether or not the probable benefits will more than pay for the increased cost, the publication points out. Probably a fair statement is that when it costs $2.50 an acre to plow seven inches deep, it will cost $5 an acre to subsoil and $7 to deep till.

Dynamiting costs vary considerably because of differences in the costs of materials and labor, but they are always high. If the charges are placed at intervals of one rod each way and one-third stick of 20-per-cent dynamite is used for each shot, the cost including labor will range from $20 to $25 an acre, with dynamite costing 30 cents a pound, according to the publication.

On the Odin field, subsoiling was used on plots that had been treated in five different ways with legumes and fertilizers and in each case the difference in the yield of corn from subsoiled land and land that had not been subsoiled was so small over a period of 13 years that the only possible conclusion was that the subsoiling had not affected the yields.

Neither subsoiling, deep tilling or dynamiting did anything toward boosting crop yields on the Toledo field, where these practices were compared with ordinary plowing in a rotation of corn, soybeans, wheat and sweet clover. The deep tilling apparently decreased the yields, probably because of the subsurface and subsoil being mixed with the surface soil. In the dynamiting tests on the Toledo field it was found that dynamite charges, instead of shattering and opening up a tight clay subsoil, as they are supposed to do, only form perfect basins with highly compacted walls which are entirely impervious to water.

Here at Urbana it was found that in so far as corn yields are concerned there is no choice between 12- to 14-inch fall plowing, 7-inch fall plowing and 7-inch spring plowing, but that 3- to 4-inch spring plowing is apparently too shallow for the best growth of corn, according to the bulletin.

Shipping Pools Handling Bigger Business On Better Basis

Cooperative livestock shipping associations in Illinois are handling an increasing amount of livestock and giving improved service to their members, according to reports made by approximately 50 directors of such associations who attended the 12 schools held over the state during the past two months by the College of Agriculture, University of Illinois and the Illinois Agricultural Association as a means of helping these associations improve their business methods. According to the reports of the directors, their associations shipped more stock last year than in any previous year.

A total of 186 different shipping associations were represented at the schools which were attended by 533 men from 65 different counties. The attendance included 50 farm advisers, 95 shipping association managers and 125 directors.

The theme of the 12 schools was better business methods for livestock shipping associations and to this end the improved form of shipping association accounts worked out by the agricultural college, the I.A.A. and the Illinois Agricultural Cooperatives Association was introduced and explained at each of the meetings.

E. T. Robbins, livestock extension specialist of the college, explained successful methods that are being used by different associations over the state to maintain strong organizations and build up their businesses and W. E. Hedgcock, director of the livestock marketing department of the I.A.A., emphasized the fact that the strongest shipping associations, not only in Illinois but also in other states, are those in counties having strong farm bureaus. He has made a study of shipping association methods being used in Iowa, Minnesota, Ohio and Indiana.

Shipping association directors can play a large part in the success of their organizations by meeting frequently, keeping informed about the accounts and methods of their organization, helping the manager decide difficult questions and selecting the commission company to which stock should be sent, it was pointed out by Robbins. He also cited a number of successful association managers who make it a point to know markets and grades of stock, to advise consigners about probable dockage, use care in weighing correctly, refuse to buy stock for shipment and refuse to overload cars.

The schools were held at Carlinville, Carbondale, Bloomington, Ottowa, Galesburg, Dixon, Rockford, Fairfield, Effingham, Urbana, Decatur and Jacksonville.

-M-

Limestone And Manure Increase Cotton Yields Four Times

Treating cotton land with limestone and manure last year swelled the yields of seed cotton on the experiment field maintained here by the College of Agriculture, University of Illinois to almost four times what they were on untreated land, according to results from the fields which have just been tabulated by H. J. Snider, assistant chief of the institution's soil experiment fields. Untreated land yielded only 133 pounds of seed cotton an acre, while the land which received the manure and limestone treatment produced 502 pounds an acre. The ten-year average yields from the field are 190 pounds of seed cotton an acre from the untreated land and 525 pounds an acre from the treated.

Two varieties, Trice and Express, were tested on the field last year and of these two the former proved best, according to Snider. It not only made a higher yield but also produced a larger percentage of its total yield at the first picking, which indicates early maturity, a desirable qualification for cotton in this section.

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Use Of Limestone Only Well Started After Nineteen Years

Although Illinois farmers have used approximately three million tons of limestone in the past 19 years, less than five per cent of the crop acres of the state has been treated with this material, one of the necessities before legumes can be grown successfully on acid soils, according to Dr. F. C. Bauer, soils extension specialist of the College of Agriculture, University of Illinois. The amount of limestone used annually by farmers of the state has increased from about 122 tons in 1906 to approximately 500,000 tons in 1924, but all the limestone that has been used in that period is only enough to cover about a million acres of the land at the average rate of three tons an acre, he pointed out. If the three million tons that have been used in the 19 years were spread over the entire crop acreage of the state there would be only one ton for every seven acres, he said.

"It is likely that somewhat less than a million acres of Illinois farm lands have been treated with limestone to date, since the land on some farms has had several applications out of the total tonnage of lime which has been used. It is estimated that from two-thirds to three-fourths of the farm land in Illinois needs limestone to insure a satisfactory growth of legumes. On the basis of the crop acreage of the state, this means that around 14 or 15 million acres in the state are in need of limestone. With less than a million acres of land now limed in the state, it is evident that this practice must still be followed on a large acreage before Illinois farmers as a whole can get the best results with clovers and other legumes.

"Then, too, the continued cultivation of upland soils tends to dissipate the lime materials in them and increase the need for applying lime on them. With a vast acreage still in need of limestone and this material being dissipated from upland soils by continued cultivation, it is certain that the use of limestone will always be an important factor in the soil management practices of Illinois farmers, if they are to protect the productive power of their soils."

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Slump In Dairy Feed Prices Reflects Skimping Of Rations

Illinois farmers and dairymen have cut down on the grain rations of their cows to the point where the demand for standard mill feeds has been lessened and the price of them sent downward at an unusual rate during the past two months, according to Dr. W. B. Nevens, assistant chief of dairy cattle feeding at the College of Agriculture, University of Illinois. In most cases, the feeding of scanty grain rations is an uneconomical practice, for good cows will more than pay for liberal feeding, even with the present prices of feeds and dairy products.

The sharp drop in the price of mill feeds, which began in January and continued through February is unusual, since February ordinarily is one of the months of heaviest demand for feeds of this kind. Many cream producers, however, this year thought they could not afford to feed grain and have been using mostly roughage, with the result that the lessened demand sent the price of some mill feeds down as much as $8 a ton in 30 days.

If the cows in the herd are capable of responding to liberal feeding, the practice of skimping their grain rations is uneconomical and unprofitable. The feed cost of a pound of butterfat which is produced with only roughage rations amounts to about as much, or even more, than the market value of the butterfat, but when cows are fed grain so that they produce more than a pound of butterfat daily the feed cost of each pound becomes less. In fact, the feed cost of butterfat produced by the cows that are well fed and that yield two pounds or more of butterfat daily may be only half as much a pound as when roughages alone are fed.

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Half Of Pigs Farrowed Sometimes Lost Before Weaning

Loss of farrowed pigs before they are weaned takes a rather heavy toll from the swine industry. Even a casual study of any of the swine record books will show a wide difference between the number of pigs farrowed and the number finally raised. Federal and state reports of farm surveys give evidence of the same thing. In some cases these losses run very high - more than half the pigs being lost before weaning. A federal survey of Illinois and Iowa conditions in which 769 spring litters were studied, showed that 34 percent of the pigs farrowed were lost before weaning time.

Breeders place considerable emphasis upon the size of a litter a sow farrows and weight also is given to the size of litter the gilt is farrowed in when she is being considered for a place in the breeding herd. This is probably as it should be, for size of litter influences to a considerable extent the cost of a pig at weaning time. Study of the question indicates that a great deal of the fault is with the breeder rather than with the sow and that it may be wasteful to increase further the size of litter before improved methods are used for saving the pigs farrowed. At any rate it is a little inconsistent to ask the sow to farrow more pigs while losses of one kind or another are allowed to reduce materially the number already produced.

A great many causes contribute to this total loss and all losses may not be preventable. It is safe to assume, however, that more careful attention to details for a few weeks just before and just after farrowing would materially reduce the losses.

Pigs farrowed weak and dead account for 20 to 33 percent of the total loss. This may not be entirely preventable, but doubtless can be materially reduced by proper feeding and management of the brood sow before she farrows. This management should include a ration of alfalfa or clover hay or pasture, some tankage or linseed oil meal, middlings, oats and a minimum of corn, fed in clean and comfortable quarters that will promote exercise without making the sow climb over obstacles and be in danger from other animals. Such a ration should also quite largely prevent pig eating by the sow. This represents 3 or 4 percent of the total loss.

Pigs being laid on by the mother is another large cause of loss, probably 25 to 30 percent of the total. This can quite largely be prevented by nailing guard rails in the farrowing pens and providing fine bedding in amounts which will prevent the pigs from being lost in it.

Chilled pigs represent 5 to 20 percent of the total loss. These losses are preventable.

Proper sanitary precautions will further reduce losses due to germs of infection and disease. Measures also should be taken to prevent the young pigs from becoming infested with worms, which, while it may not cause actual death of many pigs, certainly does cut down their prospects in life and reduces their chances to make economical gains. -W.E. Carroll, Chief, Swine Husbandry, College of Agriculture, U. of I.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*

Urbana, Illinois - [illegible]

<u>Half Of Pigs Farrowed [illegible]</u>

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Potato Seed Piece Weighing About Two Ounces Is Best

Many potato experiments have shown that the larger sized seed pieces give the highest yield. However, one is not justified in planting whole tubers of good size. The large amount of seed required in such a case would make the practice unprofitable. A two ounce seed piece is about the proper size, all factors considered. In cutting the tuber, one must keep in mind that a blocky seed piece is to be preferred to a long, thin one. The former not only handles better while being planted, but at the same time loses less moisture, thereby preventing shriveling.

When potatoes must be cut a long time before planting some effort should be made to dry up the cut surfaces. If cut tubers are heaped up in large piles before they have become dry, heating is likely to follow. Such a condition would materially lower the germination of the seed pieces and thus render them unfit for seed. It is a common practice to dust land plaster, air slacked lime, or flowers of sulphur on the cut surfaces. Some growers store the cut seed in slatted bushel boxes in such a way as to provide ample ventilation. In no case should cut tubers be piled in bulk, until they have been properly cured. Another method of handling the freshly cut seed pieces is to spread them out on a dry floor in thin layers. These should be turned frequently until dry. The interval between cutting and planting should be as short as possible. Disinfection to control such diseases as black scurf and scab in potatoes should be done before cutting. -John Pieper, Agronomy Department, College of Agriculture, U. of I.

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New Bull Exchange Plan Has Now Reached 35 Counties

Illinois' new bull exchange plan, whereby farmers and dairymen can trade their grade and scrub bulls for registered purebred bull calves without the outlay of any cash, already has been, or soon will be, the means of putting better dairy sires on farms in at least 35 counties of the state, according to reports coming to the College of Agriculture from farm advisers.

Among the counties in which exchanges have been made up to the present time under the plan are White, Will, Franklin, Massac, Stark, Henry and Gallatin.

No particular breed has been a favorite in the exchanges which farm advisers have reported up to the present time. The number of Holstein, Guernsey and Jersey bull calves placed thus far has been about equal, while the number of Brown Swiss bulls placed has put this breed in fourth place.

Among the farmers who recently have taken advantage of the exchange plan are Samuel Kingsey, Bradford; Louis Johnson, John Covert and J.B. Gurley, all of Metropolis; Julius Brinker, Brookport, A. Macey, Martinsville; Minott Silman and Walter Graves, both of Toulon; N.J. Finck, Wyoming; H.F. Coil, Emil Hinman, John Flood and Frank Carlson, all of Cambridge; Wells Andrews, Geneseo; W.C. McMaster, Sparta; T.J. Cline, Petersburg, and W.H. Gehring, Edwardsville.

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A dairy herd improvement association, the twenty-sixth one of its kind in the state, has just been organized by 25 Moultrie county farmers as one means of building up their herds for more economical milk and butterfat production and more profitable returns. According to H.P. Davison, dairy extension specialist of the College of Agriculture, University of Illinois, who assisted Farm Adviser O.C. Turner in the organization work, the Moultrie county association and the 25 others in the state are testing around 12,000 Illinois dairy cows for milk and butterfat production.

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Setting Coulter Right Will Help Plow Do Better Work

Plows will do better work with less draft if the rolling coulters on them are adjusted right, it is pointed out by I.P. Blauser, of the farm mechanics department, College of Agriculture. This adjustment will vary with the land, the moisture in it and with what has been grown on the land, that is whether it is sod or stubble.

"For general plowing the coulter should be set so that the bearing of it is directly over the plow point of the share and far enough to the land to make a clean, sharp furrow bank. When stubble land is being plowed the blade of the coulter should be set to cut five-eights of an inch to the land and deep enough to go from one-half to two-thirds the depth of the furrow. In sod the blade should be set half an inch to the land and deep enough to cut the full depth of the furrow. When stony ground is being plowed there need be no hesitation about setting the blade to cut as deep as the point of the share, inasmuch as a good coulter will stand much more abuse than the point of the share. Best results are obtained in plowing dry, heavy trash by setting the coulter well forward, while for wet trash the coulter should be set well back and high enough to carry the material down and shear it against the shin of the plow.

"The coulter will give the best results when it is set in a vertical plane parallel to the direction of the furrow. The coulter must run perfectly true to do it best work. If it becomes wobbly because of wear in the bearings, which may be of wood chilled iron or steel, these bearings should be replaced. Antifriction bearings are desirable, as they assure a true running coulter with a minimum amount of wear and need very little attention other than proper lubrication with hard oil."

- M -

Sanitation Is Big Aid In Lightening Losses of Chicks

Chick losses run high on Illinois farms every spring, but if farmers and poultrymen practiced sanitation thousands of the chicks that now die could be saved, according to John Vandervort, poultry extension specialist of the College of Agriculture. Trying to cure chicks with medicine after a disease has a foothold is expensive and many times ineffective. It is better to prevent the disease whenever possible by sanitation and general good management, he pointed out.

"Sanitation is so important that it should be one of the first things considered in the raising of young chicks. Proper sanitation means raising the chicks on new ground if possible, plowing up and cropping the old, contaminated ground and getting the chicks away from the rest of the farm flock. More labor will be needed to care for the chicks when they are moved away from the rest of the flock and the farm buildings, but the farmer will be repaid for this extra labor. One reason for getting the chicks off someplace to themselves is the fact that when they run with the flock the old hens not only run over them but also steal and contaminate their feed.

"One of the biggest aids in a system of sanitation for the chicks is a movable brooder house, since it can be moved from place to place each year. The farm orchard or the edge of a corn field are excellent places for the chicks. Among other things a location of this kind provides plenty of shade, which is a necessity during the hot summer months. Worms and coccidiosis are two common chick troubles which can be kept down by practicing sanitation. Worms are an especially common source of trouble in cases where the chicks run on the same ground with the old flock each year. while coccidiosis, one of the serious chick diseases, does the most damage when the chicks are allowed to run on contaminated ground."

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Spring Field Meetings Scheduled For Nine Soil Fields

Nine of the 32 soil experiment fields which the College of Agriculture, University of Illinois maintains over the state this year will be the scene of spring field meetings for farmers and other interested persons. The meetings will be designed to acquaint farmers with the system of soil improvement that is recommended for this state and at the same time show them the results which are being obtained with the system on the different fields.

The first meeting in the series will be held April 20 on the field near Lebanon and during the remainder of that week meetings will be held on the fields near Raleigh, Oblong, Newton and Sidell on April 21, 22, 23 and 24, respectively, according to the announcement. The remaining four meetings will be held on the fields near LaMoille, Kewanee, Aledo and Oquawka on April 28, 29, 30 and May 1. The meetings will start about 1:30 and continue through the afternoon.

Sweet clover and limestone, which are the foundation of the soil improvement system recommended for the state, are to receive special attention in the inspection which farmers and visitors will make of each of the fields. Special care will be taken to bring out the value of sweet clover as a green manure crop for corn. The program for each of the meetings will include, in addition to the inspection of the fields, speeches by Dr. Bauer or H.J. Snider, assistant chief of the fields, and by a local speaker. New tests of different carriers of phosphate are just being started on the fields near Raleigh, Oblong and Aledo and these will be explained at the meetings on these fields.

A definite system of soil improvement, involving the use of limestone, phosphate, potash, manure and residues, especially sweet clover, is being followed on each of the 32 soil experiment fields and some striking results in building up land for more efficient crop production are being obtained, according to Dr. Bauer. During the last 12 years, for instance, there have been only three red clover failures on treated land on the field near Lebanon; the treatment last year added 37 bushels an acre to the oats yield on the Raleigh field; on the Oblong field the corn yield last year was boosted 36 bushels an acre by treating the land with manure and limestone, while the average return from treated land on the Newton field has been more than double that from the untreated land. On the Sidell field a soil treatment which cost $3 an acre and which consisted of limestone and green manure in the form of sweet clover last year increased the corn yield approximately 22 bushels an acre.

On the LaMoille field last year the corn yield was increased 16 bushels an acre by the recommended soil treatment; the 1924 wheat yield on the Kewanee field was boosted 12 bushels an acre by similar treatment, while the corn yield on the Aledo field last year was almost doubled. On the Oquawka field, which is located on dune, or blow, sand, alfalfa on the treated land last year yielded two and three-fourths tons an acre while that on the untreated land yielded nothing.

- M -

Test Lambs Gain Half Pound Daily On Balanced Rations

Lambs from 110-pound western ewes have made average daily gains of almost a half pound a day apiece when they were fed in creeps and given a ration of corn, oats and alfalfa hay in experiments at the College of Agriculture, University of Illinois, according to W.G. Kammlade, assistant chief of sheep husbandry at the institution. The lambs were fed for 13 weeks and then marketed, thus showing that lambs will put on economical and rapid gains if properly fed, he pointed out.

"This fact is being realized by more Illinois sheep raisers every year and there is a growing tendency to push lambs along and get them ready for market by midsummer. This is an especially sound practice, as the lambs are out of the way before there is danger of serious damage from the ravages of stomach worms during the summer months.

"In the experiment which has just been mentioned, the corn and oats were mixed during the first part of the feeding period but they were later fed in separate compartments. During the 13 weeks the lambs each ate an average of almost 27½ pounds of corn, slightly more than 21 pounds of oats and a shade more than 14½ pounds of hay. It took 71 pounds of corn, 54 pounds of oats and 37 pounds of hay, in addition to the mother's milk, to produce 100 pounds of gain. These amounts of feed for 100 pounds of gain are exceedingly small, inasmuch as about 400 pounds of grain and 430 pounds of hay usually are necessary to make a hundred pounds of gain after lambs are weaned. This alone should be convincing evidence of the value in proper feeding of young growing lambs.

"Another good ration for early lambs is two parts of ground corn, two parts of crushed oats, two parts of bran and one part of linseed oil meal, all parts being taken by weight. This is a palatable ration and contains the things that are needed for growth. If fed in creeps with a good legume hay it will produce lambs that will be "sappy" and that carry their milk fat at market time, a condition that is highly prized in spring lambs. The lambs should be given all that they will eat of this ration and as they get older - from 10 to 14 weeks of age - the proportion of corn may be increased. Ewes also should be well fed and neither ewes nor lambs should be deprived of fresh water and salt."

- M -

Sand Land Reclaimed With Limestone and Sweet Clover

Limestone and sweet clover, the keystones of Illinois' recommended soil improvement system, offer a means of reclaiming some 310,000 acres of low-priced sand land in the state and making it yield almost as well as average corn belt land, according to results which the experiment station of the College of Agriculture, University of Illinois is getting on the soil experiment field which it maintains near Oquawka.

Rye yields on the field last year were boosted 25 bushels an acre, the corn yield 13 bushels an acre, the soybean yield 10 bushels an acre, the wheat yield three bushels an acre and the alfalfa yield two and three-fourths tons an acre by liming the land and growing sweet clover as a green manure crop, according to figures which have just been compiled by M.A. Hein, of the college agronomy department.

As an average for the last ten years, the increased crop yields which have been harvested as a result of liming the land have been so large that they returned $15 an acre annually for every ton of limestone that was used, according to Hein. Finely ground limestone is used at the rate of about four tons an acre every six or eight years.

Soil Survey Furnishes Facts For Others Besides Farmer

Other interests, as well as the farmer with his problems of economical food production and soil maintenance, are now being served by the inventory, or survey, which the College of Agriculture, University of Illinois is making of the state's soils, her greatest natural resource, according to Dr. L.H. Smith, chief in charge of the publications that are issued in connection with the survey. Approximately 90 per cent of the state already has been covered by the survey, he said.

The chief purpose of the survey, of course, is to benefit the agricultural interests and when the inventory is completed every Illinois land owner will have a description of the soil on his farm, will know just about what its chemical composition is and will have at hand information regarding the best methods of maintaining and improving it. Already, however, certain lines of business have appreciated the value of the survey, according to Dr. Smith. One indication of this is the growing demand on the part of the bankers, insurance companies, real estate agents and others having to do with land appraisal for soil maps and accompanying information.

In road building, which has undergone such a marked development during the past few years, the highway engineer now turns to the soil survey for information regarding the character of the soil through which new roads are to be laid, as well as for information regarding the location of gravel or other building material. The soil maps also are a direct aid in the oiling of roads, since it has been found that the character of the soil has much to do with the effect of the oil. The character of the soil therefore must be taken into consideration in estimating how much and how often oil should be used on the road.

Definite knowledge of the soils of the state is essential in any comprehensive plan of state development along industrial lines. For instance in forestry development the investigator now turns to the soil map to learn which regions naturally are adapted to timber and what areas could thus be economically devoted to forests. The same thing holds true in the laying out of parks or public grounds. The soil survey also serves the prospective settler who is looking for a location by giving him the facts which he needs to have in making a wise decision.

- M -

Lake County Cow Takes Honors For February Production

Honors for February milk and butterfat production among the 12,000 or more Illinois cows in the 26 dairy herd improvement associations of the state went to a purebred Brown Swiss in the herd of Hawthorn Farm, Area, Lake county, on a production of slightly more than 85 pounds of butterfat and 2,299 pounds of milk, according to an announcement by C.S. Rhode, dairy extension specialist of the College of Agriculture, who has charge of these associations. W.F. Rowleigh, Freeport, owned the highest producing herd for the month, his 15 purebred Holsteins having averaged a shade more than 60 pounds of butterfat and 1,739 pounds of milk during the month.

Three of the ten highest producing cows for the month were owned by Lake county farmers and dairymen, giving this county the lead over all others in the state. The remaining seven cows of the ten highest producing ones belonged in seven different counties, including JoDaviess, Will, Kane, Stephenson, DuPage, DeKalb and Franklin. Two counties, Lake and JoDaviess, shared honors in the number of high producing herds for the month, each of these counties having placed two herds among the ten high ones. Will, Elgin, Kane, Whiteside and McHenry counties each had one herd among the ten high ones.

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Soil Survey for Irrigation Projects

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII April 1, 1925 Number 13

Keeping Qualities Of Carbonated Cream and Butter Not Improved

Carbonation, a process that is being used successfully to improve the keeping qualities of a number of soft drinks, will not under any conditions prevent deterioration of cream and butter, according to Dr. M. J. Prucha, chief of dairy bacteriology at the College of Agriculture, who has just completed experiments dealing with this problem. Results of the tests refute the claim that carbonation of butter destroys bacteria and therefore makes the product more sanitary, according to Dr. Prucha. The carbonation experiments which have just been completed are part of an investigation which dairy bacteriologists of the college are making of off flavors in cream and butter and methods of preventing them.

Carbonation is accomplished by charging the desired product with carbon dioxide gas, and in the experiments three different tests were made of the value of the process. In one series of experiments, the gas was applied daily for several days to sweet cream which was intended for butter, in a second series of tests the butter was churned in a churn filled with the gas and in the third series the butter was stored in an atmosphere of the gas.

In the first series of experiments, the carbonation of sweet cream tended to suppress certain types of bacteria but did not hinder the growth and multiplication of other types, according to Dr. Prucha. The effect of this was a delay in the souring of the cream, the delay ranging from about two hours at room temperature to a few days at freezing temperature. No significant benefits were derived from charging the cream in the churn with carbon dioxide in the second series of experiments. Tests were made both in the laboratory and in a commercial creamery and in neither case did the carbon dioxide measurably affect the germ life in the butter or cause it to keep better. On the other hand, the gas caused the butter to taste sourish, and this in turn, tended to cover the taste caused by the neutralizer used in the cream. The method of carbonation used in this second series of experiments did not stop the development of molds in the butter. Storing butter in a carbon dioxide atmosphere in an air-tight container prevented the development of mold and also prolonged the time that the butter could be held under cold storage conditions. In time, however, off flavors also developed in the butter which was carbonated in this way.

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New Bulletin Reports Tests With Soybeans For Fattening Lambs

Soybeans supply the protein that is needed in lamb feeding rations and may be substituted for alfalfa and clover, two legumes that require acid-free soils and that therefore cannot be grown successfully on all farms, according to a new bulletin entitled, "The Soybean Crop for Fattening Western Lambs", which the experiment station of the College of Agriculture has just released. The new publication reports the results of two experiments conducted to determine the value and usefulness of soybean straw, soybean hay, whole soybeans, ground soybeans, and soybean oil meal when fed with shelled corn.

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[illegible] 1914 [illegible] Director

Seed Plot Goes Farther Than Fanning Mill In Seed Improvement

The importance of good seed in small grain production is less generally recognized than it should be. Many farmers who give special attention to their seed corn do not hesitate to use any kind of wheat or oats for seed. Good seed is sound, bright, well filled, free from disease, capable of good germination and true to the variety type. Grain as it comes from the threshing machine is not ordinarily what would be called good seed. However, the use of the fanning mill aids greatly in making it so. The mill removes trash and weed seeds, as well as undeveloped, shriveled and immature grains, most, if not all of which, produces weak and unproductive plants. However, it is not discriminating enough to discard the inherently poor yielding strains in a variety or those strains that are off-type. The grower himself must do this because it is far from being a mechanical operation. It requires a knowledge of the variety type.

The simplest and easiest way to improve on the results secured by the fanning mill is to conduct a seed plot. This plot may be an acre or more in size, and may just as well be a corner of the general field. Seed for it is obtained by selecting from the general field just before harvest, a large number of good heads or panicles which are typical of the variety. These are threshed together by hand and at the next seeding time the seed is sown in the seed plot. It is desirable, at least at the beginning, to leave a strip one to two feet wide between every six or eight drill rows so that one can easily walk through the plot and rogue out mixtures and weak, unproductive or diseased plants. In the large grain drills, such an unsown strip is easily provided for by (1) plugging up the middle two holes and (2) by setting the marker to run a foot or two beyond center. It is usually necessary to go over the plot more than once in order to do a thorough job of roguing.

While the rogueing is being done, or afterwards, the best heads should be selected for a similar plot the following year. The remainder of the plot is then harvested and the seed used to plant the general field. This procedure is repeated each year. By this plan, trueness to type will be attained relatively soon, but it will require years to eliminate the inherently poor yielding types. The plan works best if the seed plot is large enough to produce seed for another seed plot and for the general field as well; for then the seed used to plant the general field is only one generation removed from hand selected seed.

If one does not feel he has the time to hand-select seed for the seed plot each year, he can use the best grain from the previous year's plot. In any event the rogueing should be done just as conscientiously as before, for that is the important part. The best results, of course, will be obtained by conducting a seed plot every year. However, if time and facilities do not permit this, two, three or even four years may elapse between seed plots. Even this would result in marked improvement and would be quite worth while. - C.M. Woodworth, Agronomy Department, College of Agriculture, University of Illinois.

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Eleven Counties Have Demonstrations On Fattening Early Lambs

During the next few months farmers in 11 Illinois counties will cooperate with their farm advisers and the College of Agriculture in conducting demonstrations to show their neighbors and other farmers of the state the best methods and value of feeding early lambs for the May and June Markets. The demonstrations will be staged in Franklin, St. Clair, Effingham, Williamson, Bond, Wabash, Marion, Morgan, Johnson, Edwards and Jackson counties. The practice of pushing early lambs for a quick market, which is to be stressed in the demonstrations, is one of the most practical and profitable plans that Illinois flock owners can follow, according to E. T. Robbins, livestock extension specialist of the agricultural college.

Good Plot Does Produce Good Theatre, Says Director

The importance of good audi[illegible]
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Facts Refute Conclusions That All Farmers Are Now Prosperous

Hasty conclusions that all farmers are now prosperous are not borne out by the facts, according to H.C.M. Case, in charge of the farm organization and management department of the College of Agriculture. In fact, records which the department has collected from farmers throughout the state show that variations between the earnings of farms in the same community and between the earnings of farms in different counties seldom are as wide as they were during the year just past, he said.

The fact that the wholesale price of farm products had returned to a level with other prices on January 1 has led to the misconception about the farmers' prosperity, according to Case. However, the farmer's purchasing power on January 1 was only 88 per cent of his purchasing power during the period from 1907 to 1914, a normal period, he pointed out. This decline in the buying power of the farmer's dollar is the result of higher costs of doing business and higher freight rates, he explained.

"The encouraging thing to farmers is that the price of farm products as a group continues to increase relative to other prices. There has been an improvement of about four per cent since the first of the year, although many farmers have sold most of their surplus of grain and livestock.

"Crop conditions which existed during the past year are responsible for the wide variation in the earnings of different farmers. In a few Illinois counties the yield of corn was good and the crop matured well, with the result that farmers in those favored sections are prosperous. On the other hand, a late, wet spring, dry spells during the summer and early frosts combined to cut both the yield and quality of corn in other sections of the state.

"Some idea of how these conditions were reflected in farm earnings is to be gained from the records which the department has collected. Records from farms in one county, for instance, showed that the farmers had an average of only $765 left out of their 1924 receipts to pay them for their own labor and managing ability after they had allowed themselves five per cent interest on a conservative valuation of their farms and equipment. In contrast to this, records from farms in another county showed that the farmers received an average of $1,883 each to pay them for their labor and managing ability. Variations such as these show that prosperity is not yet general among farmers, despite the improvement which has been made in the level of prices for farm products."

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University Ayrshires Available Under New Bull Exchange Plan

Three Ayrshire bull calves born during the past month in the dairy herd of the College of Agriculture, are available for trade under the new Illinois bull exchange plan which provides a means whereby farmers and dairymen may trade their grade and scrub bulls for registered dairy bull calves without the outlay of any cash, it is announced by C. S. Rhode, dairy extension specialist of the institution.

Cavalier's Ace of Hearts, the Ayrshire herd sire at the College, is the sire of the three calves, while their dams are all cows that have proved their worth as breeders and profitable milk producers. Cavalier's Ace of Hearts was sired by the bull that was grandchampion at the National Dairy Show in 1922, while his dam was the grandchampion at the Ayrshire Spring Show in Boston in 1923.

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Boots Foods Concludes Tie Ad [illegible]

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII | April 8, 1925 | Number 14

Badly Mixed Sample Of Soybean Seed Is Warning

Six different varieties of soybeans, all varying widely in their adaptation to Illinois conditions, a high percentage of cracked and broken seed, which will not grow, and a trace of wheat and oats have been found in a sample of badly mixed and inferior soybean seed sent in from southern Illinois by a representative of the College of Agriculture, University of Illinois, according to J. C. Hackleman, crops extension specialist. This sample is probably a little worse than the average soybean seed on the market this spring, but a number of badly mixed samples have been called to the attention of the college, and farmers will do well to guard against buying inferior seed of this kind, he warned.

Manchu, a variety which is not recommended for southern Illinois, where the seed was being offered for sale, made up 49.4 per cent of the sample. Almost 19 per cent of the sample was seed from the Midwest variety, 17.1 per cent of it from the A.K. variety, 4.7 per cent of it from Peking, 3.4 per cent of it from Ito San and 1.3 per cent of it from Ebony. Almost five per cent of the seed in the sample was shrivelled and cracked and therefore would not grow.

The danger of loss from planting seed of this kind lies in the fact that the different varieties contained in it vary widely in their adaptation to conditions in this state, Hackleman pointed out. The Manchu and Ito San are best adapted to fertile corn belt land and are best used for the production of seed. These two varieties mature in from 100 to 105 days. The A.K. variety also is seed bean that is adapted to corn belt soils, but this variety matures in from 110 to 115 days. Midwest has much the same adaptation, but matures still later - in about 120 days. Ebony and Peking, the two other varieties represented in the sample, do better on the thin soils of southern Illinois than the other four varieties but unfortunately those two varieties make up less than five per cent of the sample. Unlike the four other varieties, Ebony and Peking are especially valuable as hay beans. These two varieties mature in about 120 days.

"Growers should protect themselves against such seed by insisting upon seed that carries the guarantee of the grower and that has been certified by a disinterested organization. Unless this is done the buyer of the seed is at the mercy of the seller, because unfortunately, there is no provision in the Illinois seed law which requires the labelling of soybean seed. Certified seed can be bought at a price only slightly higher than commercial seed of unknown purity and adaptation."

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New Bulletin Sifts Reasons For Corn Cultivation

Weed destruction, and not conservation of moisture, is the principal object and greatest value of corn cultivation, according to a new bulletin entitled, "The Cultivation of Corn - Weed Control Vs. Moisture Conservation", which has just come off the press at the College of Agriculture, University of Illinois. It concludes a series of corn cultivation tests started 37 years ago by the institution.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*

Outlines Four Standards For Good Field System

New fields are laid out and many rods of fence built at this time of the year. If this work is done in accordance with a well thought out farm plan, the cost of operating the farm in the future may be greatly reduced and the use of a good crop rotation will be made easier. A good field system will be recognized by the following qualifications:

1. Where possible, there should be but one field for each year of the rotation. On farms crossed by an open ditch or railroad it sometimes is necessary to use two small fields in the place of a large one. On large farms, especially when there is more than one type of soil, two rotations may be planned. On livestock farms it is frequently desirable to have a minor rotation with small fields to provide feed close to the farmstead for summer use.

2. Fields should be arranged so that the point at which they are entered will be as near the farmstead as possible. Many trips are made to the fields each year and for that reason the distance to the fields should be as short as possible.

3. The fields should be as large as the rotation and the size of the farm will permit. Large fields require less fencing and are more economical in the use of labor and power than are small fields. The fields should be as near the same size as possible in order that the same acreage of the different crops may be grown from year to year.

4. To be ideal in shape a field should be rectangular and somewhat longer than wide. Irregular shaped fields are expensive to fence. Ordinarily they require more rods of fence and more corner posts and braces, which are the most expensive parts of a fence. More labor also is required to maintain a fence around an irregular shaped field. They are also expensive to operate. The numerous point rows in an irregular field require extra turning which increases the amount of time required to cover the field for a given operation. Most field operations are performed one way of the field and for that reason the fields should be longer than wide. This is especially true on farms where tractors are used. -C. A. Bonnen, Farm Organization and Management Department, College of Agriculture, U. of I.

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Edwards County Calves Bidding For Club Honors

Three Shorthorn calves which Edwards county breeders have nominated for membership in the Illinois Half Ton Calf Club are making a strong bid for this honor and in so doing they are demonstrating that southern Illinois farms will produce beef as economically as those in other counties of the state, according to E. T. Robbins, livestock extension specialist of the College of Agriculture, University of Illinois, who has charge of the club. Gains being made by the calves also are proof that southern Illinois farmers are producing some of the best and most thrifty Shorthorns in the state, he said.

At six months of age, one of the three calves, a roan Shorthorn steer nominated by Gilbert Longbons, a farmer near Albion, weighed 608 pounds, while one of the two Shorthorns nominated by Loran Jack, who also lives near Albion, weighed 560 pounds when six months old. Gains almost as good as this are being made by the second calf which Jack has nominated. In order to win a membership in the club, each of the calves must weigh at least a half ton by the time it is a year old. Good breeding, proper feeding and the right kind of management pave the way for economical beef production by making it possible for beef cattle men to have animals ready for the market at an early age.

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Explains Cause of Crumbly Butter; Gives Remedy

Much trouble is experienced during the late fall, winter and early spring months with crumbly bodied butter. The body of the butter is brittle and it cannot be cut into neat and even slabs. Butter with this defect is objectionable, especially in restaurants and hotels as well as to the housewife, because of the difficulty of cutting it for table use. The causes for this condition can be traced to two factors, neither of which can be controlled by the buttermaker. They are; the cow and the feed.

In winter, many cows are well along in their lactation period. They produce a milk which contains a large number of hard, very small fat globules. In churning, these small globules tend to remain intact and form round, hard, shot like granules which do not tend to pack but form a butter with a short grain and an open body of considerable hardness. The other cause is the feed. Few cows receive any green feed except silage during the winter and early spring. The dry feeds which are used tend to produce a butterfat which is hard and firm. Practically the same conditions are produced as are experienced with cows late in lactation. The result is crumbly butter.

When conditions which are condusive to crumbly butter exist, they can be remedied through one or more of three channels. The first two are to eliminate the conditions which cause the cow to produce the hard fat globules. Farmers can turn to winter dairying and have the cows freshen in the fall. This will tend to eliminate the conditions due to late lactation periods. On the other hand, cows should be fed such feeds as linseed meal and gluten feed in the proper amounts to produce softer butterfat. When crumbly butter appears suddenly, it is impossible to remedy it through the first method, but it can be modified by more careful feeding of the cows. The above remedies can be employed to reduce the crumbly butter defect, provided the cream from one herd is being churned.

In the case of creameries, neither of these conditions are under their control. Consequently another remedy must be used. They must resort to higher churning temperatures and washing and working the butter at higher temperatures. If higher temperatures are used, either on the farm or in the creamery, care must be exercised. The churning temperature should be raised gradually with each successive churning until the desired body is secured. The butter should be washed with water of approximately the same temperature as that of the buttermilk. The wash water may be two or three degrees above that of the buttermilk, but no higher. If too warm wash water is used, mottles will appear. -- F.A. Stiritz, Dairy Department, College of Agriculture, University of Illinois.

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Many Tests Establish Best Soybean Varieties

In view of the results of many soybean variety tests which it has made, the College of Agriculture, University of Illinois now recommends the Manchu, Ito San and Black Eyebrow for seed in northern Illinois; the Peking, Ebony, Midwest and A.K. for hay in the same region, and the Black Eyebrow, A.K. and Midwest for planting in corn in that section. For central Illinois the Manchu, A.K., Ebony, Midwest and Morse are recommended for seed; the Peking, Ebony, Wilson V and Illinois 13-19 for hay, and the A.K., Midwest, Haberlandt and Harrelbright for planting in corn. For southern Illinois the Haberlandt, Harrelbright, Hamilton ([illegible]) and Morse are recommended for seed; Peking, Wilson V, Illinois 13-19 and Virginia for hay, and Midwest, Haberlandt and Harrelbright for planting in corn.

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Explains Cause of Frozen Radiators. Time to Study

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Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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New Bulletin Shows Place Of Beef Cattle Feeding

During a 10-year study which the College of Agriculture, University of Illinois made of beef cattle feeding in Hancock county, one of the state's leading beef producing counties, it was found that each of 1,558 steers fed in 38 different feed lots during that time returned their owners an average net profit of $2.07, including credit for manure and pork produced, according to a new bulletin just published by the experiment station of the college. The bulletin, which was written by H.C. M.Case, in charge of the farm organization and management department of the college, and H.H.Myers, a member of that department, concludes the study. The new publication is one of a series published by the experiment station on economic factors in cattle feeding.

Although,as the study shows, but little direct profit is realized from beef cattle feeding, the enterprise nevertheless does add materially to the net income of the farm as a whole and it is for this reason that it has become a well established farm practice, according to the bulletin. Beef cattle feeding swells the net income from the farm as a whole because it utilizes non-marketable or low-grade feed, it provides employment for available man and horse labor, it shares a part of the overhead costs of the farm and it helps maintain the productivity of the land.

Wide variations were found in the returns from different farmers obtained from their beef cattle feeding operations. On one farm the profits ran as high as $12.60 a steer, while on another farm $14.50 was lost on each steer. Cost of gains also varied widely, being more than twice as high on some farms as on others during the same year and about 20 per cent higher for cattle weighing more than 1,000 pounds when put on feed than for cattle weighing less than 800 pounds.

More than 85 per cent of the total feed lot cost of fattening the cattle went for feed, a shade more than four per cent of it for man labor, more than one and three-fourths per cent of it for horse labor, almost three per cent of it for general farm expense, four per cent of it for interest, more than three-fourths per cent of it for building expense, almost one-fourth per cent for miscellaneous expenses and a little better than one-half per cent of it for death risk.

On one of the farms, where cost accounts were kept for seven years, it was found that an average of 56.4 steers fed annually returned a direct net profit of $290.65 a year. However, when the beef cattle feeding enterprise on this farm was analyzed from the standpoint of the farm as a whole it was found that it added a total of $827.65 annually to the net income of the farm as a whole, the authors point out.

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Organization of the Randolph County Jersey Breeding Association which will give approximately 15 farmers in that section of the state joint ownership of three well bred Jersey sires, marks the latest development in the work which Farm Adviser E. C. Secor is carrying on to improve the quality of dairy breeding animals being used in that section. There are now 12 of these cooperative bull associations in the state, according to C.S. Rhode, dairy extension specialist of the College.

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Limestone, Sweet Clover Almost Double Corn Yield

Corn yields on five southern Illinois soil experiment fields which the College of Agriculture, University of Illinois maintains in that section of the state have been almost doubled through the use of limestone and sweet clover, coupled with a sound crop rotation system, according to figures compiled by C. J. Badger, a member of the agronomy department. Thirty-five bushels of corn an acre is the 5-year average yield harvested from treated land on the five fields, whereas untreated land on the fields has produced only 19 bushels an acre, or 16 bushels an acre less than the treated land. This yield of 35 bushels an acre compares favorably with some yields that are obtained in the corn belt. The five fields are located in Gallatin, Franklin, White, Crawford, and Saline counties, one of them being near Toledo and the others near Ewing, Enfield, Ozora and Raleigh.

Increased yields which have been obtained on the fields are the result of a system which has been practiced on them for a number of years. Several months before the sweet clover is seeded, the land is given an application of limestone, as most soils in the southern part of the state require limestone before they will grow sweet clover successfully. The amount that is used depends on the needs of the particular piece of land being treated.

The sweet clover is seeded in the spring in small grain at the rate of about ten pounds of scarified, inoculated seed an acre. After the small grain has been harvested, the sweet clover is left to make what growth it will, this growth being left on the ground to serve as a protection throughout the winter. In the spring of the second year, the new growth, together with the unrotted stems of the previous season's growth, is plowed down for corn. This plowing generally is done from May 1 to 15 at a time when the spring growth is from 15 to 24 inches high, or often higher.

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Individual Hog Houses Are Coming Into Wider Use

Many Illinois farmers and hog raisers are cutting down on the amount of money they have tied up in housing equipment and in addition are gaining other advantages through the use of small houses for individual sows and their spring pigs, according to E.T. Robbins, livestock extension specialist of the College of Agriculture, University of Illinois. These small houses fit in well with the swine sanitation system which is being pushed throughout the state by the college and farm advisers.

"Farmers who are using the small hog houses can move them about the farm and put them wherever they are needed, thus aiding in getting the pigs on clean ground. Then, too, when each sow and her pigs have a small house to themselves in the field they require very little special attention in the way of cleaning out manure and replacing bedding, as must be done when they are confined in large hog houses.

"In most cases these houses are cheaply built and generally they are A-shaped. In some cases they are of the shed type with straight sides. They vary all the way from 6 by 6 to 8 by 8 feet in ground space. The framing is only heavy enough to make a rigid house and the roof is low to conserve the natural heat from the hogs. In many cases there is no floor in the house. Some farmers, however, have 1-inch detachable floors which fit inside the house on the ground. After the spring season of much mud is past these loose floors are taken out and stored away to keep them from decaying. One farmer, Eugene Smith, of Good Hope, uses these movable floors for sunshades in summer. Exposure to the weather cleans them for next year."

Testing Shows Even Best Herds Have Boarder Cows

About one-eighth of the cows that are tested in a year by the 26 dairy herd improvement associations in Illinois are found to be lacking as paying milk and butterfat producers and consequently lose their places in the herds of the progressive farmers and dairymen who are members of these associations, according to H.E. Jamison, assistant in dairy extension at the College of Agriculture, University of Illinois. During a recent single month 1.25 per cent of the 8,000 cows that were tested during that period were reported disposed of as unprofitable. The following month, 17 of the associations reported 140 cows condemned as unprofitable. This was 1.75 per cent of the cows that were tested during that month.

Members of these associations are among the most progressive dairymen in the state, as shown by the fact that the average production of their cows is about twice as large as the production of the average cow in the state, Jamison pointed out. Unfortunately, these farmers and dairymen own only 1.2 per cent of all the dairy cows in the state. If these progressive dairymen who own such a relatively small part of the state's cow population are finding one out of every eight cows in their herds unprofitable, the percentage of unprofitable milkers in the remaining 98.8 per cent of the state's cows, which have a much lower average production, must be far greater than the owners of these cows have ever suspected, he pointed out.

This is borne out by the fact that newly organized associations, in which cows are being put to test for the first time, usually find the largest proportion of unprofitable cows. The older established associations have eliminated most of the poor payers in the herds of their members, but even the members of these older organizations continue to cull their cows closely because of high feed prices which narrow the margin between income and feed cost and make it necessary for every cow to be a top notch one in order to pay a profit.

Helping their members detect their boarder cows and weed them out is only one of the functions of these dairy herd improvement associations. In addition they point the way to better feeding and care for the rest of the herd and thereby lead the way to more economical and profitable milk and butterfat production.

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Early Roosting Not Cause Of Crooked Breast Bones

Poultrymen sometimes object to teaching their young chicks to roost at just as early an age as possible because they believe that this leads to crooked breast bones. However, there is no danger of this if the ration of the chicks is complete, according to Dr. L.E. Card, chief of poultry husbandry at the College of Agriculture, University of Illinois. Crooked breast bones ordinarily develop from a lack of minerals and can be largely prevented by supplementing the chick's ration with two per cent of bone meal, two per cent of ground limestone and one per cent of common salt. In addition chicks should be kept out in the direct sunlight as much as possible in order to favor proper bone development.

As against this ill-founded objection there are at least three advantages in getting chicks up on roosts early in life. In the first place, roosting tends to reduce the likelihood of crowding, which always slows up the growth of the chicks and occasionally kills some of them. Then too, the sooner the chicks take to roosts the sooner they will get along without artificial heat. Finally, early roosting encourages rapid feather growth. This is desirable because just as soon as chicks get a full growth of feathers all their feed will go toward developing bone and muscle.

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Sixty-five Cows Making Strong Bid For Membership in New Club

Records made by the cows nominated for the Illinois 500 Pound Butterfat Cow Club during the first three months of the year indicate that many of the cows entered will produce the required 500 pounds of fat. Sixty-five cows out of the total number entered already have produced 150 pounds of butterfat or more. Seven have produced 170 pounds; eight, 180 pounds; eight 190 pounds, and four have passed the 200 pound mark. DuPage county with the leading number of entries in the club has the highest number of cows producing above 150 pounds of fat. Fourteen cows from that county are in the select group. McHenry county is second with 11, Will county third with 10, Franklin and JoDaviess tied for fourth with 7 apiece, Stephenson fifth with 5, Whiteside and Lee each have 3, Kane and Peoria 2 each, and Knox and McLean one each. The individual dairyman having the largest number of cows that have produced 150 pounds of fat during the first three months is Arthur Cornue, of Hebron. Six of his cows have averaged more than 50 pounds of fat each month. Frank Flack, of Stockton, is second with five, while Nardland Farm, of Benton; A.W. Fisher, of Bensonville; H.W. Bischoff, of Lockport, and R.W. Stewart, of Hebron, each have three.

Walter Taylor of Hanna City, owns the cow that has produced the most butterfat, his purebred Holstein having produced [illegible] pounds of milk and 216.2 pounds of fat in 90 days. This is about 2,600 pounds of milk and [illegible] pounds of fat more than the average cow in Illinois produces in a year. This cow has been fed a ration of corn silage, alfalfa and clover hay, corn, oats, linseed oil meal, and cotton seed meal, one of the most practical rations for Illinois farmers to feed. During the 90 days she ate 3,476 pounds of silage, 43[illegible] pounds of clover hay, 708 pounds of alfalfa hay, 1,093 pounds of corn, 4[illegible]7 pounds of oats, 74 pounds of oil meal, and 169 pounds of cotton seed meal. [illegible] Dairy, Benton; Nordland Farms, Benton and Harry Flack, Stockton, also have one cow each above 200 pounds. A.W. Fisher, Bensonville; Geo. Faulkner, Downers Grove, R.W. Stewart, Hebron; A.D. Cornue, Hebron; W.H. Gardner, Solon Mills; William [illegible], [illegible]; Illinois State Penitentiary, Lockport; W.T. Rawleigh, Freeport; H.W. Bischoff, Lockport; Frank Flack, Stockton; Warwood Farm, Lisle, and Harry Averill, have one or more cows above 180 pounds.

R.E. Meyer, Roselle; William Kurtz, West Chicago; Peter Olsen, Naperville; H.C. Vial, Downers Grove; Fred [illegible], Hinsdale; Ole Stolheim, Harvard; Julius Holmberg, Elburn; West Frankfort Pure Milk Company, West Frankfort; H.P. Irish, Farina; M.A. Goodmiller, Stockton; J.E. [illegible], Prairie City; [illegible] & Whitmer, Peoria, Hally Smith, Amboy; P.A. Lauer, Sublette; H.C. Klett and Howard Phelps, Plainfield; C. Haben & Son and Werner Schultz, Galt; L.M. Knox, Morrison; J.R. Logan, Seward, and Edward Schleich and Frank [illegible], Freeport, have cows above 1[illegible]0 pounds of fat in 90 days.

The owners of the cows entered in the 500 Pound Butterfat Cow Club are all members of Illinois dairy herd improvement associations. The club was organized by the College of Agriculture for the purpose of demonstrating desirable practices of feeding, care and management. A good many cows entered in the club will fall short of the 500 pound mark. Better management and a little more care in feeding them might be all that is needed. There are a lot of good cows waiting for a chance to show what they can do. --C.S. Rhode, Dairy Department, College of Agriculture, U. of I.

Printed in accordance with the Agricultural Extension Act, May 8, 1914. H. W. Mumford, Director

Well Cured Soybean Hay Causes No Ill Effects In Breeding Ewes

In the spring of 1924 a number of farmers who had fed soybean hay to their breeding ewes during the winter wrote to the College of Agriculture stating that they had had a number of lambs born weak or dead. These inquiries as to the advisability of feeding soybean hay to ewes led to the experimental feeding trial now in progress in which two lots of western ewes are being fed soybean hay and alfalfa hay respectively. The ewes in each lot received hay alone from the close of the breeding season November 1, 1924, until lambing time. The ewes fed alfalfa were given an average of three pounds a head a day while the ewes fed soybean hay were given 3.6 pounds a head a day. However, the actual consumption of soybean hay was about three pounds since approximately 13 percent of it was refused by the ewes. Since lambing time, a small amount of a ration of equal parts of corn and oats has been fed in addition to the hay

Lambs from each of the lots are fed in creeps. Their respective rations are composed of the same grains -- equal parts corn and oats -- and the same hay as that fed their mothers, except that the corn is ground and the hay is cut. The lambs fed alfalfa have made an average daily gain of .39 pounds which is slightly more rapid than that of the lambs fed soybean hay. These have gained .37 pounds. The alfalfa lambs are now showing a little more finish than the lambs in the soybean hay lot. The lambs are now about 11 weeks old and are getting an average of about one-half pound of grain and a little more than that amount of hay a head a day.

In this experiment well cured soybean hay did not produce weak lambs. In fact, there were no apparent differences in the lambs dropped by the ewes in each of the two lots. The size, strength and number of lambs and condition of the ewes were practically the same. --A.N. Mackay, Animal Husbandry Department, College of Agriculture, U. of I.

- M -

New Bulletin Gives Results Of Draft Filly Feeding Experiments

Purebred draft fillies make a good growth and remain clean in their legs when pastured on sweet clover during the first part of the grazing season and on bluegrass during the latter part of the season according to results of tests which are reported in a new bulletin just published by the experiment station of the College of Agriculture, University of Illinois. It is entitled "Feeding Purebred Draft Fillies" and gives the results of experiments made for the purpose of finding a pasture to use in combination with bluegrass which would give better results than bluegrass alone during the hot, dry months. These tests in turn were part of a series made by the experiment station on the economical feeding of purebred draft fillies. J.L. Edmonds, chief of horse husbandry at the college, and C.W.Crawford, a member of that division, conducted the tests and are the authors of the new bulletin.

- L -

Pointers On Profitable Chick Raising Outlined In New Circular

There is no greater poultry problem with which the farmer has to deal than that of raising chicks to be profitable breeders and egg producers, according to a new circular entitled "Raising Chicks at a Profit" which has just come off the press at the College of Agriculture, University of Illinois and is now ready for free distribution to Illinois farmers and other interested persons. John Vanhervort, poultry extension specialist of the college, is the author of the new circular. It takes up the hatching, brooding, feeding and general management of chicks and contains a number of illustrations bearing on different phases of chick raising.

Recommends That Chicks Be Turned Out At Earliest Possible Age

Direct sunlight is the cheapest and one of the best aids in the successful raising of chicks and to get full advantage of it chicks should be gotten outdoors at the very earliest possible age, according to Dr. L.E. Card, chief of poultry husbandry at the College of Agriculture, University of Illinois. Another reason for getting the chicks out in the open at the earliest possible age is the fact that while they are young they are more easily trained to find their way in and out of the house. If they are kept confined in the brooder house until they are two or three weeks old, it often is hard to get them to venture outside when the opportunity comes.

"In training chicks to go in and out of the brooder house the farmer or poultryman should first build an approach to the chick door so that it will be easy for the chicks to climb from the ground level up to the level of the house floor. This can be done either by making a pile of sod or dirt or by building an incline of boards with small cleats on top to assist the chicks in climbing. Whatever method is used, there should be no corners into which the chicks might crowd and pile. The approach should slope in all directions from the door to the ground.

"During the first few days that the chicks are outside a very small yard will be large enough for them. It need not be more than five or six feet in diameter. This should gradually be enlarged as the chicks grow with the idea of taking it away entirely as soon as possible and letting the chicks have free range. Inch mesh wire two feet high is quite satisfactory for such a yard, except that in cold, windy weather it is desirable to use boards in order to protect the chicks from the wind and still allow them plenty of sunlight."

- M -

Plowing And Discing Now Will Clean Out The Corn Root Aphids

Now is the time to clean out the corn root aphis from the fields where they have been causing injury in the past. The eggs of these root aphids have been carried through the winter by the little brown corn field ant protected in their burrows from sudden changes of wet and cold, and are now just beginning to hatch over most of Illinois. The ants carry their little aphis "calves" to the roots of the smartweed plants and will pasture them on the roots of these and some other plants until corn is planted near them. As soon as the corn sprouts, the ants will transfer their aphis to the roots of corn, and pasture them here for the remainder of the summer.

If the ant and aphis infested fields are plowed at this time to a depth of six and one-half to seven inches, practically the entire ant nest is broken up and thrown out in the furrow. If this plowing is followed by two or three deep discings, the ant nests are still further broken up and the root aphis, the young of the ants and their eggs are scattered and mixed with the soil so that it is impossible for the ant colony to reestablish itself for several weeks. Most of the aphids will be killed or lost in the soil during the discing. Experiments extending over several years have shown that this is the best method of ridding infested ground of aphis and that it is nearly 100 percent effective where well done.

If for any reason this method cannot be followed, some protection to the corn can be obtained by moistening the seed in the planter boxes with a mixture of wood alcohol and oil of tansy, using one-fourth ounce of oil of tansy in one gallon of wood alcohol. This method is not as effective as the cultivation. If it is used, care should be taken that the seed is not wet with the mixture, as it may reduce germination somewhat if a period of cold damp weather follows immediately after planting.
--W.P. Flint, Entomologist, Natural History Survey.

Recommendations Given to Dental Patients

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII | April 29, 1925 | Number 17

See Need For Soil Improvement On Tenanted Land

Legumes and livestock, as aids to soil improvement, both must be given a larger place in the operation of tenanted land if such land is to be handled to the advantage of both land owner and tenant, it was brought out during the recent third annual conference for land owners and managers at the College of Agriculture, University of Illinois. The question of soil improvement proved to be the high point of the meeting. From many of the discussions it was evident that land owners no longer can afford to continue the rather general practice of merely taking their share of the crops and paying no attention to soil fertility and the use of livestock. It was pointed out that livestock plays a part in helping maintain the soil, utilizes by-products of grain production and low grade grain, provides more flexibility in the system of production and makes it possible for the tenant to utilize his time and equipment to best advantage.

Four states and some of the largest estates in this section of the country were represented by the 50 land owners and operators who attended the conference. Illinois, Indiana, Wisconsin and Missouri sent men to the meeting, while a single half dozen of the estates that were represented totalled 50,000 acres. Many of the estate which were represented at the conference have from 30 to 60 tenants on them.

Making rented farms more profitable for the mutual benefit of both the tenant and the landlord was the theme of the meeting. In one of the principal addresses of the meeting on the subject, "Adjusting Farm Practice to Prices", H.C.M. Case, in charge of the college farm organization and management department, pointed out that farmers with two or three classes of livestock on their farms can go a long way toward balancing production with demand. Hogs can be fed to a heavier or lighter weight depending upon the relative price of corn and hogs, and dairy cattle can be discarded a year earlier or kept a year longer, depending upon the demand, he explained. However, the farm cropping system cannot be changed from year to year without danger of boosting the unit cost of production and unbalancing the whole system of farming, he said.

Those who attended the conference went on record to recommend that the farm organization and management department hold more meetings of the same kind in the future. They also recommended that a farm management tour be held this summer.

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New Bulletin Discusses Control Of Wheat Rosette

Wheat rosette, one of the newer wheat diseases, can be completely controlled in the field by the use of resistant, or immune varieties, and for this reason it probably will never become of general economic importance, according to a new bulletin entitled "Wheat Rosette and Its Control" which the experiment station of the College of Agriculture, University of Illinois now has ready for free distribution. However, it causes heavy losses in infested fields where resistants are not used, the publication points out. Varieties which the bulletin lists as resistant to wheat rosette include Blackhull, Fulcaster, Fultz, Gipsy, Gladden, Kanred, Mammoth Red, Michikoff, Red May, Red Rock, Red Russina, Red Wave and Turkey.

Printed in number 3 of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*

April [illegible], 19[illegible]

[illegible] Need For Soil Improvement On [illegible] Land

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Crop Rotation Furnishes Practical Sheep Pasture

The use of a good crop rotation is the most practical means of securing pastures for sheep. If one sows sweet clover in his oats each year he has a succession of good pastures, for in numerous instances sheep have done very well on this crop. There is not a great tendency for bloat in sheep pastured on sweet clover. This clover supplements a blue-grass pasture in a most satisfactory manner, for it is green and good in midsummer when bluegrass is not at its best. The grass comes on again in the fall and one is thus assured of a useful pasture at all times.

Many sheepmen have made extensive use of various forage crops for sheep pasture. Of the various forage plants, none gives a greater abundance of feed than rape when soil conditions are suitable. On the College of Agriculture sheep farm we have had best results when rape was grown on land which has had a very heavy manuring. The rape is put in with a garden planter in rows about 24 to 30 inches apart. Sown in this manner and allowed to become eight or ten inches high before the sheep are turned on, rape will carry easily 20 ewes and lambs an acre for six or eight weeks. We have secured much better results with rape handled in this way than when seeded broadcast either alone or with oats.

In some sections soybeans or cowpeas may perhaps be found more satisfactory than rape, although our experience in pasturing soybeans has not shown them so satisfactory as sweet clover or rape.

Various pasture mixtures have been recommended. That which we have used most extensively has been sweet clover, alfalfa, red clover, alsike and timothy. We have used four pounds of each of these, twenty pounds in all, to the acre when seeded alone about the middle of August. A good heavy seeding is essential if one expects to get maximum pasturage.

A point which many men fail to keep in mind in pasture management is that the pasture must be given a chance to get a good start before the sheep are turned on. Another essential is that in order to grow good pasture crops of any kind the soil must contain an abundance of plant foods.--W.G. Kammlade, assistant chief, sheep husbandry, College of Agriculture, University of Illinois.

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McDonough Cows Prove Worth Of Improved Methods

Thirteen purebred Jerseys owned by J.E. Simmons Jr., Prairie City, McDonough County, led the Knox Warren Dairy Herd Improvement Association in butterfat production during the year just past and in so doing they each produced an average of 144 per cent more fat than the average Illinois cow produces in a year, according to figures which have just been compiled on the association's records for the year by H.E. Jamison, assistant in dairy extension at the College of Agriculture. The average production of each of the cows was 6,400 pounds of milk and a shade less than 390½ pounds of butterfat with an average test of 6.1 per cent fat.

The record of these cows is only another demonstration that good breeding, proper feeding and the right kind of management, as recommended by the agricultural college, farm advisers, and the various dairy herd improvement associations of the state, pave the way for higher and more economical milk and butterfat yields and consequently more profits for the dairyman, Jamison points out.

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Outlines Best Practices In Weaning Spring Pigs

Weaning pigs in the spring is not difficult, nor should it be a serious event in their young lives. The age at which they should be weaned will depend upon whether their mothers are expected to raise a fall litter and upon their own development.

Late fall litters are to be avoided if possible and that should mean weaning the pigs in time to breed the sows early in May. On the other hand, if the spring pigs are too young and lack development at that time it may be best not to raise fall litters from such sows, as the setback and undeveloped spring pigs will get by too early weaning may more than offset any advantage of fall litters.

Before being weaned pigs should have had opportunity to learn to eat. If this habit has been properly developed and suitable feeds have been supplied, the vigor of the pigs and their ability to take care of themselves will have developed to such a degree at eight to ten weeks of age that being deprived of their mother will soon be forgotten in their interest in other feeds. Especially will this be true if a suitable ration is provided.

A few days before the pigs are to be weaned, the ration of the sow should be reduced enough to decrease her milk flow. During this time, the pigs should of course have access to a full ration of suitable feeds in their creep.

When the weaning day arrives, the sow can more easily be removed than the pigs. She should be taken far enough away so that she and her pigs cannot see or communicate with each other. She should be put in a dry lot and kept on a reduced ration until all danger of injury to her udder has passed.

In feeding weaned pigs, there is no better substitute for their mother's milk than skimmilk or buttermilk, if either is available. A good legume pasture should be provided whether the pigs are receiving skimmilk or not. If dairy by-products are not available young pigs on good pasture will make satisfactory gains if they are given access to shelled corn and tankage, free choice, in self feeders. Under some conditions one of the following mixtures may be more economical when fed with shelled corn on pasture than tankage alone may be:

Tankage, 50 pounds and linseed oil meal, 50 pounds
Tankage, 60 pounds and corn germ oil meal, 40 pounds
Tankage, 30 pounds and middlings, 70 pounds.

Soybean oil meal may be used in place of tankage if conditions and prices warrant the substitution. If soybean oil meal is used it may be well to offer a simple mineral mixture, as soybeans are low in calcium.

Whether a mineral mixture is to be fed to growing and fattening pigs on pasture will depend on the kind of pasture and the cost of the mineral supplement. Work at the experiment station of the College of Agriculture, University of Illinois and elsewhere does not indicate that there is much to be gained by the addition of minerals to a corn and tankage ration fed on good pasture. The same would doubtless be true where skimmilk or buttermilk is fed. On the other hand, if protein supplements from plant sources, such as linseed oil meal, corn germ meal and soybean oil meal, are used, minerals should be fed.

There is a feeling also, and some experimental indication, that it may be advisable to keep minerals before growing breeding gilts even on good pasture.
-- W.E. Carroll, chief, swine husbandry, College of Agriculture, U. of I.

Putting Best Practices in Weaning Pigs

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII — May 6, 1925 — Number 18

Warns Against Dangers In The Use Of New Untried Sprays

New spraying and dusting materials are constantly appearing on the market. Many of these materials are promising, but the orchardist should not discard standard sprays in their favor until they have been thoroughly tested. There are various agencies through which this testing is done. For the past 20 years experimentation with such materials has been a function of the department of horticulture and the state entomologist. Similar institutions in other states and the federal department of agriculture carry on other tests. Many commercial orchardists also try new materials, often on a rather extensive scale. In the past, many materials have been discarded after their imperfections had been discovered, or their use has been limited to very specific purposes. There is no reason to think that in the case of new sprays history will not repeat itself.

Although lime sulphur, now one of our standard fungicides for certain plants at certain times, was shown in 1908 to have fungicidal value, its limitations and its particular field of usefulness were discovered slowly and, because of haste on the part of some of the growers, somewhat disastrously. Much fruit was burned by using it in hot weather, in July, which we now know to be unwise, and by drenching applications earlier in the season. That it could not be used for the later applications, that it was entirely unsuited for summer use on a large number of plants, including the peach, and that Bordeaux was preferable at all times on certain varieties of apples, were facts which neither the commercial grower nor the experiment station worker could predict.

Sulphur dust is another material which appeared promising and which later proved to have pronounced limitations. There were good reasons to think that it could be used to replace the lime sulphur spray. One of these reasons was that lime sulphur liberates sulphur under atmospheric action, so that one using lime sulphur and considering its chemistry would be justified in thinking that, in a sense, he was spraying with sulphur dust. Dusting sulphur and liquid lime sulphur do not, however, bring about the same total final results, as experimentation and commercial use have shown.

Other materials of great promise have been discarded or have been applied to uses outside the field of fruit growing. One of the best examples is calcium arsenate. One would be tempted to think that this chemical could be used with Bordeaux or lime sulphur to spray apple trees. Field tests have shown that this is not generally true.

Not only actual tests of any new material are necessary, but such a material must be tried for several years and in several localities. So many hidden but important factors enter into the relation of any spray to the insect, fungus and host plant that no prediction, however plausible, should influence the orchardist to undergo the hazards which the use of an untried spray or dust would entail.

Directions for the use of tested materials are incorporated in the spray circular, No. 277, published by the College of Agriculture. This publication is frequently revised in accordance with facts secured in the ways indicated. –W.A. Ruth, Assistant chief, pomological physiology, College of Agriculture, U. of I.

Says Farm Home Aids Are Passing Out Of The Luxury Class

Five and nine-tenths percent of the farm homes in Illinois have complete plumbing systems. Two and six-tenths percent have electrically operated water systems and 42.8 percent have a sink and pump, according to data secured by statisticians.

The fact that less than 6 percent of our farm homes have complete plumbing systems might lead one to believe that such equipment is thought of, not as a necessity, but as a luxury. However, there are indications that farm water systems are being thought of more and more as necessities. This change in thought is a healthy sign. Truly, one of the outstanding advantages of a complete water system in the farm home is the improvement on health.

The farm home deserves and should have many of the modern conveniences found in our city homes and of all the labor saving conveniences for the farm home, the water system usually should come first. Every farm home in Illinois should have at least a simple sink and pump installation and most of them should have water under pressure, so that a bathroom may be installed. Either the sink and pump or the hot and cold running water system can be installed by the farmer. As for the cost of such equipment it is small when we take into consideration the benefits to be derived.

Recently recommendations were made for water systems on 33 farms in Bureau and LaSalle counties and in addition 14 general meetings were held at which water systems were discussed. The interest shown at the 14 meetings and at the farms proved that there is a demand for farm water systems in the two counties. What is true of these two counties is no doubt true of a large part of the state.

There are reasons for believing that it is not the actual cost that is keeping water systems out of most of our farm homes. If it is anything, it is partly the lack of appreciation of such equipment, but, perhaps more often, a misunderstanding of the cost of all the different types of water systems. It is surprising how much time and energy can be saved by spending a few dollars for a simple water system, not to mention the advantages of a complete water system. -- F.P. Hanson, farm mechanics department, College of Agriculture, U. of I.

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More Efficient Production Key To Increased Farm Profits

The greatest opportunity for the individual farmer to improve his income lies in his ability to increase his efficiency in production. This is borne out by variations in the cost of producing staple farm products on 14 Champaign and Piatt county farms in 1924.

The cost of producing corn on these farms ranged from 52 to 88 cents a bushel, the cost of oats from 24 to 58 cents and the cost of wheat from 68 cents to $1.28. As these variations occurred on farms operated under as similar soil and climatic conditions as it is possible to get them, the differences in cost may be said to be due very largely to differences in management.

Low crop production costs are attained by using good seed from the best varieties and by having a well planned field and cropping system which will insure both the maintenance of soil fertility and the efficient use of labor, power and equipment. -- C.A. Bonnen, farm organization and management department, College of Agriculture, U. of I.

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Most Delightful Impressions Of A Recent Visit To

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White Snakeroot Poisoning Is Subject Of New Publication

White snakeroot, a weed that is not uncommon in Illinois, is responsible for at least one type of trembles, or milk sick, a disease of cattle, horses and sheep, according to a new circular, entitled "White Snakeroot Poisoning", which has just been published by the College of Agriculture, University of Illinois and is now ready for free distribution to farmers and other interested persons. Tests made at the college show that the weed poisons horses, cattle and sheep, according to the circular. The disease is called trembles because trembling is a prominent symptom, while the name milk sick, or milk sickness, is taken from the fact that men may contract the disease by drinking the milk and eating the milk products from affected cows.

"There are many species of white snakeroot in Illinois, but only one is poisonous", the circular explains. "The plant generally grows in woodland pastures, reaching maturity in August and September. The clusters of white flowers from the poisonous snakeroot frequently are gathered for ornamental purposes in the home.

"Trembles, or milk sick, generally appears during late summer and autumn, especially when other vegetation is scarce because of drought. Horses, cattle and sheep grazing in pastures where white snakeroot is growing may be fatally affected. Milk sickness, occasionally is fatal to man and in case of recovery there is a long period of convalescence and often lasting debility."

Pastures known to be infested with white snakeroot should not be used for animals during the late summer or fall, according to the circular. White snakeroot can be eliminated from pastures by persistently pulling the plant each year.

The new circular, which is No. 295, was written by Robert Graham, chief of the division of animal pathology and by some at the college, and I.E. Brockton, who, at that time, was a member of the division. It may be obtained free by writing the college.

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Good Pastures Do Not End The Dairyman's Feeding Problem

The beginning of the pasture season is here and during May and June, when the cows have pasture in abundance, they are at their best. Conditions are ideal for the production of butterfat. The grass is palatable and succulent and supplies protein, minerals and vitamins. During this period, even though the pastures are good, it is advisable to feed some grain to the heavy producing cows. It will keep them from losing flesh as rapidly as they otherwise would and the residual effect will be beneficial throughout the next lactation period. The grain ration may consist of three parts of ground corn or barley and one part of ground oats. If cows are producing less than a pound of butter a day, good pasture will be sufficient. Cows producing one and a half pounds of butter a day should receive from four to six pounds of grain, and as the production increases above that amount the grain should be increased. Some cottonseed meal or bran should be added to the grain ration for heavy producing cows.

If the cows have produced heavily during the winter and if the hay they were fed was not of good quality, it is advisable to feed some mineral. The grass pasture contains a vitamin aiding mineral assimilation. Wood ashes and finely ground limestone or steamed bone meal may be used. The mineral may be mixed with the grain or kept before the cows. In addition, a liberal supply of salt should be fed.
-- C.S. Rhode, dairy department, College of Agriculture, U. of I.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII | May 13, 1925 | Number 19

Six State Meetings Scheduled for College in June

June 16 to 20 - Short Course in Grain Elevator Management
June 16, 17 and 18 - Annual Conference of Farm and Home Advisers
June 17, 18 and 19 - Boys' and Girls' Club Tour
June 19 and 20 - Vocational Students' Judging Contest
June 22 to 27 - Open House, College of Agriculture
June 22, 23 and 24 - Annual Conference Vocational Agriculture Teachers

Agricultural interests of Illinois will center their attention in the College of Agriculture during the last half of June, during which time a half dozen meetings of state-wide interest are to be held at the institution. Farmers and their wives, their sons and daughters, agricultural leaders and teachers, home economics extension workers and those interested in the management of grain elevators will share in the programs of the six events.

For the first time in the history of the college, a short course in grain elevator management will be held June 16 to 20. During the same week farm and home advisers of the state will hold their annual three-day summer conference, June 16, 17 and 18.

Farm boys and girls of the state will assemble at the institution June 17, 18 and 19 for their annual boys' and girls' club tour of the university campus and the agricultural college farm. On June 19 and 20 the college will hold its annual judging contest for vocational agriculture students of the state.

The following week - June 22 to 27 - will be given over to two events. These will be the annual open house of the college, which will continue throughout the week and the annual conference of vocational agriculture teachers, which will be held June 22, 23 and 24.

During the week of the open house, visiting delegations of farmers and their wives will be taken on tours over the university campus through the orchards and feed lots and over the experimental plots in order that they may inspect the wide scope of work which the institution is carrying on in the interests of improved farming. During the past year, a number of improvements in the way of improved types of barns and lots, have been made to the equipment on the college farm and these are expected to prove added attractions. Significant progress also has been made in the experimental work which the college is conducting and this will be open for inspection.

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Pasture alone does not furnish enough feed to insure proper growth and development of dairy heifers, according to C. S. Rhode, dairy extension specialist of the College of Agriculture. Heifers under a year old should receive some grain in addition and in the case of calves under six months it is desirable to supplement the pasture with both skimmilk and grain. A good grain mixture for calves is 20 parts ground corn, 30 parts ground oats, 30 parts wheat bran and 10 parts oil meal. A good quality of legume makes an excellent roughage for growing animals.

Entered as second class matter in the Agricultural Extension Act of May 8, 1914 H. W. Mumford, Director

Extension Workers Speed Relief Of Tornado Victims

Chickens, cows and cowpeas, the standbys of Hamilton County farmers, are fast being restored to their former places on the tornado ridden farms of that section according to reports by J. C. Spitler and C. E. Gates, extension workers of the College of Agriculture, who have served in turn as emergency farm adviser for the county since the recent storm. The county has no farm adviser and for a while after the tornado had passed, the farm relief work in surrounding counties forged ahead of that in Hamilton.

This situation was remedied, however, by the action of H. W. Mumford, dean of the agricultural college, in sending an emergency farm adviser to the county and since then the cooperative work which Spitler and Gates have done with the Hamilton county unit of the Illinois Farm Relief Committee and the local unit of the American Red Cross has placed the farm relief work in this county on a par with that in stricken surrounding counties which have a farm adviser. The spring crop planting program is only a little behind what it would have been in a normal year.

One of the first tasks which was undertaken after the arrival of Spitler, who served first as emergency farm adviser, was a clean-up campaign. As a result of a carefully planned organization, proclamations and newspaper stories, nearly 2,000 people assisted in this and the consequences were that about 6,000 acres, comprising the tillable fields in the entire storm area of the county, were cleared of debris and a number of building sites cleaned.

Following the completion of this work, Gates relieved Spitler and has since been acting in an advisory capacity to Mrs. J. L. Mitchell, the Red Cross director of disaster relief for the county. Seventeen wagons and 18 horses have been bought for stricken farmers, 30 plows loaned by an implement manufacturing company were brought in and put to use, 800 bushels of cowpea seed were ordered and three drills have been bought for the use of all farmers in the county's storm area. Additional relief measures call for the bringing in of 12,000 baby chicks to restock the flocks in the stricken districts and also for the purchase of well bred dairy cows. Feed needs of the farmers are being taken care of temporarily by donated shipments from Clay county and St. Louis.

- M -

Chinch Bug Not Serious For First Time In 14 Years

That old insect enemy of the Illinois corn crop, the chinch bug, has been having a hard time during the past two seasons. We always think of chinch bugs and dry weather, but during the past two seasons, it has been wet weather, and this has been hard on the bugs. Examinations made during the past winter of the principal hibernating places of the chinch bug, have shown very few bugs present in any part of the state. Examinations during the past few weeks of wheat fields in those sections where bugs were most abundant, have shown only comparatively few numbers in the wheat.

With favorable weather during this spring, that is, if the weather is warm and dry, there are few sections in the central and south central part of the state where a very little damage may occur to the first few hills of corn adjoining wheat. However, there is to our knowledge no area at the present time where more than slight damage will occur or where it apparently will pay to take special measures for combating the chinch bug this season. This is the first time for more than 14 years that the chinch bug has not been seriously threatening in some section in Illinois.
--W. P. Flint, entomologist, Natural History Survey.

Extend the Borers Speed Relief Of Tummy Worries

Chickens, cows and cyclones. My standing of [illegible]
[illegible] to their former [illegible]
[illegible] to report a by U. S. Spitfire [illegible]
[illegible] culture, who have served [illegible]
[illegible] the front storm. The c[illegible]
[illegible] had passed, the farm relief [illegible]
[illegible] in Egypt.

This situation was remedied, [illegible]
[illegible] Agricultural College, in [illegible]
[illegible] the cooperation work which Spitfire [illegible]
[illegible] of the 111th's Farm Relief [illegible]
[illegible] has placed its farm relief work [illegible]
[illegible] opportunities which have [illegible]
[illegible] is only a little bird who [illegible]

One of the first tasks which was undertaken [illegible]
[illegible] first was erecting farm [illegible]
[illegible] planned crop rota[illegible], practically [illegible]
[illegible] assisted in spite [illegible] [illegible]
[illegible] Pablo [illegible] [illegible]
[illegible] number of buildings [illegible].

Topping the completing [illegible]
[illegible] in an adjacent community [illegible]
[illegible] relief for typhoon [illegible]
[illegible] formers, 30 plows [illegible] by [illegible]
[illegible] put to use, 500 bushels [illegible]
[illegible] the use of all farmers [illegible]
[illegible] all for the betterment [illegible]
[illegible] Batista and also for the purposes [illegible]
[illegible] are but a token [illegible]
[illegible].

Obtain Hot Springs for Their Health

That old theory of the Little [illegible]
[illegible] hard throughout the past two years [illegible]
[illegible], but just the same two avoiding [illegible]
[illegible] on the bugs. Sometimes [illegible]
[illegible] placing most of the oil [illegible]
[illegible]. Examinations [illegible]
[illegible] more meat than bone, have [illegible]

With favorable [illegible]
[illegible] the order [illegible]

Dust Is Best Control For Striped Cucumber Beetle

Every gardener who has grown cucumbers or melons knows what the striped cucumber beetle looks like. This light yellow beetle with three black stripes on the wing covers is the most destructive pest of cucumbers, melons, pumpkins and squash. Unless growers keep up a constant fight, the yield is greatly reduced if the crop is not lost altogether. The beetle is a pest that the gardener must deal with every year.

The adults, or beetles, are responsible for the greater part of the injury. They feed on the leaves, stem and fruit. When plants first push through the ground they may be killed in a very short time. The leaves of older plants may be eaten to such an extent that they turn brown and die. The larvae bore into the stem and roots and often into the fruit where it rests on the ground. The adults are also responsible for the spread of bacterial wilt and mosaic, diseases which may destroy a whole crop overnight.

Although this beetle is a heavy feeder, it is not easily poisoned, for it avoids feeding on poisoned plants or poisoned portions of the plant. Under Illinois conditions a dust composed of calcium arsenate and burned gypsum, which is ordinary building plaster, has given the best control. Burned gypsum may or may not contain hair which can be easily sifted out by working through an ordinary fly screen. Thoroughly mix one pound of calcium arsenate with 20 pounds of gypsum. This may be accomplished by running the two through a fly screen several times, or by putting both substances in a barrel, keg or tin pail with a tight cover and rotating it for several minutes.

This dust may be applied to the young cucumber plants by means of the ordinary dust guns, or blower dusters, or by a home made shaker. The shaker is made by nailing a wooden handle to the sides of a half gallon tin pail having a tight fitting cover. Punch holes in the bottom of the pail with an 8-penny nail at the rate of four holes to the square inch. These holes should be punched from the outside in. Fill the pail half full of dust and apply by shaking over the plants. The first application should be made as soon as the plants appear above ground and should be repeated at five or seven day intervals until the beetles have disappeared or the vines reach a length of two or three feet. Be sure the leaves of the plants and the surfaces of the ground around the stems are kept covered with the dust.

Dusting the plants with a two per cent nicotine dust will give partial control.--Charles C. Compton, assistant entomologist, Natural History Survey.

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Manger Talks Win Farmers Over To Herd Improvement

W. W. McLaughlin, farm adviser in LaSalle county, in commenting on how he completed the organization of a dairy herd improvement association of 27 members in eight days said:

"Some of the men were easy to sign up and others wanted to be shown the advantages of such an association before they would agree to part with the $42. This necessitated sitting down on the manger and spending two or three hours in some cases, and then I didn't insist on anyone joining unless he felt that he really wanted to do.

About five or six of these men who did not sign up and who were unable to come to the organization meeting have thought the thing over and have come in voluntarily and signified their desire to join, but the association is now full and I have been telling that we will perhaps start another association this fall if there are enough men interested."

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

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Cheapest Corn Cultivation Stops At Weed Control

Cultivation is recognized as an essential practise for the successful production of corn. However if the unit cost of production is to be minimized, it is advisable to cultivate corn only as often as necessary to accomplish the object for which cultivation can be recommended. This object is primarily the destruction of weeds and not the conservation of moisture, which has been assumed to result because of the mulch formed by cultivating the soil.

Experimental results indicate that weedy corn probably suffers more from a lack of nutrients than from a moisture deficiency. Consequently, it would seem that conservation of moisture is not a reason for cultivating corn, except possibly in case of heavy soils which check badly. Cultivation may be necessary on these soils in order to fill large cracks and thus stop the direct loss of moisture from the subsurface or even the subsoil. The loss of moisture from the immediate surface is of little significance, since the corn roots become so completely distributed between the rows early in their growth that there is little chance for the moisture which may be brought up by capillary action to reach the surface and evaporate.

Since cultivation is the only practical method of controlling weeds, the depth and frequency of corn cultivation should be determined by weed growth. In so far as possible, the growth of weeds should be prevented by shallow rather than deep cultivation, as the latter generally results in root injury and decreased yields. Proper cultivation, therefore, should kill the weeds with the minimum injury to the corn roots. Obviously, this is more easily done when the weeds are small. On soils that are reasonably free from weeds and where the seed bed has been well prepared, corn needs little or no cultivation.

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Time Now To Make Plans For Supplies Of Dairy Feeds

From 50 to 60 per cent of the total cost of producing a pound of butterfat or a hundred pounds of milk goes for feed. If the feed necessary for the economical production of dairy products can be bought at a lower cost, naturally the margin between production cost and selling price will be increased. Illinois dairymen should, and do, produce most of the feeds necessary for their cows, but it is advisable in most cases to balance the home grown grains with some high protein feeds such as cottonseed meal, linseed oil meal and wheat bran.

A survey of the feed markets indicates that wheat bran usually reaches the low point in June, July and August; linseed oil meal in May, June and July; cottonseed meal in August, September, January and February, and gluten feed in May, June and July. Dairymen who make out their feed budget now and purchase what feed they will need at the proper time, not only will make an important saving in feed costs, but also will feed a better ration. --C. S. Rhode, dairy extension, College of Agriculture, U. of I.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*

Fire Blight Threatens Bumper Illinois Apple Crop

A fruit disease known as fire blight is playing havoc in Illinois apple orchards this spring and prospects are that what promised to be a bumper apple crop will be heavily reduced by the disease, according to H. W. Anderson, associate chief of pomological pathology at the College of Agriculture. The disease seems to be especially serious in Calhoun and Union counties, two of the big apple producing counties, and as a result the apple crops in these counties will be cut in half, he said. In many orchards such varieties as Jonathan and Grimes, two standard ones, are almost a total loss.

A recent examination of a number of orchards and reports from orchardists in the southern and western parts of the state indicate that this is the worst epidemic of the disease that the state has ever had, according to Dr. Anderson. Some loss is caused by it each year, but periodically the disease becomes very destructive.

"Fire blight is caused by a bacterium, or germ, which is carried into the blossoms by insects during pollination or into the twigs by puncturing insects. Both the blossoms and fruit spurs are killed and the bacteria pass down into the twigs and small branches where cankers are produced.

"Growers should not be persuaded to buy so-called blight remedies, for unfortunately there is no satisfactory method of controlling the disease. In fact, not only are these alleged remedies of no value but also they may actually seriously injure the tree. Exploiters of these remedies take advantage of the fact that the disease may be serious one year and light the next and point out that where their remedies were used the trees show little or no blight the following season. This is just as true where nothing was applied.

"Even spraying is of no value, since the bacteria that cause the disease are carried into the blossoms or young shoots in such a manner that they do not come into contact with the surface spray. In some sections of the country growers follow the practice of cutting out the diseased twigs as they appear but this is impractical under Illinois conditions."

- M -

List Wide Range Of Subjects For Elevator Course

A wide range of subjects bearing on elevator accounting, grain economics, grain grading and special elevator problems are being billed for the first short course in grain elevator management which will be held June 16 to 20 at the College of Agriculture. Prominent authorities from governmental agencies, the university faculty and the practical field will discuss the subjects. Only three other states have held such courses up to the present time.

In addition to the discussions on elevator accounting and management and grain economics, instruction also will be given on the financial problems of grain elevators, trends in grain prices, forecasting crop yields, federal and state grain inspection, world trade in Illinois grain and grain products, problems in hedging and speculation, economic meaning of marketing, a wheat production program for Illinois, the United States grain futures administration, power problems of elevators, grain mixing and conditioning, farm storage of grains and bread making qualities of Illinois wheats.

A banquet will be held the first night of the short course. Short talks will be made by President David Kinley, of the University; H.W.Mumford, dean of the agricultural college; and C.M. Thompson, dean of the college of commerce and business

New Poultry Plant Will Feature June Open House

Open house next month at the College of Agriculture, will find operations on the new 75-acre poultry plant of the institution well under way and consequently this part of the college's work is expected to come in for more than the usual amount of attention from farmers and their wives who are especially interested in chicken raising. There are now around 4 000 chickens of the various ages and about 1,000 laying hens at the plant and a number of different lines of work, all aimed at more profitable poultry production, are being started. Open house will be held during the week of June 22 to 27.

The plant now contains 25 houses of a recommended type for laying hens, each of the houses being 14 by 16 feet. These are planned to take care of experimental units of 50 hens each. When the yards to the houses are complete each flock of 50 hens will have access to two yards each 50 by 100 feet which will be used alternately to promote sanitation.

Some of these hens will be kept largely for class room work by students in the college and the rest will be used in breeding and feeding experiments. A number of practical feeding tests are to be started to help answer the question of what is the best and at the same time the most simple ration that can be used to good advantage in feeding Illinois farm hens. Meanwhile all hens at the plant are being trap-nested in order to locate the heaviest layers so that they can be singled out for breeders.

One of the special features of the new poultry plant is the plan of having three separate rearing ranges of about five acres each. Only one of these will be used a year and consequently each range will get two years of rest after each year of use. By this means the college poultrymen hope to keep the losses from diseases and parasites down to a minimum.

- M -

To Hold Four Field Meetings In Southern Illinois

Field meetings designed to show southern Illinois farmers how they can best build up their land for bigger yields and profits will be held next week on four of the soil experiment fields which the College of Agriculture maintains in that section of the state, according to an announcement by M. J. Snider, assistant chief of the fields. Nine similar meetings already have been held in different parts of the state this spring. The fields on which the meetings are to be held include the one near Odin, in Marion county; near Ewing, in Franklin county; near Enfield, in White county, and the one near Elizabethtown, in Hardin county. The meeting on the Odin field will be held May 25, the one on the Ewing field May 26, Enfield May 27 and Elizabethtown May 28.

- M -

Union County Farmers Stop Erosion By Terracing

Terraces have solved the soil washing problem for A.A. Appel, a Union county farmer, and thereby saved him more than it is possible to estimate from observation, according to a report which he has just made to Frank F. Hanson, farm mechanics extension specialist of the College of Agriculture. Hanson supervised the building of the terraces on Appel's farm more than two years ago and since they were built, practically no gullies have formed in the fields where they are located.

New Poultry Plant [illegible]

[illegible] open house next month at the College of Agriculture, will find [illegible] poultry plant of [illegible] work is [illegible] from farmers and their [illegible] around 4,000 [illegible] at the plant and a number of different [illegible] poultry production, are being started. [illegible] 22 to 2[illegible].

[illegible] plant [illegible] contains 25 houses [illegible] being [illegible] by 16 feet. These are placed [illegible]. Then the yards [illegible] houses [illegible] have access to two yards each [illegible] sanitation.

Some of these hens will be kept largely for [illegible] and the rest [illegible] be used [illegible]. Feeding tests are to be started [illegible] and at the [illegible] the most simple [illegible] Illinois [illegible] order to [illegible].

One of the special [illegible] of the [illegible] poultry [illegible] and consequently [illegible] this means [illegible] down to a [illegible].

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To Hold Four Field Meetings In Southern Illinois

Field meetings designed to show [illegible] their land for bigger yields [illegible] experiment field [illegible] according to [illegible] similar [illegible]. The fields [illegible] Marion county [illegible] the near Elizabethtown [illegible] May 25, the [illegible] field [illegible].

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-- Dato, County Farmer [illegible]

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New Bulletin Coming Out Soon Will Cap Threshing Studies

Threshing ring investigations which the College of Agriculture, has conducted since 1921 in various parts of the state are to be concluded soon with the publication of a new bulletin entitled, "Successful Threshing Ring Management." It is being prepared by Emil Rauchenstein, formerly assistant chief of farm organization and management at the college, and C. A. Bonnen, a member of that department, and among other things will give complete details on five threshing problems which were studied during the investigations.

Threshing wheat and oats from the shock is responsible for approximately 20 to 30 per cent of the operating costs in the growing of these two crops, it was found in the investigations. However, the amount of labor required in threshing may be reduced by adjusting the organization of the threshing ring crew to each particular job and by the use of basket racks, thereby bringing about more efficient management of the ring, it was found. Use of basket racks alone will save 28 per cent of the man labor that is needed in getting the bundles of grain to the machine, the investigators found.

Differences in the efficiency of management were held largely responsible for the fact that widely varying amounts of man labor were required to thresh 100 bushels of oats on different farms during the same season. Varying crop and weather conditions also caused wide variations from the average during different years. In central Illinois, approximately 11 hours of man labor have been required to thresh 100 bushels of oats, while in Franklin County, with lower crop yields and less efficient equipment, approximately 18 hours of man labor have been required to thresh the same amount of oats. Under favorable weather conditions and with efficient management this amount of oats can be threshed without using more than six hours of man labor.

As to the size of threshing machines used in the state, the investigations brought out that machines varying from 20 to 24 inches in width of cylinder are the most common types for the smaller machines, while 36-inch machines are the most common sized larger ones. The 20- to 24-inch machines thresh from 300 to 450 acres of grain every season, while the larger 36-inch separators thresh an average of 800 to 950 acres of grain a season.

The two fairest ways in which to settle labor differences in a threshing ring are on the hour or bushel basis, according to results of the investigations. They also may be settled on the acre basis. Different methods for settling labor differences are given in detail in the bulletin.

A definite written agreement from the beginning is desirable in the cooperative ownership of threshing machines, as custom rates are not always equitable for cooperative outfits, it was found in the study. The bulletin will include a recommended form of agreement for cooperative threshing rings.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director.*

Open House To Answer Grain Variety Questions For Farmers

One question which the College of Agriculture, University of Illinois will try to settle for farmers who visit the institution during its annual open house, June 22 to 27, is: "What variety of alfalfa, oats, wheat and other crops will give the highest yields and the best results on my farm?" Crop variety tests being conducted by the institution cover a wide scope and as a result a wealth of material has been collected on the worth and merits of different varieties of crops that are commonly grown in the state. A number of promising new varieties have just recently been introduced into the tests. In many cases, the varieties of a particular crop that are being tested will be growing side by side and farmers can see for themselves just how the different types compare, while in other cases this comparison can be made from the records and yields which the institution has collected and which will be available during the week.

Six different varieties and strains of alfalfa are being compared in an alfalfa variety test which was started in 1923. These include Grimm, Cossak, South Dakota No. 12, Common grown in Kansas, Common grown under irrigation in Idaho, and Argentine grown seed. The varieties are now going into their second cropping season and present an interesting comparison.

In the oats variety tests, Kanota is one of the newer varieties in which more interest is probably being taken than in any other. This is an early oat introduced by the Kansas Agricultural Experiment Station. During the two previous years that it has been grown in test it has made an excellent showing, but it is doubtful if it will prove to be a better oat for the Illinois farmer than Iowa 103. Nova, introduced from Denmark last year, is one of the promising late varieties which is being tested. Several other comparatively new varieties, as well as a number of the older and more common ones, also are being tested. In all 28 oats varieties are being compared.

The most interesting varieties of wheat which have just recently been put to test are Minnturki and Michikoff. Both are hybrid wheats that have shown a marked ability to come through severe climatic conditions. Both are hard wheats. Minnturki is bearded and Michikoff is smooth. Twenty-six other varieties of wheat as well as several varieties of spring wheat and barley also are being tested.

- M -

Winning Essay Names Five Advantages of College Training

Glenn Butler, of Malta, and a student in the DeKalb Township high school, DeKalb, has been awarded first prize of $10 in the essay contest conducted by the Illinois Agriculturist, student magazine of the College of Agriculture, University of Illinois, on the subject, "Why I Should Go To An Agricultural College". Second prize went to George Minot, of Harvard, and a student in the Harvard Community high school, while third prize went to Vergil Brading, of Hume, and a student in the Hume Township high school.

Young Butler's essay, which won first prize, was built around the arguments that a modern agricultural education teaches the student efficiency, gives him a fundamental knowledge of soils, trains his judgment, gives him social polish and acquaints him with a comprehensive view of agriculture. In his introduction, Glenn showed that college attendance is on the increase and then added that if men in other walks of life are securing college training, it seems apparent that those who are following agriculture also must be college trained in order to compete successfully with those engaged in other industries.

Pares Ration To Fit Cows' Needs And Makes $89 In Month

Cutting down on the feed of his 30 cows so that they got only the amount that they needed put the sum of $89.86 in the pocket of one LaSalle county dairyman in a single month, according to a report which the College of Agriculture, University of Illinois has just received from the dairy herd improvement association of which he is a member. One month, when they were overfed, the cows lacked $65.04 of paying for the feed they ate, while the following month, when their feed was cut down to about the right amount, they returned $24.82 above the cost of the feed which they ate, or a total of $89.86 more than they had returned the previous month.

Overfeeding may cut the dairyman's profits just as much as underfeeding or feeding a poorly balanced ration, H. E. Jamison, assistant in dairy extension at the college, said in discussing the LaSalle county report. Efficient feeding consists in feeding the right amounts of the proper kinds of feeds, he pointed out.

The overfeeding in this case resulted from the fact that the 30 cows were given 80 pounds of corn silage, 16 pounds of legume hay and 18 pounds of grain daily. Twelve of the 30 cows were dry, while the remaining 18 produced 10,152 pounds of milk a month. Two of the dry cows were sold during the month.

Acting upon the advice of T. W. Fischer, tester of the dairy herd improvement association, the farmer cut down the daily ration of his cows to 40 pounds of silage, 16 pounds of hay and 13 pounds of grain daily. On this ration the cows produced 11,127 pounds of milk the following month. Thus it is evident that the reduction in feed had no bad effect upon the milk yield, despite the fact that enough feed was saved to change the daily return from the herd from a loss of about $2 to a profit of about 80 cents. The total gain of $89.86 which was made in the returns from the herd in the single month is enough to pay the farmer's membership dues in the dairy herd improvement association for two years, Jamison pointed out. More improvement probably could be made if the ration were reduced still further, as the cows are now getting more than they need.

- M -

Elevator Short Course To Stress Grain Storage and Hedging

Grain storage and hedging, two problems which have figured prominently in the declining profits of country elevators during the past few years, will be up for special consideration during the first short course in grain elevator management which the College of Agriculture, will hold June 16 to 20. J. M. Mehl, of Chicago, who is connected with the grain futures administration of the federal department of agriculture and who is recognized as one of the prominent authorities of the country on the problems of grain storage and hedging, has been obtained to discuss these topics.

Subjects bearing on grain economics, including those of storage and hedging, will occupy ten morning sessions during the short course. Elevator accounting will be taken care of in four other morning sessions, grain grading in four afternoon sessions and special country elevator problems in four other afternoon sessions. In addition, four afternoons during the short course are to be given over to inspection trips over the agricultural college farm and the university campus, while provision also has been made for recreation and round table discussions by those who attend. A banquet will be held the first evening of the course.

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Grain Grading Experts on Elevator Short Course Program

Grain grading, a big problem of country elevators, will be discussed by three of the leading grain grading experts of the middle west at the first short course in grain elevator management at the College of Agriculture, June 16 to 20, according to Dr. C.L. Stewart, in charge of agricultural economics at the university. These men whose services are being obtained through the cooperation of federal grain inspection officials, are Philip Rothrock, in charge of federal grain inspection on the St. Louis, Mo., market; Fred G. Smith, in charge of inspection at the field headquarters of the federal grain inspection bureau in Chicago, and H. A. Rhoads, in charge of federal grain inspection on the Indianapolis, Ind. market.

Wheat grading will be up for special consideration during the grading sessions of the short course, because of the serious consequences which result from the mixing of hard and soft wheats. Two sessions, therefore, will be given over to wheat grading problems, one of these sessions being in charge of Rothrock and the other in charge of Rhoads. Rothrock also will be in charge of the session on the grading of oats and in addition will discuss the problems of grain inspection as it is now conducted by the various state and federal governments. Smith will have charge of the corn grading work during the course. These specialists will be assisted by John J. Pieper of the college crops production division.

In connection with the corn grading work, there will be plenty of moisture determination apparatus to take care of a large class. Important points in the grading of corn will be shown by means of selected samples of corn. In the classification of wheat samples, lots of grain from all the important wheat growing sections of the United States will be available. The determination and application of dockage in wheat grading will be emphasized and the mixing of lots of wheat to improve the grade also will be demonstrated. In addition to grain grading, other topics which will have a place on the program of the short course will be elevator accounting, grain economics and special problems of country elevators.

- M -

Corn Club Enrollment Mounts Toward New Mark For State

This promises to be a record year for Illinois in corn club work, according to E.I. Pilchard, club work specialist of the College of Agriculture. Six counties already have reported enough corn club members to more than double the state enrollment of last year and there are yet 24 counties to be heard from. The enrollment last year was 177, but DeWitt, Clinton, Marshall-Putnam, Green, Christian and Logan counties already have reported 429 corn club members. Logan is leading at the present time in the county enrollments with 240 youngsters signed up to carry on the corn club project during the year.

One of the objectives in the corn club work this year will be a state utility corn show for members. This will be held in connection with the annual Utility Corn Show during Farmers' Week at the agricultural college.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director.*

Open House To Recognize 50th Anniversary of Morrow Plots

An old bulletin which has just been discovered in the files of the College of Agriculture, University of Illinois has furnished authorities of the institution with evidence that this is the 50th anniversary in the history of the famous Morrow soil plots at the college, although all known records up to this time have shown that the plots were not officially established until 1879. The plots are recognized as the oldest of their kind in America, but not until the finding of the bulletin did it become known that work on them was actually started in 1875.

Authorities of the college are planning to take advantage of the annual open house of the institution, June 22 to 27, to give public recognition to the half century mark in the history of the plots. Experiments in soil improvement which have been made on the plots during the past half hundred years will be explained to visiting farmers and their wives and interpretations made of the results which have been obtained.

The plots present an unusual appearance this year, for they are all growing corn. This happens only once in every six years. Another rather unusual angle to the situation is the fact that corn this year is growing on that portion of the Davenport plots which lies just across the road from the Morrow plots. Visitors who come to the college during the week of the open house, therefore, will have an opportunity to study corn growing under a variety of cropping systems and soil treatments.

Experiments being conducted on the Morrow plots are designed to show the effect of three different cropping systems, with and without soil treatment, on crop yields. Corn has been grown continuously on two of the plots for the past 50 years, a two-year rotation of corn and oats has been followed on two other of the plots, while a three-year rotation of corn, oats and clover has been grown on two other plots. In each case, one of the two plots has been treated with limestone, manure, rock phosphate and bone meal. As an average for the past 12 years, the plot that has grown corn continuously since 1875 has yielded an average of less than 25 bushels an acre. In contrast to this the plot which was treated and which grew the three-year rotation of corn, oats and clover has produced an average of more than 56 bushels an acre.

- M -

Will Present Wheat Production Program During Short Course

A wheat growing program designed to help southern Illinois farmers meet the growing demand for soft wheat, will be presented for the first time during the short course in grain elevator management which will be held at the College of Agriculture, June 16 to 20, according to Dr. W.L. Burlison, head of the agronomy department. Pastry eating in the United States has increased to the point where bakers are demanding more soft wheat of higher quality and some changes and revisions therefore are necessary in the production of this grain in Illinois, he said.

To this end the college proposes to find out what varieties are grown in southern Illinois, how generally they are adapted to that region and how well they fill the needs of soft wheat buyers. In working out these problems, specialists of the college are going on the St. Louis and Chicago markets to determine the grades and mixtures of wheats from Illinois and find out where these wheats are finally sent for ultimate consumption. Those who use these wheats will then be called on for information as to how southern Illinois growers can improve their product. Plans also are being made to maintain about 16 cooperative experimental plots in the southern part of the state as a means of studying different soft wheats.

Spring Drouth Brings Demand For Emergency Forage Crops

Drouth throughout a good share of Illinois this spring has kept the growth of clover and timothy practically at a standstill with the result that the growing of emergency forage crops now seems to be about the only way of preventing a serious hay shortage on many farms, according to John J. Pieper, assistant chief of crop productio in the College of Agriculture. Many fields seeded to a mixture of timothy and clover have not made enough growth this spring to hide the stubble of last year's nurse crop of wheat or oats, whereas in a normal year this stubble usually is hidden by at least a foot of growth at this time of the year, he said.

There are both early and late emergency forage crops, but the season is too far advanced for farmers to get much good out of the early ones, according to Pieper. One of the best late emergency forage hays is a combination of soybeans and sudan grass. Choice of the soybean variety and the rate of seeding has much to do with the success in growing these two crops in combination for forage.

Both soybeans and sudan grass grown alone have been recognized for some time as good forage crops and can be used to advantage in the present emergency. Either of these crops can be seeded after corn planting time.

Millets grown with soybeans have not been tried out extensively, but this combination should yield a hay which compares favorably with sudan grass and soybeans. Millets do not produce a first class hay when they are grown alone. The quantity produced is all right, but the quality is poor. A combination of soybeans with either the millets or sudan grass should yield more hay than either of the crops when grown alone.

Since the number of crops which can be grown as a late emergency forage is small, the combination of these crops in making up mixtures becomes highly important. The right choice of varieties is especially important in success with any of these crop

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Both Cockerels and Pullets Are Benefitted By Separation

Both cockerels and pullets will develop better if they are separated about this time of the year and kept to themselves than they will if allowed to run together, according to Dr. L.E. Card, chief of poultry husbandry at the College of Agriculture. Pullets are especially benefitted by this practice because they do not increase in weight as fast as cockerels and consequently they are crowded away from the mash hoppers and drinking vessels and do not get a fair share of the feed supply. Separating cockerels and pullets has another advantage in that it prevents crowding in the brooder house.

"Ordinarily the two sexes should be separated just as soon as they can be distinguished, provided the chicks are old enough to do without heat. Under no conditions, however, should cockerels of the light breeds, such as Leghorns and Anconas, be left with the pullets after they are 12 weeks old. Separation at eight weeks is much better. With the heavy American breeds separation may be made when the chicks are from 12 to 16 weeks old, depending upon how well developed they are, how crowded their quarters are, and how much difference there is in the weight of the cockerels and pullets."

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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New Swine Plant Demonstrates Modern Principles

Many of the latest principles in the economical and profitable production of pork have been embodied in the new swine plant of the College of Agriculture which is now being finished and put in shape for the annual open house of the institution June 22 to 27. The plant covers a 40-acre tract on the college farm and is centered around a tile barn 159 feet long and approximately 29 feet wide. A section in the middle of the barn is 35 feet wide, or about six feet wider than the rest of the building.

One of the good points about the barn is that it stands north and south, thus allowing for the pens on either side to get the full force of either the morning or afternoon sun. Another of the special features of the barn is its eight feed storage bins which are located on the second floor of the center section. Just beneath these bins on the first floor is a raised concrete mixing platform and each bin is spouted down to this platform.

In addition to the concrete mixing platform, the ground level of the center section of the barn provides some storage space, an elevator shaft and a record room. Scales also are installed. The two ends of the barn, extending beyond the center section, are each taken up with 12 pens approximately 8 by 10 feet. An isle divides these 12 pens, six pens being located on each side of the aisle. The entire floor of the barn is concrete and slopes to the drains in such a way that it will always be dry. The building is equipped throughout with a complete ventilating system and the pen equipment, both inside and out, is of the wire gate type.

One of the special features of the barn and one which promises to be extremely useful is the 8 by 16 fenced concrete runway outside the barn for each inside pen. It will be possible, without great effort to keep these runways clean, even from worm eggs, and the young pigs therefore can have access to the much needed direct sunlight in clean runs whenever the weather permits. The ground around the barn is fenced into many lots of different sizes to be used as needed for the breeding herd and for experimental purposes. Swine sanitation has been kept in mind throughout the arrangement of the plant, as the plans call for a rotation of pastures, one of the points demanded in the sanitation system.

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McLean Dairy Tour Shows Worth Of Home Grown Feed

One hundred McLean County dairymen who went on the recent annual tour of the McLean County Dairy Herd Improvement Association had the value of home grown feeds for dairy cows brought home to them in a striking way. Each of the 11 association herds which were inspected during the tour had an average production record of more than 300 pounds of butterfat a cow for the year just past, and in every case the ration of the herd was made up largely of home grown feeds. H. E. Jamison, assistant in dairy extension work at the College of Agriculture, commented on the value of balanced rations as demonstrated by the results in the herds visited and also stressed the economy of home grown feeds.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director.*

Recommends Close Check On Bitter Rot Situation

Although the 1923 outbreak of bitter rot in Illinois apple orchards was the first serious one in the state for the past ten years, the disease may crop out again this year if conditions are favorable for it during the latter part of the summer, according to H. W. Anderson, associate chief of pomological pathology at the College of Agriculture. Growers have been warned to make frequent inspections of their fruit after the middle of June, the date after which the disease usually becomes serious.

Apples usually are half grown before they are attacked by the disease, but its spread is so rapid that a half or two thirds of the fruit in the orchard may be destroyed in a few weeks. Last year the disease appeared much farther north than usual, especially in the western part of the state, and favorable weather conditions may bring an outbreak of the disease in that section this year.

Such varieties as Jonathan, Lowell, Ben Davis, Early Harvest, Huntsman, Grimes and Willow Twig, which are especially susceptible to bitter rot, should be watched closely for the appearance of the disease after the middle of June. In case the disease should be found, every effort should be made to cover the fruit with Bordeaux spray within the shortest possible time. The spraying should start in that part of the orchard where the disease was first noticed and the susceptible varieties sprayed first.

"Hand picking of all fruit is probably the most effective method of checking bitter rot, provided the picking is started in time. The practice not only removes the source of infection for this season's crop, but also helps protect the crop for next year, since the fungus which causes the disease lives over the winter in the mummied fruit. Of course, hand picking may not be practical if the outbreak is serious and a large number of trees are involved. Diseased fruit that is hand picked should be collected in baskets and removed from the orchard promptly. It should either be buried or left for a few hours in a barrel of copper sulphate solution made up to a strength of one part copper sulphate in 15 of water. Several subsequent pickings may be necessary after the first one to make sure that all the diseased fruit is removed. Even if hand picking is not followed and the diseased fruit is left on the trees and ground after harvest, it should be collected and destroyed to prevent another outbreak of the disease the following year.

"One thing which has been partly responsible for the decrease in the amount of bitter rot in Illinois orchards during recent years is the practice which most commercial growers now follow of putting a fungicide in the form of Bordeaux mixture in the second and third codling moth sprays."

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Win Poultry Success Without Elaborate Equipment

Success with chickens does not require elaborate, expensive equipment, it was found by the 50 poultrymen and other interested people who joined in a recent poultry tour staged in Cumberland County by Farm Adviser E. A. Whalin and the College of Agriculture. Old hen houses are being used to advantage on many of the farms which were visited and by using practical sanitary measures the owners of them are getting just as good results as they could with more expensive equipment, it was brought out during the tour. Careful cleaning and disinfecting of the houses from time to time and the use of dropping boards are among the sanitary practices which are followed. Owners of all the flocks which were visited during the tour are cooperating with the agricultural college in keeping cost account records on their flocks.

Peach Trees Are Benefitted By Pruning At This Season

Peach trees that are now in their second, third and fourth growing seasons will respond profitably to summer pruning, which is best done at this time of the year, according to W. S. Brock, horticulture extension specialist of the College of Agriculture, University of Illinois. Summer pruning is not expensive and neither is it an additional charge against the orchard. In many cases, two summer prunings have made dormant pruning unnecessary the following season, he pointed out.

The object of summer pruning is to thin out the growth in the center of the tree and along the main branches where a rank growth gives too much shade, which in turn favors the development of disease. The number of summer prunings which are necessary depends upon the vigor of the tree and the character of the growth made. Vigorous two and three year old trees usually need to be thinned twice, while once should be enough for trees that are in their fourth season.

In the extreme southern part of the Illinois peach section, the first of the summer prunings should be about completed by this time, while the second should be done about the first of July. Two weeks should be added to these dates in the northern part of the peach belt.

Enough of the growing shoots should be removed so that plenty of light can reach all parts of the tree. Care should be taken to keep the center of the tree open like an inverted umbrella. In summer pruning, it also is possible to correct the tendency of many trees to grow away from the direction of the prevailing wind. This defect can be corrected if the tops of the branches can be cut back to a good primary lateral. Summer thinning also makes it possible to keep the trees symmetrical. Frequently a branch or branches tends to grow away from the rest of the tree. Tipping these will retard the growth on the heavy side and allow the shorter branches to catch up.

- M -

Study Shows Extent of Peach Failures From Freezes

Winter temperatures cold enough to kill peach buds and cause a crop failure occur an average of about once in every nine years in the most favored sections of Illinois' peach belt, while crop failures because of winter killed buds can be expected an average of about once in every 2.7 years in the least favored section, according to W. S. Brock, horticulture extension specialist of the College of Agriculture who has just completed a study of winter temperatures in Illinois as they affect peach growing.

Weather bureau records for the past 35 years formed the basis for the study. Ten degrees below zero was taken as the temperature below which peach buds cannot live and the records were then gone over to determine how often the thermometer registers lower than this in four different latitudes of the peach belt. On this basis it was found that the ratio of crop failures because of winter killed buds is one in every nine years in the latitude of Cairo, one in every seven years in the latitude of Carbondale, one in every four years in the latitude of Flora and one in every 2.7 years in the latitude of Effingham.

The Carbondale temperatures indicate that the temperature of 10 degrees below zero is about right in reckoning peach crop losses. During the past winter the lowest temperature recorded at Carbondale was 10 degrees below zero and this point is about the line between crop and crop failure this year.

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June 26 Set As Poultry Day Of Annual Open House

Illinois poultrymen and chicken raisers this year are to have a special day set aside for them during the annual open house of the College of Agriculture, June 22 to 27, according to an announcement by L. E. Card, chief of poultry husbandry at the institution. Friday, June 26, has been designated as poultry day and officials of the Illinois State Poultry Association already have made plans for a special summer meeting to be held in conjunction with the event. In addition to taking part in the program of poultry day, members of the association also will hold sessions the day previous.

These sessions will be given over largely to a business meeting of the association and after this has been attended to, members of the organization will be taken on a tour of the new poultry plant of the college and shown the different lines of poultry work which are now under way at the institution. The new plant covers 35 acres of the college farm and at the present time about 4,000 young chickens are being raised and around 1,000 hens are kept.

The program for poultry day itself will be given over to a half dozen discussions on the growing chick phase of the poultry industry. Starting at 9 o'clock in the morning, H. H. Mitchell, associate chief of animal nutrition at the college, will explain the experimental work which is being done in the field of poultry nutrition; John Vandervort, poultry extension specialist of the college, will discuss some of the problems which he has seen in the field, and H. W. Day, from the division of standardization and markets in the state department of agriculture, will define the present status of the accredited hatchery plan. Card will close the morning program with a discussion of how chickens grow. The entire afternoon program for the day will be given over to poultry disease problems. Both lectures and demonstrations are to be given by Robert Graham, E. A. Tunnicliff, and E. R. Frank of the animal pathology and hygiene division. Bacillary white diarrhea, coccidiosis, tuberculosis and intestinal parasites of poultry will be discussed.

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Two Conferences Planned For Rural Pastors

Two regional conferences for rural pastors will be held next month by the College of Agriculture in an effort to promote closer cooperation between country ministers and all those who are interested in better living conditions on the farm and in the farm home, it has been announced by H. W. Mumford, dean of the college. Similar conferences were held for the first time in the state last year.

As was the case last year, one of the conferences will again be held at Camp Seymour, near Decatur, on July 7. The other will be held at the Galesburg Club, Galesburg, July 8. At each conference the program will start at 10 o'clock in the morning and continue until 4 in the afternoon with a luncheon at noon. Both conferences will be open to all churches and denominations having rural problems. Closer cooperation will be sought between country ministers and farm and home advisers, county superintendents of schools and vocational agriculture teachers.

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Buyers of Meat Overlook Value In Many Cuts

Public tastes for meats are such that only a few of the well known cuts, like the round, loin and rib of beef, which make up less than half of the carcass, are in great demand, while the rest of the carcass is left for the butcher to dispose of as best he can, according to J.H. Longwell of the meats division at the College of Agriculture.

Although the nutritive value of these less desirable cuts is equal to that of the more popular pieces of meat, these less desirable cuts can be disposed of only at a low price, sometimes below wholesale, and consequently the purchaser gets more food value for his money by buying these slighted cuts.

On the other hand, the cuts that are in demand must be sold high enough to make up for the low price of the less desirable cuts and return the butcher a profit on the entire carcass. This is the reason why the round, loin and rib of beef, which make up only 48 per cent of the carcass, bring more than three-fourths of the total retail cost of the entire carcass.

If the butcher could dispose of the less desirable cuts more readily he could operate on a narrower margin, and thus lower the price of all meat to the consumer.

Cuts from the hindquarter are in greatest demand because they are best known and because they make the leanest and tenderest steaks and chops. At the same time, forequarter cuts like the shoulder and plate are more highly flavored than are those from the hindquarter.

With the exception of the chuck, forequarter cuts contain less bone, but more connective tissue than hindquarter cuts and therefore are tougher, but this only means that they require more careful preparation.

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Douglas Calves Near Goal Of Half Ton Club

H. L. Gates & Son, Shorthorn breeders living near Tuscola, are making a strong bid for the honor of being the first Illinois farmers or breeders to officially produce a half ton of beef from a single calf by the time it is a year old. Last year, when the College of Agriculture started the Illinois Half Ton Club, Gates and his son nominated two calves from their herd for memberships in the club and it now seems certain that at least one of them will make the required weight.

Gates and his son will win the first membership in the Illinois Half Ton Calf Club if they succeed in making one of the calves weigh a ton by the time it is a year old. The purpose of the club is to show the value of good breeding, proper feeding and the right kind of management in getting beef animals ready for market at an early age.

The most recent weight of the two Gates' calves was 1,920 pounds and they still had almost a month left in which to gain. Both of them were raised on one cow and fed simple farm feeds, consisting largely of corn, oats and clover hay. During the latter part of the feeding period, some linseed oilmeal has been added to the ration.

Nutritional Type of Roup Becomes Problem

A nutritional type of roup, which poultry flock owners are confusing with the contagious type of this chicken disease, is responsible for many of the heavy losses which are occurring among young chicks in Illinois this spring, according to members of the animal pathology division at the College of Agriculture. Examination of sick chicks sent in by veterinarians and farmers has shown that the coccidial type of roup, which is caused by a protozoa and which affects the eyes, also is present in many flocks.

Green feeds such as cabbage, lettuce, fresh alfalfa, clover or sprouted oats will prevent the nutritional type of roup, if enough of them is supplied in the rations of young chicks, according to the animal pathologists. Tomatoes, fresh or canned, as well as cod liver oil and eggs in the mash also are effective. A mash containing 3 per cent cod liver oil and 5 per cent tomatoes, or one egg beaten up in skimmilk and added to the mash for 30 chicks is recommended.

These feeds should be supplied before the disease appears, as it cannot be cured effectively if permanent injury already has resulted.

The outward symptoms of nutritional roup are much the same as those for the contagious type of the disease, but unlike the contagious type, nutritional roup affects young growing chicks most seriously. Affected chicks suffer from sore eyes, dull appetite, leg weakness and drooping feathers. White spots on the kidneys and small patches in the esophagus are found at autopsy.

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New Horse Barn At U. of I. Ranks With Best

One of the best horse barns of any that can be found on an agricultural college farm in this country is among the late additions to the group of new farm buildings at the College of Agriculture, University of Illinois. The barn is strictly modern, roomy, airy and well lighted, according to J. L. Edmonds, chief of horse husbandry at the college. The last finishing touches are being put on the building and it will be given its first public inspection during the annual open house of the college June 22 to 27.

Like the other buildings which have just recently been put up on the college farm, the new horse barn is built of light brown concrete tile, which give it an attractive appearance. These tile are 5 by 8 by 12 inches.

The building itself is 152 by 40 feet long and stands on a concrete foundation. The floor is of creosoted wooden block laid over concrete, while the stall partitions also are of concrete on which is placed heavy metal grating. The framing in the mow is arranged so that the space in it is fairly free from obstructions.

The barn contains 18 stalls which are arranged around the four walls. Seven of these stalls are boxes that are 16 feet square, three of them are boxes that are 12 feet square and eight of them are standing stalls 6 by 11 feet. In addition to these stalls on the first floor there is a hay room, two feed rooms, a harness room and a wash rack.

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Extensive Study Started To Get Facts On Wheat Situation

Illinois wheat, which the St.Louis and Indianapolis markets have complained is "the worst they receive", is to be the subject of an extensive study which the College of Agriculture has just launched, Dr. W.L. Burlison, head of the agronomy department of the college, told elevator managers and other grain men who attended the first short course in elevator management at the college last week. Two objects will be in view during the study. First of all an attempt will be made to determine whether or not the complaints are sound and if they are, to work out some means whereby the situation can be remedied. For the time being, the study will be confined to southern Illinois, the soft wheat section of the state, but it later will be extended to other sections. The study is one of the first of its kind.

In mapping out the wheat production study which the college has started, Dr. Burlison pointed out that mixing of different classes of wheat and not low grade in the different classes themselves, is back of any complaints which millers and grain men may have to make against Illinois wheat. Quality of the wheats of different classes that are now grown in the state is high, but the mixing of different kinds of wheat reduces the milling quality of the resulting combinations, it was explained. Illinois is one of the great wheat producing regions of the world and if it is true that the state is sending wheat of inferior milling quality to the markets and millers, then the situation is a serious one, Dr. Burlison continued.

The first step in the wheat production program and the one which will be stressed this year will be to find out what kinds of wheat are going to the market from southern Illinois and how well these wheats meet the demands of millers. Specialists of the college agronomy department will go on the Chicago, St.Louis and Indianapolis markets to take an inventory of the kinds of wheat reaching those markets from southern Illinois. From these markets the different wheats will be followed to the man who buys and uses them and from him will be obtained information as to how nearly these wheats meet his demands and what could be done to improve them.

The next step in the study will be to determine what varieties of wheat are grown in southern Illinois. In this connection, samples of wheat will be collected directly from the field and classified according to variety and type. Samples of wheat also will be collected from threshing machines in order to get the facts on the grade, classification and quality of wheats that are now grown before they are mixed at elevators or wherever they are mixed.

The third phase of the study will be a definite program for determining adaptability of wheats that are now grown. Sixteen fields will be selected in different parts of southern Illinois and on these fields the college will compare the varieties of wheat that are now most commonly grown in that section, as well as other varieties which may be brought in.

Still another phase of the study will be to determine the bread making qualities of the wheats that are now grown in the southern part of the state.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director*.

Alfalfa Demands Certain Conditions In Its Growing Place

Every farm, generally speaking, has a place for alfalfa, but that place must measure up to certain requirements before success can be had with the crop, according to Dr. W.L. Burlison, head of the agronomy department of the College of Agriculture. Alfalfa is the aristocrat of the legume kingdom and therefore is just a little choicy about its place of growth, he pointed out.

For one thing, alfalfa will scarcely start on wet, poorly drained land or on land that is sour. In fact, lack of lime in the soil has caused thousands to fail in growing alfalfa. If the soil is very sour, two to four tons of limestone an acre will be needed to make the soil fit. As the acidity of the soil decreases, of course, the amount of limestone required will be less. Often times it is best to apply limestone twice a year in advance of the time when alfalfa is to be seeded upon the land.

Adding limestone to the soil sometimes makes it fit for alfalfa and sometimes it does not. If the soil is not well supplied with organic matter, farm yard manure, in addition to limestone, will pay added profits and handsome ones too, according to Dr. Burlison.

There are cases when phosphate will put land in shape for alfalfa. On the soil experiment field which the agricultural college maintains near Joliet, phosphate has given an average increase of one and a fifth tons of alfalfa an acre, while on the field near Sidell the increase for phosphate has been three-fifths of a ton of alfalfa an acre. Here at Urbana, phosphate has given an increase, as an average for 12 years, of one ton of alfalfa an acre. In all of these tests the phosphate was used in addition to organic manures and limestone.

Phosphate applied in addition to limestone, but used without organic manures gave increased yields of almost three-fourths of a ton an acre on the field near Joliet and more than a half ton an acre on the field near Sidell. At Union Grove, the increase for phosphate used in this way was two-fifths of a ton an acre.

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Heat And Flies Make Common Calves Out Of Promising Ones

Protection of young beef calves against heat and flies of summer is almost as necessary as their protection against the cold and snow of winter, if their growth is not to be seriously checked and they are kept fat and in good condition, it is pointed out by R.R. Snapp, assistant chief of beef cattle husbandry at the College of Agriculture. Often calves that show considerable promise when turned out to pasture in the spring are brought back in the fall looking stunted and scrubby, he added.

"This disappointment on the part of breeders can be avoided by keeping the calves up near the barn where they can have the comfort of cool, darkened stalls during the heat of the day and where they can be fed a palatable grain mixture without being molested by other animals. At night they should have the run of a grass paddock or an old orchard that furnishes an abundance of tender herbage. In the absence of a separate grass paddock, the calves may be turned into the regular pasture with their mothers at night.

"Should it be impracticable to separate the calves from the cows, even during the day, steps should at least be taken to provide the calves with a creep in a shady corner of the pasture where they may be fed daily and where they can lie unmolested by the larger cattle. A suitable grain mixture for calves less than six months old can be made of equal parts by measure of finely ground corn, ground oats and wheat bran."

Will County Farmers Realize $3,154 More On Good Methods

Bigger crop yields, higher returns from their livestock and better use of man and horse labor made it possible for 11 Will County farmers to pay all their operating expenses and five per cent interest on their investment and still have an average of $3,154 more apiece to show for their work last year than 11 of their neighbors who followed less efficient methods, according to a summary which H.C.M. Case, in charge of the farm organization and management department of the College of Agriculture, has just made of farm accounts which farmers in the county kept in cooperation with the agricultural college and Farm Adviser J. F. Hedgcock.

In all, a total of 34 farmers in the county kept the accounts last year and when the records were summarized this group of men was divided into thirds, depending upon the returns which the individual farmers realized during the year. It was found that the third of the farmers, or 11 of them, who were most successful realized an average return of $2,379 on their labor and management, after interest and expense were paid, while the third of the farmers, or 11 of them, who were least successful lacked an average of $452 of getting enough out of their farms to pay expenses. This made a difference of $3,154 between the returns of the most and least successful of the farmers.

Although the farmers who were the most successful farmed an average of 223.2 acres as compared to 168.1 acres for the farmers who were least successful, size of farm was not the chief reason for the difference in the returns which they received, according to Case. Farmers who comprised the most successful third of the group obtained a third better crop yields than those in the least successful group, they got a return of 30 per cent more on each $100 which they had invested in livestock and they worked nine acres more crops with each man and three acres more with each horse.

All of these men kept uniform accounts in the farm account book prepared by the college farm organization and management department. In addition to knowing how much his farming operations paid last year, each man in the group has a basis for studying his farming system and for making changes which will make his farm more profitable in the future, Case pointed out.

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Cockerels For Breeding Flock Best Picked At Broiler Age

Broiler age is the time to select cockerels that are to be saved for breeders, according to John Vandervort, poultry extension specialist of the College of Agriculture. Cockerels cannot be picked at that age with absolute assurance that they will be good breeders, but if 50 per cent more are selected than are needed, the poultryman is almost sure to get enough good ones. Young roosters that are selected for breeders should show good vitality and all birds with feminine or crow heads should be eliminated. Vigor and masculinity are shown by a good bright eye and a good sized comb. Even at broiler age, the prospective breeding male should have a good, deep body. Rapid feather growth is another necessity if a male bird is wanted which will transmit early mating qualities to his daughters.

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Endorse First Short Course In Grain Elevator Management

Illinois' first short course in grain elevator management, which was held last week at the College of Agriculture, University of Illinois, received the approval of the grain men and elevator managers in the form of a resolution which those who attended the course adopted unanimously in one of their closing sessions and in which they thanked the institution for this new type of service and asked that the course be repeated next year. Registration for the course reached a total of more than 100 country elevator managers and other grain men.

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Drouth Emphasizes Value Of Sweet Clover For Pasture

Sweet clover has made a reputation as a pasture crop on many Illinois farms during the drouth of the past spring by remaining green and furnishing an abundance of feed while bluegrass and other common pasture crops withered and dried up under the stress of the dry weather, according to E.T. Robbins, livestock extension specialist of the College of Agriculture. In traveling over the state, Robbins found that the drouth was so severe that bluegrass pastures in many counties were as dry almost a month ago as they are in August. In contrast to this, farmers with sweet clover pasture came through the drouth without being short of forage.

Grundy County seems to have more sweet clover than any other county that he visited, Robbins reported. He estimated that about 10 per cent of the farm land in that county is in sweet clover. Farm adviser F. E. Longmire has been cooperating with the agricultural college in pushing this hardy legume forage crop for years and farmers have been shown how to grow and utilize it.

Even in an ordinary season, sweet clover seems to make about 50 per cent more grazing than bluegrass and in many cases twice as much, Robbins said. In a dry summer it has a greater advantage, for drouth seems to affect it very little. It roots deeply and draws moisture from the subsoil. The one serious drawback to sweet clover is the need for limestone on most Illinois fields before the crop will grow successfully. However, this requirement of the crop is offset fully by the nitrogen which sweet clover adds to the soil, he pointed out. Whether this crop is pastured or not, it adds to the land's productiveness.

All kinds of stock are grazing sweet clover in Illinois. There is an occasional case of bloat in cattle and sheep, but this can be almost wholly avoided if some other grass is sown with the sweet clover. In Grundy County, orchard grass often is used. Cases are reported of lambs doing especially well on sweet clover. They eat the leaves some distance above the ground and thus suffer relatively little infestation from stomach worms.

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Open House Week Draws Crowd Of 2,029 Farm People

Open house week at the College of Agriculture this year brought a total of 2,029 farm men, women and children from 29 counties of the state to inspect the plant of the institution and study the work which it is carrying on in orchard, feed lot, laboratory and field in the interests of improved farming. Checks on the attendance were not easily made, but as near as could be determined the representation by counties was: Vermilion 500, Iroquois 275, Edgar 225, Ford 125, Coles 105, Douglas 85, Macon 80, Piatt 80, Logan 70, DeWitt 60, Peoria 60, Woodford 50, Grundy 40, Greene 35, Kendall 35, Madison 33, Moultrie 25, Montgomery 25, Marshall 20, Christian 15, Livingston 14, Morgan 12, Effingham 10, Will 10, Wabash 10, Tazewell 10, Marion 9, Menard 6, and DuPage 5.

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Basket Racks Meet Shortage Of Labor In Threshing

Threshing rings which are short of labor this season can get around this difficulty by using basket racks in hauling bundles to the machine, while rings which have plenty of labor can use these racks to eliminate several men and thereby make a saving, according to C.A. Bonnen, of the farm organization and management department, College of Agriculture. Actual experience has shown that the use of these racks, which eliminate field pitchers, saves about 20 per cent of the labor used in threshing, he pointed out.

This figure on the saving in labor through the use of basket racks is based upon a comparison which the farm organization and management department of the college made between one group of farms on which field pitchers were used and another group of farms on which basket racks and no field pitchers were used. Farms in both groups used the same sized threshing machines, threshed just about the same amount of grain a day and had the same average yields. Also the number of men employed on all jobs except bundle hauling was the same.

It was found, however, that on the farms where the field pitchers were used it took from 15 to 16 men to do the same work that 11 men did on the farms where the basket racks were used. The group of farms on which field pitchers were used averaged 9.6 bundle haulers and six field pitchers, while the group of farms which used basket racks used 11 bundle haulers and no field pitchers.

"Most small threshing rings use basket racks, while most large rings use field pitchers. This has led to the belief that with a small threshing machine a given quantity of grain can be threshed with less man labor than with large machines. The saving in labor, however, is due to the use of basket racks and not to an advantage in the size of machines used."

Basket racks and the saving in labor that is to be made through the use of them are discussed in detail in a new bulletin entitled, "Successful Threshing Ring Management", which has just been published by the college and which may be obtained free.

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Can Save Feed By Culling Hens As They Stop Laying

Although August and September are the best months to cull the poultry flock to get rid of poor layers, chicken raisers can add to their profits by going over their flocks now and throwing out the hens as they quit laying, according to John Vandervort, poultry extension specialist of the College of Agriculture. This saves boarding such hens for the rest of the summer, he pointed out.

"At no time, however, can intelligent culling be practiced on a flock unless the hens in it have been fed and managed so that there is no possible chance of their being thrown out of production by careless methods. Ordinarily, poor producers stop laying early and begin moulting and, in the yellow skinned-breeds, the shanks and beak take on a deep yellow color. However, one should not rely on the molt and pigmentation tests alone but also should handle the birds for body type, condition of abdomen and appearance of head. It is unsafe to rely on any one test.

- M -

Poor Varieties Are Back Of Many Alfalfa Failures

Failure after failure in alfalfa growing has been traced to a poor variety, one which winter kills easily or one which is just not generally suited to the locality in which it was sown, according to W. L. Burlison, head of the agronomy department of the College of Agriculture. Important as soil treatment is in success with alfalfa, it is no more important than the variety or strain to be used, and farmers who are planning to seed alfalfa this fall will do well to use special care in selecting the kind they will sow, he pointed out.

"Hardy varieties of alfalfa, such as Grimm, have shown themselves to be thoroughly reliable in northern Illinois and are to be recommended for that section of the state. Grimm is one of the strains of variegated alfalfa and has a great reputation in America, especially in the northern states. It is a foreign importation which reached Minnesota in about 1857 and without doubt is to be recommended above all other varieties of alfalfa where winter killing is more or less serious.

"For the more southern portions of Illinois, the kinds of alfalfa that should give satisfaction are the Kansas, Dakota and Montana grown common types.

"Yields as high as four tons of alfalfa an acre can be expected when soil conditions are right, the proper variety or strain is sown and care is taken to make sure of the quality and source of the seed. Six varieties or strains that were tested by the experiment station of the agricultural college on its crop experiment field near DeKalb yielded almost 4¼ tons an acre as an average for five years, while Grimm averaged more than 4½ tons an acre. That Grimm is the best alfalfa for northern Illinois is shown by the fact that three strains of common alfalfa compared on the DeKalb field averaged only a little better than four tons an acre, while the Grimm made 4½ tons. On the central Illinois crop experiment field, which is located here at Urbana, the average yield of alfalfa for five years has been almost 4¼ tons an acre. Yields such as these will bring the farmer real returns."

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Worm Expellers Needed If Sanitation Was Slighted

Spring pigs which have not been protected from round worms by being raised under swine sanitation principles will soon begin to show the effects of worm infestation, according to W.E. Carroll, chief of swine husbandry at the College of Agriculture. Use of worm expellers is the only hope for pigs of this kind, provided their owners intend to make paying porkers out of them. In the absence of sanitation it is better to use some standard worm expeller on infested pigs rather than to let their condition persist, he pointed out.

Oil of chenopodium and castor oil make a good worm expeller when mixed together in the proportion of eight ounces of oil of chenopodium and one gallon of castor oil. This is enough to treat 130 pigs weighing 50 pounds each, as one ounce, or two tablespoonsful, of this mixture is enough for a pig weighing 50 pounds.

"Pigs should be taken off pasture and other feed for 24 hours previous to treatment, as the worm expeller may be diluted to the extent that it will not be effective if it is administered while the animals are on feed. The pigs should be treated individually with a syringe, the dose being placed well back in the mouth."

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Raise Largest And Best Litters Ever By Using Sanitation

Farmers and hog raisers who are following the swine sanitation system advocated by the College of Agriculture and their county farm advisers are raising an average of about seven good pigs to the litter this year, according to E. T. Robbins, livestock extension specialist of the college who has charge of the demonstrations which these farmers are conducting.

In contrast to this, many poor records are being made on farms where careless, old time methods are still being followed, he reported. Farmers who raised their pigs in old hog lots already have lost part of them through worms and associated troubles, such as necrotic infection, while many of the porkers that did pull through are unthrifty and stunted, he said.

In a recent inspection of 186 of the swine sanitation demonstrations in 19 counties of the state, Robbins found that farmers who were following the plan were pleased with its simplicity and success. Many of them reported that their pigs are the best and their litters the largest that they have ever raised. Farmers who have been following the swine sanitation system for several years are now thoroughly convinced that it is the only practical way to produce pork.

In several instances, farmers were found who were raising part of their pigs under the sanitation system and part of them by the old methods, thus furnishing a convincing demonstration as to the value of the recommended method. Pigs raised on worm infested land showed the effects of it. One demonstration of this kind was found on the farm of Harry Faulkner, near Carthage. He has good sanitation pigs and pigs a month older that were raised the old way. The pigs raised the old way average no better than the younger sanitation pigs, two of them are runts and all of them lack pep, despite the fact that they have been fed more generously than the sanitation pigs.

- M -

Old Fashioned Cesspool Poor Means Of Sewage Disposal

Old fashioned cesspools are a mere makeshift when it comes to taking care of the sewage disposal problem for farm homes that have complete water systems, according to E. W. Lehmann, head of the farm mechanics department, College of Agriculture. About the only satisfactory solution for this problem is the septic tank. There are exceptional cases where a septic tank may not be needed, as is the case when there is a large body or stream of water handy into which the sewage may be discharged without harmful results. However, this should never be done without the permission of the state department of health.

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Gardeners' Insect Tax Amounts To Almost Four Millions

Illinois vegetable growers pay an annual insect tax of almost $4,000,000, according to a new circular which C. C. Compton, assistant entomologist of the state Natural History Survey, has prepared in cooperation with the horticultural department of the College of Agriculture. Latest figures place the value of the state's vegetable crop at nearly $20,000,000 and it is safe to say that an average of 20 per cent of this crop is destroyed by insects, according to the circular.

Last year the onion maggot alone caused a loss of nearly a half million dollars in Cook county's onion set crop, which is valued at more than $1,000,000 according to the bulletin. Other million-dollar crops that suffer an annual loss of 10 to 50 per cent by insect attack are tomatoes, cucumbers, cabbage and sweet corn. Ten insects alone, comprising the most destructive ones of vegetables, cause an annual loss of more than $3,500,000 the circular adds. These insects are listed as the onion maggot, onion thrip, potato leaf hopper, cabbage maggot, cabbage worm, corn ear worm, striped cucumber beetle, asparagus beetle, flea beetle and plant lice.

"Although the use of insecticides is essential for the maximum production of most truck and garden crops, the use of cultural methods is of great importance as a preventive means of controlling many insects", the circular continues. "This fact is sometimes overlooked by gardeners who follow carefully arranged spraying schedules."

In view of the importance of cultural methods, the new circular presents these methods along with the spraying and dusting systems that have been found most effective for combating the more common insect pests of truck and garden crops in Illinois. Important points in the life history, together with a brief description of each insect, also are given in order that growers may apply control measures more intelligently.

The new circular, which is entitled "Insects Feeding on Truck and Garden Crops and How to Control Them", may be obtained free by writing the agricultural college.

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Broody Hens Become Layers On A Feed Of Milk And Mash

Feeding broody hens milk and mash to stimulate their egg production is the quickest and only right way to break them up and get them back among the profit producers of the flocks, according to Dr. L. E. Card, chief of poultry husbandry at the College of Agriculture. The usual practice of neglecting such hens only keeps them in the nuisance class that much longer and delays the time when they will start laying again, he said.

"Broody hens should be taken from the nest as soon as they show a tendency to remain there overnight and confined in a slat bottom coop which is entirely empty in so far as nesting material is concerned. If possible, this coop should be in a cool place, outside in the shade of trees being a good place. These hens should then be fed milk if it is available and they may be given moist mash once daily. In any event, they should have the regular dry mash, which is fed to the laying hens, kept before them throughout the time that they are confined.

Actual Costs Should Fix Cooperative Threshing Charges

Expenses connected with the financing of cooperatively owned threshing machinery cannot be fairly distributed among all the members of the ring unless the bushel rate charged each member is based on actual costs which include all cash expenses, depreciation on the equipment and a fair rate of interest on the investment, according to C. A. Bonnen, of the farm organization and management department, College of Agriculture.

The usual practice of charging members of a cooperative ring the custom rate of the community is fair only when the custom rate will just cover the expenses of operating and maintaining the machinery and when each member threshes approximately the same amount of grain, he pointed out. Under efficient management, the expense for each bushel of grain threshed by a cooperative ring will be below the custom rate, while the expense may be considerably higher than the custom rate under inefficient management.

When the ownership of the machinery is equally divided and a charge lower than actual costs is levied, the man with a large job is favored, while the man with a small job is favored when the charge is levied at a rate higher than actual costs. The inequality of this situation increases directly with differences in acreage and with variations from the cost rate.

If costs are to be fairly distributed among the members of a cooperative threshing ring, the bushel rate must be determined at the end of the threshing season. In the actual settlement each member should be credited with the full amount of depreciation and interest on his share of the equipment and should pay to the treasurer only the balance of his account. When every member has paid his balance there should be just enough money in the treasury to pay the cash expenses for the year.

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Trimming Prevents Crooked Feet And Legs In Show Pigs

Crooked feet or even crooked legs in pigs that are being fed rather rapidly for show purposes often can be prevented by the timely use of a jack knife on the growing horn of the foot, according to W. E. Carroll, chief of swine husbandry at the College of Agriculture. As a general rule, the feet of pigs that are being fed for show need more attention than they get, he said.

"Frequently show pigs are not exercised very much and their feet grow rapidly without being worn off. As a matter of fact, however, show pigs often can be fed with safety at a faster rate if they are given plenty of exercise. This not only results in a more healthy pig, but also lessens the danger of the fat being loose and patchy. Exercise, of course, should be given on cool days or in the evenings and mornings, rather than during the heat of the day. It may be necessary to drive the animals to get them to take enough exercise."

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Prevention Stressed As White Snakeroot Poisoning Spreads

Trembles, or white snakeroot poisoning, of cattle, horses and sheep, caused by their eating the white snakeroot weed, is continuing to cause heavy losses in Illinois livestock and members of the animal pathology division of the College of Agriculture have redoubled their efforts to get farmers to adopt preventive measures. All pastures to which cattle, horses and sheep have access should be inspected carefully for the presence of white snakeroot plants and the animals kept off of any areas where the weed is found, the pathologists have warned. White snakeroot is found only in shaded or wooded areas.

The most recent and one of the most serious outbreaks of the white snakeroot poisoning was discovered in a herd of 171 purebred Herefords belonging to Colonel George G. Seaman, Taylorville, Fourteen calves and six cows in the herd died during the early stages of the poisoning and others probably will be lost. Had it not been for a treatment given every animal in the herd by Dr. A. R. Kincaid, Stonington, the losses probably would have run much higher. The outbreak on Colonel Seaman's farm follows a serious outbreak in a herd of 34 purebred Holsteins in a northern Illinois county.

Not only does the white snakeroot poison cattle, horses and sheep, but also the drinking of milk and the eating of milk products from poisoned cows may result fatally for humans, according to Dr. Robert Graham, chief of animal pathology and hygiene at the college. There are a number of instances in both Illinois and other states in which the weed is held responsible for the sickness and death of human beings, while it annually causes an enormous, though sometimes mysterious, loss in livestock, he said. The death of Abraham Lincoln's mother is said to have been caused by the weed.

The unusual thing about the outbreaks of white snakeroot poisoning in Illinois this year is the fact that they are appearing earlier than usual. This is due to the premature drying up of pastures this year as a result of spring drouths. Normally, the weed does not cause the characteristic trembles in livestock and the consequent milk sickness in humans until the latter part of August after pastures have dried up and livestock turn to the weed as a source of green and succulent feed, according to Dr. Graham.

Fear that the white snakeroot poisoning will continue to be serious unless farmers and stockmen use extreme precaution in keeping stock off of pastures that are infested with the weed is based on evidence that the plant is widespread in wooded areas of the State. Farmers are sending the college specimens for identification at the rate of three and four a week.

Dr. F. A. Laird, state veterinarian, Springfield, is using all the resources of his office in the prevention of further outbreaks of the poisoning.

White snakeroot poisoning is discussed in detail in Circular No. 295 which may be obtained free by writing the college.

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Good Cows Worth $138 More A Year Than Poor Producing Ones

High producing cows which give more than 10,000 pounds of milk annually are worth an average of about $138.06 more a year than low producers yielding less than 4,000 pounds of milk in 12 months, according to records which H.E. Jamison, assistant in dairy extension at the College of Agriculture, has just compiled on 4,565 cows in 16 of the 27 dairy herd improvement associations of the state. In the group of 4,565 cows there were 625 which produced more than 10,000 pounds of milk in a year and each of these returned their owners an average of $167.94 a year above feed costs. In contrast to this, the returns from 380 cows which produced less than 4,000 pounds of milk in a year averaged only $29.88 above feed costs. This figure is barely large enough to meet the incidental expenses in dairying, such as labor, interest on investment, taxes and overhead, Jamison pointed out.

Despite the low return from some of the cows, the average return above feed costs for the entire group of 4,565 was $96.55 a cow, an amount large enough to pay all the expenses and leave the dairymen a fair profit. However, this group of cows produced an average of a little more than 7,000 pounds of milk a cow a year, or about twice as much as the average production for all cows in the state.

In view of the fact that the average production of all dairy cows in the state is only about 3,500 pounds of milk a year, many of them fall below this mark, in Jamison's opinion. This would put them in a class with the 380 cows which returned their owners only $29.88 above feed cost during the entire year.

While the cows which produced less than 4,000 pounds of milk a year - perhaps averaging 3,500 pounds - returned their owners less than $30 above feed costs, a further study of the records shows that the cows which produced just twice this much, or an average of 7,000 pounds of milk apiece a year, returned their owners an average of slightly more than $90 above feed costs in a year. In other words, they returned three times as much profit, although they produced only twice as much milk. Similarly, the cows that produced three times as much milk as those in the low group returned their owners five times as much profit.

The 27 dairy herd improvement associations which are now operating in various counties of the state not only are giving dairymen facts such as these on economical production but also are furnishing them with a production record on each cow in their herds and giving them an insight into their feeding problems, Jamison said.

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Prospects Favorable For Illinois Apple Growers This Year

With indications pointing toward a 20 per cent larger crop of apples in Illinois this year and a smaller national crop, growers in this state should be in an unusually fortunate situation in the marketing of their fruit, according to W. S. Brock, horticultural extension specialist of the College of Agriculture. It would appear that at no time during the past five years could the grower better afford to put forth every effort to produce maximum amounts of high quality fruit, he said.

Even last year when the nation's apple crop was larger than it will be this year, the fruit was easily marketed and growers fortunate enough to have even half a crop were well pleased with the season's operations, Brock pointed out. With a still further reduction in the crop this year, Illinois apples should command a good price, and added to this is the fact that there will be more of them than was the case last year, he explained.

Properly Rodded Buildings Escape Fire Damage By Lightning

Ninety per cent of all farm fire losses that are caused by lightning could be avoided by the proper use of lightning rods on farm buildings, in the opinion of E. W. Lehmann, head of the farm mechanics department, College of Agriculture. Investigations in Ontario have shown that lightning rods are more than 93 per cent efficient in preventing damage by lightning, while similar investigations in Iowa have shown that they are almost 99 per cent efficient, he said. This is an important matter for farmers, in view of the fact that a large percentage of all farm fire losses are caused by lightning, he pointed out. One mutual insurance company in Clay County last year found that lightning was responsible for 55 per cent of the farm fires with which it had to deal, he added.

There are many different makes and types of rods, but the principle of operation is the same for each. The function of the lightning rod is to allow the static charge in the earth to pass off into the air and thereby neutralize the attraction between the charge in the earth and the charge in the cloud above, thus preventing the lightning from striking. The essential parts of the lightning rod are the ground connection, the points and the conductor between the ground and the points.

Glass balls, wind vanes and other ornaments add to the appearance of lightning rods and the building on which they are used but do not increase the protection. Factors which enter into the choice of type of equipment are: Value of buildings, value of contents, protection of life and the money that is available for rodding. The efficiency and durability of the system will depend upon the workmanship and material used in construction.

Copper cable installation is the best, but it also costs the most. Iron conductors are used in cheaper and less efficient lightning rods. A metal roof is considered good protection against lightning if the four corners are grounded and if points are provided at the ridge. A round metal ridge will not let the charge pass into the air readily. All lightning rod systems should be grounded seven or eight feet deep, or to permanent moisture.

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Lime, Sweet Clover Make Even Fertile Soil Yield More Corn

Results which are being obtained on the soil experiment field which the College of Agriculture maintains near here are furnishing striking proof that corn yields on even the most fertile types of soil in the state can be swelled as much as 15 bushels an acre by liming the land and plowing under sweet clover as a green manure, according to H. J. Snider, assistant chief of the college's soil experiment fields.

Untreated land on this field has yielded 56 bushels of corn an acre as an average for the past eight years and yet despite the fact that this is a remarkably high yield, the use of limestone and the plowing under of sweet clover as a green manure has increased this yield to 71 bushels an acre. The field is located on black clay loam soil.

Much of the credit for increased corn yields such as this is given to the heavy root growth which sweet clover makes. At the time when sweet clover normally is plowed under in the spring for green manure, the roots make up from 50 to 90 per cent of the growth of the plant and almost as much nitrogen is carried in these roots as in the top growth. Furthermore, the roots carry this plant food deep into the soil.

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Douglas Breeders Produce First Half Ton Calf

By putting a total weight of 1,123 pounds on a single beef calf by the time it was a year old, H. L. Gates and Son, Douglas county Shorthorn breeders living near Tuscola, have won the first membership in the Illinois Half Ton Calf Club, according to an announcement by E. T. Robbins, livestock extension specialist of the College of Agriculture, who has charge of the club. The calf is a purebred red Shorthorn bull which Gates and his son nominated for membership in the club a year ago.

A roan heifer calf which Gates and his son nominated for membership at the same time and which they fed along with the red bull reached a weight of 930 pounds by the time it was a year old, thereby giving the two Douglas County breeders the honor of being the first Illinois farmers or stockmen to officially produce a ton of beef from two calves by the time they were each a year old.

The agricultural college inaugurated the half ton calf club last year to prove the merits of good breeding, proper feeding and the right kind of management in economical beef production. When nominated on July 18, 1924 for membership in the club, the calf which has just won for Gates and his son was 15 days old and weighed 122 pounds. Between that time and the date on which he was a year old, the animal gained an average of 2.85 pounds, or almost three pounds, a day, according to Robbins.

Home grown feeds were used almost exclusively by Gates and his son in putting the required weight on the calf, although they were compelled to buy a little bran and linseed oil meal to balance the ration which they fed. The calf's ancestors on both sides were thick-fleshed, block Shorthorns, he said.

All the milk which the two calves received was obtained from one purebred Shorthorn cow, both of them nursing the same animal until they were eight months old. During the first month they were on pasture and then after they were two months old they were put on a grain feed. This grain feed, up until the time the calves were eight months old, was made up of two-thirds shelled corn and one-third oats with just a little bran and linseed oil meal and all the clover hay they wanted. During the last four months, the two calves had ground corn with just a little oats and linseed oil meal. The clover hay was replaced with alfalfa during this period.

Throughout the entire feeding period, the calves never had any stock foods, molasses or bought mixed feeds. Toward the last they were eating 14 pounds of ground corn, two pounds of whole oats and two pounds of linseed oil meal daily a head. During the latter part of the feeding period, a pinch of salt was added to each feed, although the calves always had access to what salt they wished.

Much of the credit connected with the winning of the first membership in the club goes to the careful but practical system which Gates and his son followed in developing the calf. The son, C. E. Gates, is a graduate of the College of Agriculture and is now boys' club work specialist of the institution.

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Clover Killed By Drouth Can Be Reseeded Now

Severe drouth this year in sections of Illinois has practically killed all of the young clover in many wheat and oats fields and many farmers are investigating the possibilities of summer seeding clover in order to forestall another pasture and hay shortage next year, according to J. C. Hackleman, crops extension specialist of the College of Agriculture. There are several methods that can be followed with more or less success in the summer seeding of clover, but all of them are quite largely dependent upon whether or not the crop gets enough rain from now on, he said.

One method that can be followed with the summer seeding of clover is to disc up the oats or wheat stubble where clover was seeded and reseed the crop in late July or early August, harrowing the seed in very lightly. A second possibility is to prepare a thorough seed bed just as is done for summer seeding of alfalfa and then sow the clover. The chief objection to this method is the cost of seed bed preparation, which runs high when one stops to consider that the success of the clover depends entirely upon whether or not it gets enough rain.

A number of farmers have seeded and are seeding their clover in corn. Some seed it at the last cultivation of corn, while others are waiting to seed the latter part of July and the first of August. The question here again is one of rainfall. If the clover seed can be gotten into the ground by scratching the surface of the soil with some implement that will not cultivate more than an inch or so deep and enough moisture is available, the clover should make a good growth. Many times, however, at this time of the year, there is just enough moisture to cause the clover to sprout but not enough to keep it alive.

Farmers who are going to wait until next year to sow clover again can protect themselves against another failure by liming the land this fall where they intend to seed the clover next spring, Hackleman pointed out. In almost every community where the drouth was severe this year there are some fields of clover that went ahead and made a good crop. In most instances these are fields that had been limed and that consequently had grown a good crop of either red or sweet clover during the past few years. The soils on these fields therefore had a good supply of active organic matter in them to help hold the moisture.

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Stored Grain Heavily Damaged By Pests In Bins

A large percentage of the farm grain bins in Illinois are infested with insects which attack grain while it is in storage and in some cases these pests have caused the loss of from 25 to 35 per cent of the stored grain, according to a recent survey made by the State Natural History Survey, which is cooperating with the College of Agriculture in insect control work.

On other farms, where better care is given to storage conditions, there has been practically no damage to stored grain by rodents and insects, the survey showed. A part of the stored grain losses which Illinois farmers are now suffering because of insects may be prevented by thoroughly cleaning up grain bins while they are empty, making sure that all refuse and broken grain is entirely removed before the new crop is put in, according to W. P. Flint, entomologist of the survey.

- M -

Threshermen Could Reduce Cracked Grain Losses

Losses caused by grain that is cracked or broken in threshing reach a total that is far larger than most farmers imagine, according to I. P. Blauser, of the farm mechanics department, College of Agriculture, who is conducting a threshing investigation. In practically every case the threshing machine operator can eliminate the cracking of grain by seeing that the machine is properly adjusted, according to Blauser. There are seven common causes of cracked grain and one of these is too much end play in the cylinder. There must be a certain amount of this end play to keep the bearing from heating, but this play should not be more than one-sixty-fourth of an inch for plain bearings. For anti-friction bearings there should be practically no end play in the cylinder.

Another common cause of cracked grain is that the concaves are set too high. The concave and cylinder teeth are slightly wedge shaped and the clearance between the two sets of teeth is increased or decreased by raising or lowering the concaves. This clearance should be one-eight of an inch for wheat. Too many rows of concaves also will cause cracked grain. Care should be taken to see that just as few rows of concave teeth are used as will thresh the grain from the heads.

Grain also will be cracked when the cylinder and concave teeth are not centered. The clearance must be the same on each side of the cylinder teeth. This clearance can be adjusted by shifting the cylinder or concaves laterally. Bent cylinder or concave teeth are another cause of cracked grain and this can be corrected with a hammer. Too high cylinder speed also will crack the grain. If the grain is very dry it will be necessary to reduce the cylinder speed.

Too much grain coming back through the tailings elevator is the seventh cause of cracked grain. When a great amount of clean grain is returned through the tailings elevator, the cylinder is overloaded and cracked grain results. This can be prevented by adjusting the sieve and wind.

- M -

False Economy To Neglect Growing Pullets Now

Neglecting pullets at this time of the year will soon stunt them so badly that they never will develop into future profit makers, according to John Vandervort, poultry extension specialist of the College of Agriculture. Large, healthy pullets which pay returns can be had only by taking vigorous well-bred stock that has been given a good start in early life and feeding and caring for it properly during the summer months, he pointed out.

Improper feeding causes many pullets to develop slowly. It is particularly important that they be given a complete growing ration containing the three essentials for growth: animal protein, vitamins and minerals. When green feed is lacking it is especially important to supply a ration containing a liberal supply of vitamins A and B, else nutritional troubles are likely to appear. Animal protein and vitamins are needed for growth and minerals for bone growth.

Most of the requirements of growing pullets can be met with a mash made up of one part by weight of each of the following: wheat bran, wheat middlings, ground yellow corn, ground heavy oats, meat scrap and 1 per cent salt. This mash should be kept before the pullets at all times and can be conveniently fed in an open hopper. Milk is an excellent form of animal protein and if plenty of it can be given to the pullets, the meat scrap may be eliminated from the mash and one-fourth part of bone meal added. Pearl grits or finely ground oyster shell can be fed separately to supply calcium.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII | July 29, 1925 | Number 30

Illinois Farm Profits Last Year Highest Since 1920

Last year was the most profitable one that the Illinois farmer has had since prices took a slump in 1920, according to farm account records which 600 representative farmers in 14 different areas of the state kept in cooperation with their county farm advisers and the College of Agriculture. These farmers realized 5 per cent interest on a conservative valuation of all their farm property and still had an average of $1,163 each left to pay them for their own labor and management, according to a summary which H. C. M. Case, in charge of the farm organization and management department at the college, has just made of the records.

These farmers used an average capital of $35,059, including land, improvements, machinery, livestock, feed and supplies and on the basis of this investment they received a very conservative return for the risk and managerial responsibility which they had to assume. In addition to the interest and the labor and management return, it is probable that the value of house rent and food products supplied the family from the farm would exceed $500 a farm. This figure is based on a more limited study which the college has made.

The average size of the 600 farms was 196.8 acres; the land was valued at the average rate of $146.38 an acre; 87.5 per cent of the land was tillable; 15.9 per cent of the total area was in legume crops, while the average yield of corn was 38.2 bushels an acre; of wheat, 19.3 bushels an acre; and of oats 43.6 bushels an acre. Oats made an unusually good yield throughout the state, but in the counties growing the largest proportion of wheat, the yield was much below the average of 19.3 bushels.

Livestock and livestock products furnished an average of 51 per cent of the income derived from the farms, the average return being $135 from each $100 invested in cattle, hogs, sheep and poultry.

Operating costs were found to average $5.74 an acre for man labor, this amount including the cost of all hired labor, the value of the operator's own labor and the cost of the labor of members of the family valued at what it would cost if hired. On an average, 77.3 acres of crops were handled with one man and 22.1 acres with one horse, although in addition to horse labor, 47 per cent of the farms used a tractor.

The net income of the farmers was found to be $12.43 an acre, the gross receipts totalling $24.11 and the total expenses, not including rent of land, amounting to $11.68.

Data from each of the 14 areas have been summarized to show the average results for all farms in each area, the average results for the most profitable third of the farms and the average results for the least profitable third. These summaries have been returned to the cooperating farmers in each area, thereby giving them a standard whereby they can study their own operations and determine at which points their business should show better results.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director.*

Raise 400 Pigs From 60 Gilts Under Sanitation System

After losing almost half of their spring pig crop last year because of round worms and other associated troubles, Henry M. Seymour and his son-in-law, Emil House, prominent Adams county hog raisers, this year followed sanitary precautions with the result that they are succeeding in raising more than 400 pigs from 60 gilts. Last year without sanitation they saved only about 375 of 700 pigs farrowed by 100 gilts. Along with other Adams county farmers, Seymour and House are cooperating with the College of Agriculture, their county farm adviser, Ray E. Miller, and the local farm bureau in demonstrating the worth of the sanitation system which the college is advocating throughout the state this year.

Cleanliness throughout the farrowing period and the early life of the pigs is required in the sanitation system which Seymour and House are demonstrating and to this end they washed all of their gilts before they farrowed this spring. A power fruit tree sprayer was used for this purpose, the tank being filled with soapsuds. The gilts were driven into a chute one at a time and washed off with the suds which was applied with a spray gun. When the washing was over, all traces of dirt and possible sources of infection had been removed.

The gilts then were taken to clean pastures which were well removed from old contaminated hog lots and which were sown last year to a mixture of clover and timothy. Each gilt was allowed to select her own field shelter for farrowing and after the selection had been made the animals were not shut up in the shelters, nor were they given much individual attention at any one time.

The shelters for the individual sows and litters are made of two panels each 3 by 8 feet which are joined at the north and spread apart at the south. Rails are laid across these panels and straw placed on top. Some low, shed-type houses 5 by 6 feet also are used. They are covered with corrugated galvanized iron, the total cost of materials for each of the houses being less than $5. Seymour and House use division fences to keep the older pigs separated from the younger ones.

- M -

Simple System Leads To Rapid Improvement Of Wheat

C. J. Gerhart, a Lawrence county farmer whose application for the certification of his wheat crop was rejected in 1923 by the Illinois Crop Improvement Association because of impurities in the grain which made it unfit for seed, this year produced a crop that contained only one impure head in 4,100 which were counted. His success, which won the certification of his crop for him, was obtained by following a simple system of small grain improvement suggested by crop specialists of the College of Agriculture. In the field inspection of Gerhart's wheat this year, prior to its certification, representatives of the crop improvement association found that it was of excellent quality, that it contained practically no weeds, wild onions or garlic and that it probably would make between 22 and 25 bushels an acre.

The system of improvement which was suggested to Gerhart was started immediately after his application was rejected in 1923. He rogued out all the impurities he could see in three acres of the grain and that fall he planted his main field with the seed from this three acres. The following year he rogued out all the impurities in five acres of the grain. His crop this year was produced from the seed off this five acres.

- M -

Six Illinois Men To Speak At National Soybean Meet

Six soybean growers and authorities from Illinois have been scheduled on the program for the sixth annual field meeting of the National Soybean Growers' Association which will be held in Washington, D. C. the first three days in September, according to word received by J. C. Hackleman, crops extension specialist of the College of Agriculture. The address of welcome will be made by Secretary of Agriculture W. M. Jardine.

Although this is the first time that the meeting has been held outside of the corn belt, a large delegation of farmers and soybean growers will be present from Illinois, according to Hackleman. A low bus rate has been obtained for the round trip and plans are being made for the entertainment in Washington of any women who make the trip. Representatives of the federal department of agriculture, the Maryland Agricultural Experiment Station and the Virginia Crop Improvement Association are in charge of the meeting this year.

Illinois speakers who will appear on the program of the meeting and their subjects include Hackleman, "The Economic Value of the Soybean to Northern Agriculture"; I. C. Bradley, manager of soybean oil company, Bloomington, "Soybean Oil and Oil Meal Industry"; W. T. Riegel, prominent soybean grower, Tolono, "Small Grains Following Soybeans"; F. A. Wend, a representative of a Decatur firm interested in the processing of soybeans, "Growing Soybeans for the Oil Mill"; O. J. Sommer, president of the Illinois Crop Improvement Association, Pekin, "Soybeans and Crop Improvement Associations"; and John T. Smith, manager of a cooperative soybean seed company, Tolono, "Community Growing, Handling and Sale of Soybean Seed."

The meeting not only will give growers an opportunity to visit points of interest in and around the national capitol but also will enable them to get first hand information on new developments in the growing and handling of soybeans. Opening sessions of the meeting on Tuesday, September 1, will be held at the Arlington experimental farm, which is just across the Potomac River from Washington and which is part of the General Robert E. Lee estate. This farm adjoins Arlington National Cemetery. The second day will be spent at the farm of Harvey S. Clapp, president of the Virginia Crop Improvement Association. This farm is George Washington's old Union farm and is about one mile from Mount Vernon. The third day of the meeting will be spent at the Maryland Agricultural Experiment Station, College Park.

- M -

Farmers Value Terraces At $25 An Acre, Hanson Says

Illinois farmers who have been building mangum terraces are saying that they add as much as $25 an acre to the value of land by stopping gullies and preventing serious sheet erosion, according to F. P. Hanson, farm mechanics extension specialist of the College of Agriculture. More and more farms are being abandoned because of soil erosion, but this tendency will be checked before many more years if the interest in terracing continues to increase as it has during the past few years, he added. There are now about 5,500,000 acres in Illinois that are subject to serious erosion, but not all of this area can be profitably terraced. Some of it is too steep and had best be put in timber or permanent pasture. On the other hand, when terracing can be used it is the most effective mechanical method of preventing soil erosion. Mangum terraces, one of the most popular and effective types, can be built for around $2 an acre in Illinois. However, this cost is largely an item of labor and is not felt unless the labor is hired. Farmers who are interested in building mangum terraces can get detailed information and instructions from Circular 290, "Saving Soil by Use of Mangum Terraces, which is published by the agricultural college and will be sent free upon request.

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII · August 5, 1925 · Number 31

Georgia Tomato Disease May Menace Illinois Crop

Tomato growing in Illinois may be seriously menaced in the future by a new disease, known as "Grand Rapids", or bacterial canker, which this year troubled a number of southern Illinois growers who obtained their plants from Georgia, it is reported by Dr. H. W. Anderson, associate chief of pomological pathology at the College of Agriculture. Just what effect it will have on tomato growing in southern Illinois cannot be predicted at this time, but growers in that section should make every effort to check its spread, he warned.

That the disease was introduced on imported plants is indicated by the fact that in several fields as high as ten per cent of the vines from Georgia plants showed the disease, while adjoining blocks of home grown plants showed no indication of the trouble. Plants are stunted and killed by the disease, which evidently is caused by bacteria. It is supposed to be seed borne, but may also be transferred from plant to plant by insects, water and other agencies.

Among other precautions, Illinois growers should order no southern grown plants for next season; they should pull up, dry and burn all vines showing the disease and should plant no tomatoes or potatoes next year in the fields where the disease was present this season. The disease cannot be controlled by spraying, since it is entirely internal.

The practice of ordering southern grown plants for any region of Illinois cannot be too strongly discouraged. This habit is certain to introduce new diseases and insects which certainly will counterbalance any advantages which may be gained in earliness of bearing and hardiness.

Bacterial canker of tomatoes usually is evident first on the lower leaves which curl up at the edges but do not immediately turn yellow and wilt, as is the case with Fusarium wilt, another disease of tomatoes, according to Dr. Anderson. Finally, the leaves die at the edges and the entire plant becomes stunted and wilts and dies. When the leaves begin to curl, a cross section of the leaf stem will show small brown areas in the region of the vascular bundles, especially near the upper surface.

- M -

Sixteen Counties May Compete In Judging Contest

Approximately 16 counties are expected to be represented in the state judging contest for boys' and girls' club members which the College of Agriculture plans to hold August 17, it has been announced by E.I. Pilchard, boys' club work specialist. The chief honor which will be at stake among the young judges will be the right of the winning dairy team to represent Illinois in the dairy cattle judging for club members at the National Dairy Show to be held in Indianapolis, October 10 to 17. A state championship team in livestock judging also will be selected. Suitable prizes in the way of cash, medals and shields have been provided for the winning teams and individuals.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director.*

[illegible]

August 5, 1925

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Chicago Milk Market Study Revealed No Cure-All

No all-sufficing remedy for the ills of the Chicago milk market situation were unearthed in the recent investigation which the College of Agriculture made of the situation, but certain principles were worked out which may assist in the solution of the problems, according to a detailed report which the college has just published on its findings. The report takes the form of a 72-page bulletin entitled, "Marketing of Milk in the Chicago Dairy District". It was prepared by H. A. Ross, who directed the investigation and who at that time was an associate in dairy economy at the college.

Like other city milk markets, the Chicago market has not escaped the difficulties arising from price disagreements, the bulletin points out. Dissatisfaction among producers in the Chicago district has been manifested by four milk strikes in the last ten years, it adds. The investigation which the college made was undertaken with the twofold aim of analyzing the Chicago milk situation and of determining some of the fundamental facts underlying milk marketing.

Without offering a "rule of thumb" method of price making, the author of the bulletin suggests eight factors that should be taken into consideration in arriving at prices. These are: amount of surplus milk, prices of other dairy products, cost of feed and labor, pasture conditions, trends in the production of milk on individual farms, trend of consumption, relative profitableness of other farm enterprises and the trend in the raising of young stock.

The report of the investigation takes up the Chicago milk market and marketing agencies, the Chicago dairy district, milk production in the district, the consumption of dairy products in Chicago, surplus milk and the course of milk prices.

Interested persons may obtain copies of the bulletin by writing the agricultural college.

- M -

Soil Treatment Saves Hay Crop Failure At Enfield

Soil treatment in the form of limestone, rock phosphate and a green manure crop of sweet clover this year made the difference between success and failure with the hay crop on the soil experiment field which the College of Agriculture, University of Illinois maintains near Enfield, according to results compiled by H. J. Snider, assistant chief of the 32 fields which the institution maintains over the state.

Land which received this treatment produced approximately one ton of high quality hay an acre, while the crop was completely killed out on the land which was left untreated, according to Snider. Even a treatment of only limestone and sweet clover grown as a green manure crop resulted in a yield of three-fourths of a ton of hay an acre, he said.

The rotation grown on both the treated and untreated land on the field includes wheat, corn, oats and hay; the hay being a mixture of timothy, red clover and alfalfa. The hay crop on the field this year was of especially high quality, considering the dry season, Snider said.

Early Plowing Recommended As Wheat Yield Booster

Early plowing and preparation of wheat land at this time of the year may swell the yield of this grain by as much as eight bushels an acre, according to experimental results cited by W.R. Teacher, of the agronomy department, College of Agriculture. Late plowing and poor preparation of the seed bed usually go hand in hand, he said. The ideal seed bed for winter wheat is firm, fine and moist and preferably has a two to three inch mulch on top, according to Teacher, who says that ordinarily the plowing will be early enough if it is done just after the previous crop is removed.

For one thing, early plowing and thorough tillage of the soil aid in catching and conserving the water which falls, thus insuring germination. The benefits of this are especially noticeable in a dry season, for at such times the yield of wheat often is in direct proportion to the supply of available moisture in the soil at seeding time. Another advantage of early plowing is that plant food, especially nitrogen, is likely to be more abundant when the soil is plowed early. Then too, the compacting of the soil which accompanies early plowing increases the beneficial process known as nitrification. By this means the green material which is turned under will be more thoroughly decomposed and the plant foods that it contains made available to the growing seedlings. Experimental evidence shows that large yields are obtained only where nitrates are present in large quantities.

Control of weeds and insects are minor considerations which are involved in the question of when to plow. Early plowing will destroy noxious weeds and at the same time will often eradicate wheat insects. If the stubble is weedy, the land should be plowed early to conserve the moisture, although less benefit is obtained in clean stubble.

- M -

Loading Hogs Heavy To Save On Freight Is Poor Economy

Light loading of hogs during hot weather may seem like a waste of freight, but the losses from death when the animals are crowded together is apt to be much more than a few cents difference in the freight charges, it is pointed out by W.E. Carroll, chief of swine husbandry at the College of Agriculture. This matter of light loading is one of several things which, if carefully watched, would save many losses in the shipping of hogs to market during hot weather, he said.

One of the first precautions in loading hogs is that the car be thoroughly clean, bedded with sand and the sand thoroughly wet down. This will give the animals a little coolness from the floor. If the shipment can be made during the night, frequently no precautions other than light loading and wet sand in the cars are needed to prevent loss. Something more than this must be done, however, if the animals are in the cars during the heat of the day. Three pieces of ice weighing 75 to 100 pounds each not only will help to keep the sand wet but also will probably lower the temperature of the car three or four degrees. These pieces of ice should be suspended from the roof in burlap sacks, one piece in either end and one in the middle of the car.

Hogs shipped under conditions of this kind not only will be less subject to death from heat but also will reach the market in a vigorous condition ready to make a better fill than those which are subjected to extreme heat on the way.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII | August 12, 1925 | Number 32

New Disease Threatens To Be Factor In Alfalfa Growing

A disease, new to this state, is threatening to be a serious factor in alfalfa production. It was first reported from Stephenson county in the summer of 1924. Investigations during the present year have revealed occasional infected fields in nearly every county where a search was made. The disease is caused by bacteria which invade the whole plant. The above ground parts become stunted, pale in color and finally die. The most definite symptoms, however, occur in the roots. Here the disease causes a yellow to brownish discoloration in the newest woody tissue right beneath the bark. This can be seen very well either by cutting through the root with a sharp knife or by peeling back the bark. In badly diseased plants the yellow color may extend throughout the whole woody tissue. A rot often found in the old wood in the central part of the root, however, has no connection with this disease.

All indications point to the conclusion that the disease is carried by the seed. Nevertheless, the disease does not show outwardly during the first year, only fields that are two or more years old showing the symptoms. After plants show marked external symptoms they will not recover but die before the next season. After initial infection has occurred the disease spreads more or less rapidly through the field primarily, no doubt, by means of haying machinery. The disease was not found to spread into adjoining fields unless the same haying machinery was used for both. Very likely it also is spread by disks where farmers cultivate their alfalfa.

The same disease has apparently occurred for a score or more of years in the southern states and has occurred for some years as far north as Kansas. Whether or not it occurs in the more northern alfalfa seed growing regions is not yet definitely known. All people in the state who are suspicious of having this disease will do the state a good service by sending specimens of the roots to the Department of Agronomy, College of Agriculture, Urbana, together with information on how old the field is, how badly it is infected and where the seed was produced. One immediate hope in combating this disease is in avoiding infected seed. -- Benjamin Koehler, Crop Pathologist, College of Agriculture, U. of I.

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Plan Meetings For Two Soil Fields In Southern Illinois

Soil experiment fields which the College of Agriculture maintains near West Salem, Edwards county, and Sparta, Randolph county, will be the scene of field meetings on August 20 and 21, respectively, according to an announcement by H.J. Snider, assistant chief of soil experiment fields. Starting at 10 o'clock, the morning session of the West Salem meeting will be given over to inspecting the crops on the various plots of the field and discussing the different methods of soil treatment. The afternoon session will be held at the West Salem city park from 1:30 until 3:30 o'clock. Dr. F. C. Bauer, chief of soil experiment fields will be the principal speaker. The Sparta meeting will not start until 1:30 o'clock in the afternoon. Dr. Bauer also will be the principal speaker at this meeting.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director.*

The Extension Messenger

College of Agriculture - University of Illinois

[illegible] for Farm Advisers [illegible] from the [illegible] College, Experiment Station and Extension Service

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[illegible] For [illegible] In [illegible]

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Fall Plowing Has No Advantage In War Of Bigger Yields

Judged solely by the crop yields which it produces, fall plowing has no advantages over spring plowing, according to D. C. Wimer, assistant chief of soil physics at the College of Agriculture. There is a wide diversity of opinion among farmers as to the merits of fall plowing, but the facts are that this practice may be either be good or bad, depending upon the conditions under which it is done, he said.

Briefly, there are three outstanding conditions that are unfavorable for plowing in the fall. These are: (1) Hilly lands and areas subject to washing, which includes much land in the southern part of the state and land adjacent to streams throughout the entire state; (2) soils that are low in organic matter and have a tendency to "run together" badly when fall plowed. The light colored, fine textured soils fall into this group, and (3) early fall plowing for spring planted crops, since it stimulates unnecessarily the breaking down of organic matter and favors the loss of nitrates through leaching.

Among the benefits for fall plowing can be mentioned the possibilities of: (1) getting the plowing done during a slack season, thus avoiding the usual spring rush; (2) improving the physical condition of heavy soils, clays, clay loams and silt clay loams, because of the freezing and thawing action; (3) a deeper plowing, because of the weathering process and time for settling to which fall plowed land is subject; (4) greater utilization of the more resistant forms of organic matter, such as corn stalks and wheat straw, which are known to interfere seriously with moisture condition and prevent the accumulation of nitrates when turned under in the spring, and (5) controlling certain insect pests, such as white grubs, corn ear worms and chinch bugs.

Fall plowing may be necessary in some sections of the state where the soil is heavy and easily puddled if plowed a little too wet and where the under-drainage is not entirely adequate to take care of excess water sometimes present in the spring. Such land cannot be plowed early enough in the spring to get the seed bed in shape. Fall plowing undoubtedly could be practiced with excellent results on a greater acreage of Illinois' dark colored soils which are high in organic matter and which are not subject to washing.

Spring treatment of fall plowed land can offset or entirely destroy the beneficial effects on tilth obtained through the influence of winter temperatures. Occasionally, fall plowed land is worked too wet in the spring, but more frequently it is left until it has become too dry and hard.

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Corn Borer Infestation Is More Serious In Nearby State

Northern Ohio, the section from which the European corn borer is most likely to advance into Illinois, this year has a heavier infestation of the insect than in 1924 and furthermore, the pest appeared earlier this year as a result of the warm weather, according to W.P. Flint, entomologist of the state Natural History Survey, which is cooperating with the College of Agriculture in insect control work. Although it is not known how far the insect will advance toward Illinois this year, it is possible for the pest to be brought accidentally into the state at almost any time, in view of the heavy automobile traffic from the infested area in Ohio and other eastern states through Illinois, Flint warned. In order that there may be no delay in putting into practice the control measures that have proved effective in combating the insect entomologists of the survey are making a special effort to determine when and where the first borers appear in the state. Persons finding a worm boring into the stalk of corn, beets, spinach, dahlias, gladiolus or other flowering plants have been asked to send it to the survey.

Gives Suggestions On Best Types Of Wheat For Illinois

Farmers in central and northern Illinois will get their best wheat crops by growing hard wheat of the Turkey Red type, while soft wheats will give the greatest satisfaction on the light soils of southern Illinois, according to experimental results which are being collected by the College of Agriculture. Regardless of the region in which it will be grown, any variety of wheat that is seeded this fall should be judged by uniform high yielding capacity, the quality of flour it is capable of producing, its winter hardiness, the stiffness of its straw and its resistance to disease, it is pointed out by R. W. Stark, of the college agronomy department.

Turkey Red 10-110 and Kanred are two strains of hard wheat of which there are considerable supplies of pure seed within the state, according to Stark. Good varieties of soft wheats are Fulcaster, Fultz, Trumbull and Fulhio, both of which are pure line selections of Fultz; Poole and Portage, pure line selection of Poole.

Both Turkey Red 10-110 and Kanred are winter resistant and productive and in addition Kanred is resistant to certain forms of rust. Both these strains belong to the bread type of wheat and will produce flour of excellent quality. They are susceptible to environmental conditions, however, which affect the strength of flour produced from them. Another objection is that the straw which they produce is weak, thereby making the grain subject to serious lodging on fertile soil.

The chief advantage which the soft wheats have over hard ones in southern Illinois is the fact that they are better producers on the light soils in that section. In addition, soft wheats usually bring a better price than hard wheats on the markets to which southern Illinois is tributary.

Development of new varieties or strains of wheat which may be superior in some one or more characters to varieties now being grown is contemplated in the Illinois wheat improvement program which the college recently launched. The chief aim of the plan, however, is to determine the varieties of wheat which are best adapted to the different sections of the state and then encourgage their general adoption in those regions.

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Better Lambs Will Soon Repay Added Cost Of A Good Ram

Holding back on the purchase price of a breeding ram is poor economy when adding ten or $20 to the price would give the farmer a sire from which he could get lambs that would reach market weight in a shorter time and sell for perhaps as much as $2 a head more than those from a cheaper ram, it is pointed out by A.K. Mackey, of the sheep division, College of Agriculture. The ten or $20 extra that is paid for the ram may add as much as 50 cents a lamb to the siring charge, but this is far outweighed by the possibility of getting lambs that will be growthier and sell for a higher price.

The thing for the individual farmer and sheepman to do in determining the price that he can afford to pay for a ram is to consider the number of ewes that are to be bred and then divide the proposed price by the number of lambs which can be expected in two seasons, the usual length of time for keeping the same ram in the flock. In this way the initial siring charge of each lamb can be calculated and with that figure in mind, each man can determine for himself the price he can afford to pay for a ram.

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Investigations Show Fowl Tuberculosis Is Menace To Swine

Control of tuberculosis in swine, which animal disease authorities formerly thought could be accomplished automatically by cleaning up the disease in cattle, cannot be successfully done until another type of the disease - the avian type, which appears in poultry - is suppressed, according to investigations which have been made during the past three years at the College of Agriculture.

The number of swine retained by federal inspectors at the principal packing houses because of local lymph gland tuberculosis has been increasing steadily despite the fact that marked progress has been made in eradicating bovine, or cattle, tuberculosis. In an effort to determine the cause of the increased retentions of swine, arrangements were made with packing houses in Chicago and St. Louis whereby representative lymph glands from hogs retained by the government inspectors were sent to the college for examination as to the type of tuberculosis present in them.

During the three years of the investigation, the avian type of tuberculosis was found to occur far more frequently than the bovine type in these local lymph gland infections, which are responsible for the retention of hogs. Infected lymph glands were examined from representative hogs in 82 different carloads, with the result that the avian type of tuberculosis was found in 58.5 per cent of the carloads. The bovine type of tuberculosis was found in only 2.4 per cent of the 82 carloads, while the type of tuberculosis present in 23.1 per cent of the carloads was doubtful. However, in many of these doubtful cases, the type present very probably was the avian, according to Dr. Robert Graham, chief of animal pathology and hygiene at the college.

Twenty-six different counties in the state consigned the carloads of hogs in which the avian type of tuberculosis was found. Most of these counties are in northern and western Illinois, only a few being in the southern and eastern part of the state.

Discovery of the new relation between avian and swine tuberculosis does not in any way minimize the possibility of cattle tuberculosis being transmitted to swine, Dr. Graham pointed out. On the contrary, it only adds an additional source from which hogs may contract the disease and which therefore must be reckoned with under farm conditions, he said.

When tuberculous chickens associate with healthy pigs, the pigs may contract the avian type of tuberculosis in from 60 to 90 days, it was found in exposure tests made by the college. Even hogs that are affected with the avian type of the disease may communicate it to healthy pigs by constant association with them.

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Spraying the late celery crop for the control of blight should start about the middle of August and be repeated once a week until four or five applications have been made. A very thorough application should be made just before the celery is boarded or banked for blanching.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

Nearly Half Of All Farms In Illinois Operated By Tenants

Nearly every other farm that one passes on the road in Illinois is rented, according to Robert R. Hudelson, extension specialist in farm organization and management at the College of Agriculture. If farm property in this state is to be maintained on a profitable basis, therefore, it is almost as important for land owners and their tenants to draw up leases that will be leases and not "mining" contracts as it is to carry insurance on the buildings, he pointed out.

More than 100,000 Illinois farms, or about 43 per cent of all those in the state, are rented and most of the leases for these are drawn up in the early fall. Consequently, this is the time of the year for landlords and tenants to consider carefully the many details which can be settled best when the contract is made.

Chief among details which should be considered are the relative contributions of property and labor of each party to the contract and a corresponding division of income. In this connection it is important to keep in mind the protection of future income by upkeep of soil and improvements. No two farms are alike and standardized printed lease forms need much revision. Adaptable forms which can easily be made to fit most farms have been prepared by the college.

It is true that the chief purpose of the lease contract is to divide the income from the leased farm justly between the landlord and the tenant. What is just as important, however, is that the lease determines whether or not the farm property shall be maintained in a state to continue producing income. Reduced productiveness and eventually a diminished income invariably are the result of a short term lease with no restrictions as to cropping systems, removal of crops or the return of fertility.

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Soil Treatment Trebles Average Wheat Yield On Ten Fields

From a half bushel an acre on untreated land up to 49 bushels an acre on treated land this year was the range in wheat yields on ten soil experiment fields which the College of Agriculture, maintains in the southern part of the state, it has been announced by H.J. Snider, assistant chief of the fields. As an average for all ten of the fields, the treated land made 30 bushels of wheat an acre, while the untreated yielded an average of only 9⅓ bushels an acre. Limestone, rock phosphate and organic matter, either in the form of stable manure or sweet clover green manure, composed the treatment used on the fields.

On the basis of the increased wheat yields from these ten fields, one ton of limestone gave a return of approximately $26.40, according to Snider. This was the largest gain produced by any fertilizer material that was used on the land.

The ten fields included those near Carlinville, Elizabethtown, Enfield, Raleigh, Newton, Oblong, Toledo, Lebanon, Sparta and Ewing.

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DeKalb Team To Compete For State At National Dairy Show

DeKalb county's dairy cattle judging team, composed of Donald Nelson, Leonard Lanegran and Clifford Erickson and coached by E.C.Nelson, assistant farm adviser, will represent Illinois in the dairy cattle judging contest for boys' and girls' club members to be held in connection with the National Dairy Show in Indianapolis, October 10 to 17. This team won the state championship in dairy cattle judging at the state judging contest for 4-H club members held this week at the College of Agriculture. The Bureau county team, coached by J.B.Haberkorn, assistant farm adviser, won the state championship in livestock judging.

Ear-Row Method Of Corn Breeding Is Passing Out Of Favor

Careful selection of seed corn in the field, combined with proper handling and germination tests of the ears, gives about as good results in corn breeding and improvement as the more elaborate ear-to-row system, according to experiments which have been conducted by corn breeders of the College of Agriculture. Although the ear-to-row method of breeding corn was much talked of several years ago, very little is heard about it now, because many of those who were following this method have discontinued it and few are practicing it, according to Dr. C.M. Woodworth, associate chief of plant breeding at the college. It is true the ear-to-row breeding was effective in improving corn, but the method was complicated and required considerable care and attention.

The field, or mass, selection method which was studied in the tests proved highly effective both in increasing the yield of corn and also in improving the quality of the product. This method provides for "broad" breeding as opposed to the "close" or "narrow" breeding that featured the ear-to-row method. Mass selection has many points in its favor, one of the most important of which is that it provides for the selection of seed corn from a large acreage. The larger the field the better are the chances of finding desirable plants. The method is simple and easily carried out by anyone who is willing to take the pains to make the selections and germination test.

In the fall a considerable acreage is examined for ears that are borne on healthy, vigorous stalks, a large number of well matured ears being selected from such stalks. Proper care is taken of these selected ears and then during January and February all ears that are light in weight, starchy, lacking in luster or that show other symptoms of being diseased are eliminated. Finally, the best ears are tested on the germinator. Those ears that successfully meet all tests are shelled to make up the seed stock.

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U. of I. Exhibit At Aurora Fair Will Have Many Features

Home landscaping plans, a method of keeping milk more wholesome by keeping down the bacterial count, the European corn borer and the steps which can be taken to protect Illinois corn from the ravages of this insect, the Morrow soil experiment plots, oldest of their kind in the United States, and the value of a balanced ration for increased and more profitable egg production are among the features of the exhibit which the College of Agriculture, University of Illinois will make at the Central States Fair Exposition, Aurora, August 21 to 29, according to an announcement by E.D. Griffin, who is in charge of the display.

In addition, the college exhibit will give a contrast between ancient and modern farm machinery and show the large number of factors which influence the kind of crops grown and the kind of livestock kept in various sections of the state. The exhibit will occupy a space 48 by 24 feet in the northeast corner of the Horticulture and Agriculture building.

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ILLINOIS POULTRY FLOCKS

Frequent reports of fowl typhoid in Illinois poultry flocks are being received at the College of Agriculture, and indications are that many flocks in the state are suffering from this disease, according to Dr. Robert Graham, chief of animal pathology and hygiene at the institution. Just recently the disease has been found in Grundy, Fulton, LaSalle and Champaign counties. Fowl typhoid, which is caused by bacteria, is contagious and in infected communities can spread from flock to flock. Sanitation is the most effective method of checking the disease.

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Acid Tolerant Legumes Cannot Displace Use Of Limestone

Farmers whose land is too acid to grow the ordinary legumes cannot get around the problem successfully by abandoning their liming programs and using acid tolerant legumes instead, according to O.H.Sears, assistant chief of soil biology at the College of Agriculture. Legumes of all kinds have long since established their value in maintaining land in a productive condition, but a big area of soils throughout the United States has reached the point where many legumes cannot be grown successfully without the use of limestone. The recommendation that liming be done away with and only acid tolerant legumes be grown does not fit into a system of profitable and permanent agriculture for several reasons.

In the first place, most legumes which grow on acid soils produce less crop material and have a considerably smaller root development than those grown on sweet soils. As a result even such acid tolerant legumes as the soybean and cowpea are able to utilize less atmospheric nitrogen an acre than crops such as sweet clover and alfalfa, due to the fact that the beans and peas not only produce less top growth but also have only about one-tenth as much nitrogen in the roots as is contained in the alfalfa or sweet clover roots.

Then too, the presence of limestone in the soil not only encourages the growth of legumes but it also aids in their decay when they are plowed under as green manure crops. On the other hand, the absence of liming material in the soil hinders the activity of the beneficial bacteria which are responsible for the formation of available nitrogen in the soil through the decomposition of organic matter. Even though acid tolerant legumes may "fix" considerable nitrogen on sour soils, only about one-half of this can soon become available for the non-leguminous crops that follow.

On soils containing limestone there are certain bacteria present which live on the organic matter and use the nitrogen of the air in their growth. Thus like the legume bacteria, they are adding to the soil's supply of that most expensive plant food element, nitrogen. These bacteria are absent in soils needing limestone and as a result such soils do not have the accumulation of 15 to 25 pounds of nitrogen an acre a year which the well limed soils receive.

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State-Wide Program Needed To Suppress Diseases Of Corn

A state-wide program to reduce the ravages of common corn diseases is needed and should be encouraged, according to a new circular entitled, "Diseases in Illinois Seed Corn as Found in the Fifth Annual Utility Corn Show", which the College of Agriculture has just published and now has ready for free distribution to interested persons. A study of the germination records of the corn samples shown at the last Utility Corn Show, held at the college in January, 1925, shows that certain common corn diseases occur in even the better class of seed corn in Illinois. The average seed corn of the state is probably much more severely infected, according to the circular. It was prepared by Benjamin Koehler and N.A. Pottinger, members of the college agronomy department, who made the study.

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Food Poisoning In Poultry Becomes Serious In Illinois

Food poisoning is making heavy inroads into Illinois poultry flocks just now and farmers and poultrymen should watch carefully to see that their fowls do not get decayed or spoiled food, according to a statement by Dr. Robert Graham, chief of animal pathology and hygiene at the College of Agriculture. The disease can be prevented by making sure that the flock gets a wholesome ration. Within the past month, eight cases of food poisoning, which is a paralytic disease, have been discovered by the college in different parts of the state. The most recent case is one here in Champaign county in which the flock owner has lost 200 chickens this summer. Another farmer, living near Lincoln, lost 12 of his Barred Plymouth Rocks within three days, while another flock was practically wiped out by the poisoning. Cases of the disease have come to light in Macon, Hancock, Brown, Champaign and DeWitt counties. Four of the eight cases have been discovered here in Champaign county.

Losses in some cases of food poisoning have been directly traceable to the eating of spoiled carcasses. Many of the outbreaks probably could be prevented by burning the carcasses of birds, rats, and chickens that die from any cause. The practice of feeding chickens spoiled canned goods, tainted meats or the decomposed vegetables is to be discouraged. Losses in valuable flocks sometimes may be saved by the use of anti-toxin, but the curative value of this anti-toxin seems to be limited and best results therefore will be obtained by treating the chickens in the early stage of the disease.

Food poisoning is caused by organisms which are widely distributed in the soil. The most common symptom of the disease is paralysis and when the neck muscles are involved, the disease is referred to as limberneck. Chickens in the early stage of the poisoning have dull eyes that are partly closed and when the chickens move they are weak and unsteady.

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Common Salt Or Flake Napthalene Best For Flea Control

Fleas are always more troublesome than usual just at this time of the year, but they are apt to be especially bad in those sections of the state where the weather has been dry, according to W.P.Flint, entomologist of the state Natural History Survey, which is cooperating with the College of Agriculture in insect control work. For the control of these pests, Flint recommends the common salt or flake napthalene methods, both of which are credited with having cleaned up many badly flea-infested places in the state.

The best method to follow in going after fleas is first to clean out the manure or straw from pig or cattle sheds or from barns, especially in the case of dirt floors where farm animals are in the habit of lying down or standing. The ground or floor of the buildings should then be covered with a good layer of salt, enough being put on to form a thin white coating over the ground. This should be allowed to remain in place for at least a week and then washed down, or it may be allowed to stay until it gradually dissolves.

Flake napthalene may be substituted for the salt. The crude flake napthalene can be bought in bulk. A strong lye solution applied to the soil also has been used effectively for cleaning up the young fleas. If the salt or napthalene cannot be applied, the floors or ground around the infested premises should be thoroughly sprayed with a strong stock dip, preferably a creosote or tobacco dip. Regardless of which method of control is used, pets or animals that are heavily infested should be dipped in or thoroughly washed or sprayed with some good stock dip.

Edwards County School Boy Raises Second Half Ton Calf

Southern Illinois has just produced the second beef calf to win a membership in the Illinois Half-Ton Calf Club and a farm boy just out of high school turned the trick, according to an announcement by E.T.Robbins, livestock extension specialist of the College of Agriculture. The boy, who is Gilbert Longtons, Albion, Edwards county, fed and developed a grade roan Shorthorn steer for a weight of 1,010 pounds by the time it was a year old, thereby meeting the requirements of the club with ten pounds of beef to spare. The club was started last year by the agricultural college to demonstrate that good breeding, proper feeding and the right kind of management lead to economical and paying beef production by making it possible to get calves in shape for the market at an early age.

Gilbert plans to follow up his latest success with beef cattle by entering the College of Agriculture this fall and specializing in animal husbandry work. He will sell his calf through the Producers' Commission Association on the East St.Louis market and in addition to the proceeds from the sale of the calf, he will get a $20 award from the association in recognition of his success with the animal.

The calf's dam, a high grade roan Shorthorn cow that gave about three gallons of milk a day when fresh, nursed the young beef until it was 10 months old. Throughout the feeding period, the calf was kept in the barn, being turned out only long enough for water and exercise. Grain was fed from the first. For 11 months, the ration included shelled corn, oats and bran, but the calf ate very little of the oats and bran. During the last month that the calf was on feed, it was fed ground corn and linseed oil meal, the average daily consumption being 15 pounds of corn and three pounds of oil meal. The roughage for the entire year was a poor grade of soybean hay.

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Sanitation Is Key To The Mystery Of Many Poultry Ills

Simple sanitary measures around chicken lots and houses would clear up many of the so-called "mysterious diseases" of poultry which are being reported to the animal pathology and hygiene division of the College of Agriculture every day and which are taking a heavy toll from the state's poultry industry, according to Dr. Robert Graham, chief of the division. These simple measures are more effective than medicine administered in the drinking water or bacterins given in a syringe. Unfortunately, many flock owners have discounted the value of sanitation and have resorted to medicinal measures without obtaining relief.

"While it has been known for many years that fresh ground free from filth infections and parasitic eggs was desirable in maintaining healthy flocks, the importance of these simple sanitary measures is commonly overlooked. Whenever a case of one of these so-called "mysterious diseases" of poultry comes to the laboratory of animal pathology for examination, the owner of the flock almost always admits that the chickens have been raised on the same ground year after year.

It probably is true that free range has delayed trouble by spreading the infection over a wide territory, but the ultimate prevention of many poultry ills cannot be successfully accomplished until yards are provided with a systematic rotation that will make it possible for the chickens to run on fresh ground every year. Another reason for practicing sanitation to keep down poultry diseases is that certain diseases of fowls such as tuberculosis and coccidiosis are communicable to other farm animals. Avian tuberculosis spreads to swine in 60 to 90 days through direct or indirect association, while coccidial infections in poultry are a source of danger to calves."

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Approaching Horse Shortage Brings Power Question To Front

Farmers need to consider the kind of farm power they are going to use five years from now. Information secured from 25 representative farmers in each of DuPage, Knox, Stephenson, Whiteside and Winnebago counties show that the colts on these farms will not replace the horses that wear out and die off. On the 125 farms there were 742 work horses more than three years old and 58 colts less than three years of age. Assuming that on the average horses will remain useful for ten years after reaching the age of three years, there should be 74 colts raised each year on these farms. In other words, there would need to be a total of 222 colts less than three years of age to maintain the work horses at the present number. According to these figures obtained from representative farms in these counties, the colts now being raised will replace only about 25 per cent of the horses that may be expected to be lost annually.

That this situation is not a local one but that it applies to the whole United States is shown by data collected by the federal department of agriculture through 26000 crop reporters, who, for the most part, are farmers scattered over the whole country. According to this data, there were less than 12 per cent of all horses less than three years of age, whereas there should have been about 24 per cent of all horses less than three years of age to maintain the present number of horses.

Quite naturally, a shortage of horses has not been experienced in recent years because tractors have been introduced to replace part of the horses. Consequently, even if no colts were produced and horses were not shipped in from the outside for a few years, no shortage of horses would be felt. This condition cannot exist indefinitely. Undoubtedly we are fast approaching the time when a shortage of horses will be experienced and the price of horses is bound to rise in the face of these conditions. The farmer must decide whether he will rely upon horses or tractors to meet this situation. The decision is not for this year but five years from now. Either tractors must be used in much larger numbers or more colts must be raised.

While horses may now sell for a price that will scarcely pay the cost of production, this condition is bound to change. Colts should be looked upon as a kind of by-product on corn belt farms. A colt can be raised while its mother helps care for the peak load of spring labor and the colt can be fed to a large extent upon roughage feeds which are not well utilized on many farms. It is part of good farm management to look ahead and meet farm problems that will have to be met in the next few years. -- H.C.M. Case, Farm Organization and Management Department, College of Agriculture, U. of I.

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Dr. Elmer Roberts, chief of animal breeding at the College of Agriculture, is the author of a new book entitled "Plant and Animal Improvement", which has just come off the press and which was written in consultation with Eugene Davenport, dean and professor emeritus of the college. The book is the only one which has been written for vocational agricultural and agricultural students in small colleges on the subject of the relation of genetics to plant and animal improvement.

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Good Soil Management Demands The Return Of Organic Matter

Some loss of organic matter from cultivated soils cannot be avoided. The optimum conditions for crop production are also the most effective in causing the decomposition of organic matter. It would not be desirable to prevent this process, because the benefits derived from this essential constituent are largely dependent upon its decay. Hence, good soil management demands that the conditions favoring the decomposition of organic matter be fostered, but at the same time, that provision be made for returning to the soil adequate amounts to maintain or increase in some soils, the total content. This is essential if the crop producing power of the soil is to be maintained.

In this connection, a good crop rotation is a necessity, because it makes soil improvement possible. Such a rotation will include crops that vary in their demands upon the soil. Legumes, which, under proper conditions, secure their nitrogen supply from the air, tend to recuperate the soil after it has been in other crops for some time. These are also deep rooted and tend to distribute the organic matter to greater depths than grasses. It must be remembered, however, that the stubble and roots of one crop, such as clover, in a three or four year rotation, is not sufficient to maintain the organic content of the soil. If little or no barnyard manure is produced, some provision must be made to turn under some entire crop during the rotation. This may be the second crop of clover or a catch crop sown in corn.

On livestock farms or under mixed farming conditions, farm manure is an excellent source of soil organic matter. Its value depends largely upon the method of handling before it is applied to the soil. If it has been exposed to the weather for three or four months, the value is greatly decreased. It is probably true that on most farms the manure produced loses from 50 to 60 per cent of its value before it reaches the soil. This represents an enormous loss, which should be reduced to a minimum. In brief, all practical means of returning organic matter to the soil should be utilized. The grain farmer should make use of green manures, while the livestock farmer can depend largely upon farm manure. Under systems of mixed farming, both these sources could be utilized to advantage. -- R.S. Stauffer, Soil Physics, College of Agriculture, U. of I.

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Extensive Use Of Oats For Hogs Warranted By Grain Prices

Since threshing, oats prices in comparison with those of corn and middlings are such that they warrant the rather extensive use of this grain in hog rations, according to W.E.Carroll, chief of swine husbandry at the College of Agriculture. It is true that oats are not especially valuable for fattening hogs, because of their bulk, but they can be used to good advantage for the breeding herd.

"Pigs that are being grown out for the breeding herd as well as mature breeding sows and boars may be pretty largely fed on oats where the price will justify it. If the hogs have access to a good legume pasture, good results will follow the exclusive feeding of oats. They probably should be ground for the younger pigs and for the mature ones, as well, if the cost is not too great. Ground oats will be found especially valuable in the brood sow's ration just before farrowing and during the suckling period. While the sow is milking heavily, probably not more than half the ration should be oats, or their bulk will crowd out the more nutritious feeds needed to make milk. For fattening pigs, ground oats may successfully make up one-fourth to one-third of the ration, according to the results of some experiments, although to be profitable they should be cheaper pound for pound than corn."

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Hancock Farmer Demonstrates Profitableness Of Early Lambs

Early lambs which A.E. Webb, a Hancock county farmer living near Niota, raised this year brought him more than $10 a head after all shipping expenses were paid, according to a report of an early lamb raising demonstration which he conducted in cooperation with the College of Agriculture and his farm adviser, J.H. Lloyd. Hancock county normally produces a considerable number of early lambs and the plan followed by Webb has been adopted by many of the flock owners. This plan has proved to be the most profitable way to handle the farm sheep flock in Illinois, according to E.T. Robbins, livestock extension specialist of the college.

Webb had 74 ewes which dropped most of their lambs in January and February although some of them came as late as April. All the lambs were docked and the ram lambs castrated before they were a week old. In all, the 74 ewes raised 106 lambs, giving them a production record of 143 per cent. The ewes were fed soybean hay and alfalfa hay. When the lambs were a week old they were offered grain. They were fed what they would clean up well of shelled corn and oats.

On June 2, Webb sold 16 of the lambs for $15.75 a hundred, their average weight being 68 pounds. Ten days later 16 more of the lambs weighing an average of 67 pounds were sold for the same price and then on June 30 he sold 15 more for $16.25 a hundred at a time when their average weight was 69 pounds. The remaining 58 lambs in the lot are later and most of them will be sold in September. The wool from the ewes brought $3.50 a fleece, selling at 44 cents a pound.

Ewes from which early lambs are to be raised should be bred in September, if this is at all possible, Robbins said. This brings the first lambs in February and they can then be made to weigh 70 pounds in June or before.

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Meetings To Be Held Soon On Three Soil Experiment Fields

Field meetings have been scheduled for September on three of the soil experiment fields which the College of Agriculture maintains over the state, according to an announcement by F. C. Bauer, chief of the fields. Wednesday, September 9, a meeting will be held on the Carlinville field in Macoupin county; the following day a meeting will be held on the Carthage field in Hancock county, and on Tuesday, September 29, a meeting will be held on the Unionville field in Massac county. This latter meeting is to be an all day session starting at 10 o'clock in the morning, while the meetings on the Carlinville and Carthage fields will be held only during the afternoons.

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Best Boy Stock Judge In State Is Outstanding Club Member

Donald Cameron, the 17 year old peoria county farm boy who turned in the highest score in livestock judging at the recent state judging contest for boys' and girls' club members held at the College of Agriculture has an outstanding record as a club member. This is his fifth year in club work, he produced the first ton-litter of pigs in Peoria county, he was high individual in the boys' and girls' swine judging contest at the 1923 National Swine Show, he has been president of his local club three of the five years that he has been a member and he now has three Duroc-Jersey brood sows and 19 spring pigs which he has produced as a club member.

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Record Dairy Show Features Club Activities At Aurora Fair

Illinois farm boys and girls who are members of 4-H clubs in their respective counties gave a good account of themselves as future farmers at the recent Central States Fair Exposition and contributed their full share toward the success of that event, according to a review of their activities by E.I. Pilchard, boys' club work specialist at the College of Agriculture. More than 400 club members took an active part in the fair either as exhibitors, club camp attendants or as members of judging and demonstration teams.

With a total of 60 dairy animals exhibited by as many boys and girls, the dairy cattle show which the youngsters staged was the largest dairy club show that has ever been held in the state, according to Pilchard. Twenty-five Holstein heifers less than a year old were exhibited in one class alone. Forest Weseman, a Kaneecounty boy, showed the grand champion animal. Boone county had the largest exhibit of any county, 16 calves being shown by club members from that section. Owners of all these calves came to the fair with their local community leaders and stayed at the club camp during the week of the exposition.

Kendall county took four out of the six major winnings in the pig club show. A total of 156 club pigs competed for prizes, 90 of the porkers being shown by Kendall county club members. Two head of baby beeves also were shown at the fair by club members.

Girls' club members had their inning in the demonstration team contest which was won by the Woodford county team composed of Izola Perrine and Ann Hunsinger, both of Eureka. This team will represent Illinois in the inter-state demonstration team contest to be held in connection with the coming Inter-State Fair at Sioux City, Ia. In all, 12 teams competed in the Aurora contest. Girls' club members also contributed another feature of the fair in the form of an exhibit of approximately 650 garments from 20 different counties of the state.

The camp held at the fair for club members lasted six days and was attended by 90 youngsters, 27 of whom were girls. Activities of the camp included hikes, inspirational talks, athletic contests, swimming and other forms of recreation.

- M -

Natural History Survey Calls Attention To Fly-Free Dates

Under normal conditions, Sept. 17 is the earliest date on which wheat can be sown in Illinois and escape damage from the Hessian fly, the worst insect pest of the crop, according to normal fly-free dates announced for the different sections of the state by W.P.Flint, entomologist of the state Natural History Survey, which is cooperating with the College of Agriculture in insect control work. Sept. 17 is the fly-free date for the extreme northern part of the state, while the dates for other section gradually become later and later toward the southern part. The dates and other information concerning the Hessian fly recently were sent to all farm advisers.

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Properly Handled Fall Pigs Are As Efficient As Spring Ones

Vigorous fall pigs that are properly fed and handled probably will make pork just as cheaply as spring pigs, W.E. Carroll, chief of swine husbandry at the College of Agriculture, said. On the other hand, if fall pigs become infested with worms the losses are almost sure to run high and in addition the growth of the pigs will be seriously stunted, thereby increasing the cost of making pork with fall pigs, he pointed out. Fall pigs handled under the swine sanitation system will have a vigor which will mean economical pork production when the animals are turned into the feed lot, and in addition the sanitation system will save many pigs which otherwise would be lost during the suckling period because of worms.

"Before they farrow, sows should be washed off thoroughly with soap and water, special care being taken to see that the sides and udders are clean. They should then be put into pens which have first been thoroughly cleaned and then scrubbed out with a solution of boiling water containing common household lye at the rate of one pound to 30 gallons of water. This should be applied when it is hot. Pens treated this way and allowed to dry and then disinfected with anyordinary disinfectant are fit to receive the sows which are about to farrow. If clean bedding is then used and the attendant does not carry in worm eggs on his feet, the pigs should get a clean start in life.

"When they are to be moved, the pigs should be put on clean pasture if such is available or else in lots which have not had pigs in them for two or three years and which have been cultivated in the meantime. The transfer from the farrowing pen to the pasture or lot should be done by hauling the sow and litter rather than by driving them over worm infested ground."

- M -

Farm Management Tours Show Secrets Of Profitable Farming

Farmers who took part in the recent farm management tours held in Henry and Woodford counties by the College of Agriculture in cooperation with the farm advisers of these two counties found for themselves how successful farmers keep down costs, increase their yields and other steps toward making their business more profitable. Farms visited on the tours were those that were more profitable than the average farm in the community shown by their 1924 farm records, and at each of the stops the visiting farmers were shown some practice that accounted for the added earnings of the man operating the farm. Forty farmers took part in the Henry county tour, the first of the two, while at least eighty-five joined in the visit to Woodford county farms, according to R. M. Gaumnelson, extension specialist in farm organization and management at the college.

Farm management tours being held by the college are attracting more than local interest, as shown by the fact that two representatives of the College of Agriculture, University of Kentucky attended the Henry and Woodford county tours, while men from other counties often are present on the trips. Fourteen different farm management tours are to be held within a month's time in different parts of the state.

Better Feeding Doubles Herd Production In Four Months

By balancing up the ration for his cows and feeding them according to their individual production, Leslie Horn, a Moultrie county farmer living near Arthur, more than doubled the production of his Guernsey herd within four month's time, according to reports received by the College of Agriculture from the Moultrie County Dairy Herd Improvement Association, of which he is a member. Horn made the changes in his feeding system at the suggestion of P.J. Smith, tester in the herd improvement association, who works under direction of the college.

Before the change was made in the feeding methods, the average monthly butterfat production of each cow in the herd was 16 pounds. The cows were being fed timothy hay and ear corn with pasture at the time their production was at this point. Following the suggestions of the tester in the herd improvement association, Horn changed to a ration of ground corn, ground oats and oil meal and started feeding each cow according to her needs. As a result, the production of the herd increased steadily until four months later it had reached an average of more than 34 pounds a cow a month. One cow in the herd which has been in milk for six months increased her production under the new system of feeding until she reached a daily production of 55.8 pounds of milk testing 4.1 per cent butterfat. At this rate her monthly production was 70.6 pounds of butterfat, which placed her in the lead of the 200 cows in the association for that month.

Other herds in the same herd improvement association have nearly doubled their production during the same four months as a result of their being fed better rations in accordance with the production of the individual cows. In addition, several unprofitable cows have been disposed of by members of the association and high grade or purebred cows bought to replace them. Results which are being obtained by members of the Moultrie County Dairy Herd Improvement Association through the use of better practices are typical of those being obtained by members of the 23 other active dairy herd improvement associations which have been organized over the state by the agricultural college and farm advisers, according to H.E. Jamison, assistant in dairy extension at the college.

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Illinois Dairy Cows Set Three New State Records In Year

One state record in milk and butterfat production which has stood for ten years and two other records of [illegible] standing were broken during the past year by Illinois dairy cows which were [illegible] tested under supervision of the College of Agriculture, it is announced by [illegible] Campbell, of the college dairy department. Rawleigh Creator Lady Cl[illegible] owned by [illegible] Rawleigh, Freeport, broke the mark of ten year's standing when she set a new seven-day record for junior two-year-old cows with a production of 554.4 pounds of milk and 26.83 pounds of butter. This record was made under what is known as the official, or short-time, test.

Both the other records established during the year were made under the long time, or semi-official, test. One of these records is a new one in milk production for mature cows. It was established by Rose Hengerveld Wayne, owned by F. R. Lillie, Arlington Heights. She produced 32,009.3 pounds of milk during the year. The other record was made by Illini Homestead Pietje Bonheur, a purebred Holstein belonging to the agricultural college. She produced 20,508.5 pounds of milk and 890.29 pounds of fat during the year to set a new mark in milk and butterfat production by junior two-year olds.

Better Feeding Doubles Herd Production in [illegible]

By balancing up the ration for his cows and feeding them according to their production; [illegible], a Woodford county farmer living near [illegible], doubled the production of his Guernsey herd within [illegible] monthly time, according to reports received by the College of Agriculture from the Woodford County Dairy [illegible] Association, in which he is a [illegible] system at the suggestion of [illegible] tester in the herd improvement association, working under direction of the college.

Before the changes were made in the feeding methods, the average monthly production of each cow in the herd was [illegible] pounds. The cows were [illegible] and corn with pasture at the time their production was at [illegible]. Following the suggestions of [illegible] in the herd improvement association, [illegible] ration of ground [illegible] ground oats and oil meal [illegible] fed [illegible] to her needs. [illegible], the production of the herd increased [illegible] four months later [illegible] reached an average of more than [illegible] cow in the herd [illegible] in milk for six months [illegible] the new system of feeding [illegible] she reached [illegible] milk testing 4.1 per cent butterfat. At this rate [illegible] pounds of butterfat, which placed her in the lead [illegible] for that month.

Other herds in the same herd improvement association [illegible] production during the same four months as a result of [illegible] in accordance with the production [illegible]. In [illegible] unprofitable cows have been [illegible] grade or purebred [illegible] to replace them. [illegible] members of the Woodford County Dairy Herd Improvement Association through [illegible] better practices are [illegible] members of the [illegible] dairy herd-improvement associations [illegible] the agricultural college [illegible] to E.E. [illegible], dairy extension at the college.

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Illinois Dairy Cows Set [illegible] New State Records In Year

One state record [illegible] and two other records [illegible] dairy cows, [illegible] culture, it is announced [illegible] Creator Lady [illegible] year's standing [illegible] new [illegible] a production of [illegible] made under what is known as the official [illegible]

Both the other records [illegible] or semi-official [illegible]. One of [illegible] cows. It was [illegible] established [illegible] [illegible] Heights. She produced 32,0[illegible] pounds of milk [illegible] was made by Illini [illegible]

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII | September 16, 1925 | Number 37

Properly Used P.D.B. Gets 95 Per Cent Of Peach Borers

When properly used, the chemical known as paradichlorobenzene, or P.D.B., kills 95 per cent or more of the borers in peach trees and consequently almost all of the commercial peach growers in Illinois now use this method of controlling the pest in preference to the older and cruder method of digging out the worms with a jack knife and wire, according to S. C. Chandler, assistant entomologist of the state Natural History Survey, which is cooperating with the College of Agriculture. Peach trees in southern Illinois are best given the P.d.b. treatment from the first to the middle of October and those in northern Illinois from September 20 to October 5, Chandler recommended.

P.D.B. which looks much like coarse salt or sugar is applied in a strip an inch or two wide around the base of the peach tree, being placed just far enough away so that it does not touch the bark. Four or five spadesful of dirt are then thrown over the material and tamped down with the back of a spade. This makes a mound around the base of the tree that sheds water and prevents the P.D.B. from washing away before it does the work. The mound need not be removed before spring but should be levelled before summer. The borers are killed by the gas which evolves from the chemical. This gas is heavier than air and filters down through the pores in the earth and into the burrows of the borers.

Old trees should be treated with more of the chemical than is put around young trees, according to Chandler. Trees that have been set one full year and that are less than five years should get from one-half to three-fourths of an ounce each, while a full ounce should be used for trees that are eight to ten years old. One and a half to two ounces should be used for trees that are more than ten years old.

P.D.B. has never caused an authentic case of injury when used at the right time in the recommended manner. The chemical kills the borers that happen to be in the tree the year the material is applied but does not prevent the moths from laying eggs about the trees the next season. As a usual thing, a treatment must be made with the chemical each season, especially in sections where peach trees are generally grow. A free circular on the peach tree borer and its control is published by the Natural History Survey.

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Corn Club Enrollment Increased Six Times This Year

Enrollment of Illinois farm boys and girls in the state corn club project has reached a mark of 1,149, which is six times more than have ever been enrolled in this project during any previous year, E. I. Pilchard, boys' club work specialist at the College of Agriculture, has announced. Each of the youngsters is growing an acre of corn from utility type seed and as a result the attention of entire counties in the state has been focused on the matter of better seed corn, Pilchard said. Two hundred thirty-three of the 1,149 corn club members are enrolled from Logan county, giving that county the lead over the 25 others.

Better Seed Corn Adds From 5 to 20 Per Cent To Profit

Almost all of the increased yield which corn growers get by using better seed is clear profit and consequently a few fall days spent in the field selecting seed corn will pay big dividends next year, it is pointed out by George H. Dungan, of the crop production division, College of Agriculture. Tillage operations and overhead expenses are the same whether good or poor seed is planted and the only thing that has to be paid out of the increased yields which are obtained with the good seed is the extra cost of the better seed. Even after this extra cost is paid, the grower's profit will be from five to 20 per cent more than it would have been from mediocre seed.

The amount of good corn in any one field will depend upon the quality of the seed from which it grew and the seasonal and cultural conditions with which it has been surrounded. The best way to get seed corn is to bring it in from the field before a killing frost and before the plants on which it was produced are dead. Seed ears should be taken from green standing stalks at a time when the husks are brown and the lower blades dry. The grain should be as nearly mature as possible and still be taken from the parent stalk before the plant has lost the signs of health and vigor. Fairly smooth ears should be chosen, while the kernels themselves should be well dented. An extra quantity of seed should be selected to allow for rigid culling during the winter and the elimination of dead and badly diseased ears after the germination tests are made in the spring.

Ears selected for seed should be placed on a rack which allows as free circulation of air as possible around each ear. Artificial heat usually is not necessary, although if there is danger of severe freezing before the corn is reasonably dry, some heat in the seed corn storage house will be a help.

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Tankage, Minerals Cheapen Pork From Hogged-Off Corn

If preparation has been made for hogging down corn by planting soybeans or some other crop with it, considerable pork frequently can be made without the use of other feeds. However, pork probably can be made somewhat cheaper if a small allowance of tankage is given and a simple mineral mixture supplied in addition. Cheap pork also can be made by providing tankage in self-feeders while the animals are harvesting their own corn. The self-feeders should be watched, however, to make sure that the pigs do not take an over supply of tankage, as this sometimes occurs.

Before the hogs are turned into the crop that is to be hogged down they should be given a good fill and if the corn is still somewhat soft they should be left in the field for only a half day at a time during the first two or three days. Otherwise they may be thrown off feed and make slow gains during the first several days in the field. It also may be desirable to fence the field so that the pigs do not have full run of the pasture but are made to clean up a small patch as they go. This sometimes prevents a waste which otherwise might occur. Rapid gains cannot be made by the pigs as the last of the field is being cleaned up. For this reason, stock hogs possibly should be used for the final cleaning up of the field, while the hogs that are nearly fat should be put in a dry lot and finished off by themselves.

Sanitary Measures Double Rate At Which Porkers Grow

Many Illinois pigs raised under the swine sanitation system advocated by the College of Agriculture and county farm advisers this year grew twice as fast as those raised the "wormy way", according to E. T. Robbins, livestock extension specialist of the college, who has charge of the swine sanitation project. This has proved true in actual practice on scores of farms in the state but no more striking demonstration of this fact can be found than was staged by the farm bureau of Hancock county at the recent county fair at Carthage. Two pens of pigs were displayed side by side to give farmers a comparison of pigs raised under the sanitation system and those raised the old way.

One pen had two representative pigs from the herd of H. R. Graham, a Hancock county farmer living near Denver, who is cooperating with the college and farm adviser J. H. Lloyd in demonstrating the sanitation system on his farm. One of these pigs was the first prize Poland China gilt of the fair while the two of them averaged 180 pounds apiece at 180 days old.

In the other pen were two Poland China pigs which Graham bought from a neighbor whose pigs were allowed to run in old hog lots and were thus exposed to worms. These pigs were not the runts of the herd, but like the average hogs from that farm they showed the unfavorable effects of worms. These pigs were 174 days old and weighed only 80 pounds each. In other words, they were almost as old as the sanitation pigs in the next pen but weighed less than half as much.

The 80-pound pigs raised the "wormy way" were about like the average Illinois pigs at this time. To most of the fair visitors these pigs resembled their own pigs back home. They had done their best to grow while supporting the intestinal round worms which draw heavily upon the vigor and thriftiness of pigs raised on infested ground. On the other hand, the sanitation pigs showed possibilities for economical pork production which are within reach of every hog raiser who will follow the few simple precautions necessary to avoid altogether the injury from worms. These sanitation pigs had eaten very little more feed than the others but they weighed 100 pounds more.

Posters above the two pens told the story in a few words, but in the main the pigs spoke for themselves and boosted the swine sanitation system which is so rapidly becoming a standard practice on Illinois hog farms.

- M -

Pays Poultrymen To Take Extra Care Of Late Molters

If late molting hens are allowed to run with other hens, they are likely to be mistreated by the rest of the flock and may be driven from the mash hoppers and kept off the roosts. It is important to see that they are made comfortable, even if it is necessary to put them in a separate pen until their new feathers are well grown. They should not be exposed to severe cold nor should they be allowed to crowd together on the floor in such large numbers as to become overheated. Flock owners can afford to give these late molting hens better care than other hens because, as a rule, these late molters are the birds that will be used for breeding purposes in the spring. -- L. E. Card, Chief, Poultry Husbandry, College of Agriculture, U. of I.

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College Produces Three Ton Litters Without Using Frills

College bred pigs can now hold their heads just a little higher among the common run of porkers, for three different litters of pigs bred and fed by the College of Agriculture have just tipped the scales at better than a ton each when 180 days old and thereby won a membership in the Illinois Ton Litter Club for the institution, according to an announcement by W.E. Carroll, chief of swine husbandry. The membership entitles the college to the official gold medal of the club which is awarded to all hog feeders of the state who succeed in making a ton of pork from a single litter of pigs by the time they are six months old.

The heaviest of the three litters was of Duroc Jersey breeding and made a total weight of 2,295 pounds, while the lightest of the three also was a Duroc Jersey one that weighed 2,130 pounds at the end of the allotted 180 days. The third litter was of Poland China breeding and made a total weight of 2,250 pounds.

More striking than the weights of the three litters is the fact that they were raised without the use of expensive methods and so-called high pressure feeding, it is pointed out by Carroll. They were grown out under the same practical treatment that is given other hogs on the college farm and from the first James L. Heddin, swine herdsman of the institution, made an effort to limit the feed of the pigs to home grown products. Furthermore, no nurse sows were used for the pigs, as is sometimes done with extraordinarily heavy ton litters.

The oldest of the two Duroc Jersey litters offers especially striking proof that it is not impossible to make a ton of pork from a single litter of pigs on home grown feed. Eight of the pigs from this litter were grown on alfalfa pasture with shelled corn and tankage in a self feeder, while one of the remaining pigs was held out as a prospective breeding gilt. The tenth pig from this litter was used in another experiment. Naturally these two pigs were light because of the treatment which they received and consequently reduced the total weight of the litter.

The second Duroc Jersey litter and the Poland China litter were fed oats, shorts, corn and skimmilk with an occasional feed of tankage. Neither of the three litters received any mineral supplement, although the principles of the swine sanitation system which the college is advocating were observed. The ton litter club in which the college has just won a membership is being conducted by the institution to demonstrate that good breeding, proper feeding and the right kind of management are the basis for economical and profitable pork production.

- M -

Will Hold All-Day Meeting On Unionville Field September 29

The soil experiment field which the College of Agriculture maintains near Unionville will be the scene of an all-day field meeting to be held Tuesday, September 29. The system of soil improvement which is being used on the field and which has increased the corn yield four times and more than trebled the wheat yield will be the chief topic of discussion.

First Membership In Select Cow Club Goes To Will County

Not content merely with winning the first membership in the Illinois 500 Pound Butterfat Cow Club, a grade Holstein cow belonging to John Frederickson, Lockport, has captured this honor in five months less than the required time, according to an announcement by C. S. Rhode, dairy extension specialist of the College of Agriculture. She produced a total of 513.1 pounds of butterfat in seven months, during which time her total milk production was 14,180 pounds.

Under the rules of the club, the Will county cow could have won a membership by producing 500 pounds or more of butterfat in a year. The object of the club, which was started this year by the agricultural college, is to demonstrate that good breeding, proper feeding and the right kind of management pave the way for economical and profitable milk production. The club also is designed to give the state's high producing cows the credit due them.

The end of the first seven months in the club's history finds 25 other cows close to the finish line with more than 400 pounds of butterfat to their credit, according to Rhode's announcement. A total of 93 cows from 14 different counties of the state already have produced 300 or more pounds of butterfat toward a membership in the club.

Of the 14 counties which are represented by the 93 cows, McHenry county is in front with 17 candidates for membership in the club. Fourteen of the 93 cows are from Will county, 12 of them from DuPage and eight of them from JoDaviess. Seven of the cows are owned in Lee County, six each in Ogle, Stephenson and Lake counties, four each in McLean and Franklin counties, three each in Whiteside and Kane counties, two in Peoria county and one in McDonough county.

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Big Percentage Of Southern Illinois Land In Need Of Lime

Thousands of years of leaching has removed the limestone to a depth of from six to 18 feet over the entire southern half of Illinois and as a result more than 95 per cent of the soil in that section of the state is sour, according to E.A.Norton, first assistant in soil survey mapping at the College of Agriculture. Most of the soil in this area is extremely sour and requires from four to six tons of limestone an acre, and even more in places, before sweet clover, which has an important place in any crop rotation system, can be grown successfully.

Soil which is to be limed should first be tested to make sure that it is sour and determine the amount of lime that is needed to sweeten it. There are several tests on the market which may be used for this purpose. Both the subsoil and the surface soil should be tested, for the former often is more acid than the latter and furthermore, the roots of plants grow and feed in the subsoil.

"Limestone which is applied should contain considerable dust. More than enough to sweeten the soil should not be applied, for the excess will be leached away in the drainage water and be wasted. After the field is limed and the soil sweetened it should be tested every six or seven years and limed as needed."

Narrow Hen Houses Block Profitable Winter Egg Production

Profitable winter egg production is hard to get on many farms because the chicken houses on such farms are so narrow from front to back that they cannot be opened for the necessary ventilation without making them much too cold for the hens when they are on the roosts at night, according to L. E. Card, chief of poultry husbandry at the College of Agriculture. Such houses often are high in front, which means that they frequently can be remodeled into a semi-monitor type by building a lean-to, or shed, on the front or south side of the old house. This will make it possible to leave the low front open most of the time, even in cold weather, because the hens will be from 16 to 20 feet back of the front opening instead of 8 to 12 feet, as in the case of many narrow houses.

Buildings which have been used for other purposes also can be remodeled into satisfactory chicken houses at comparatively little expense. Usually this remodeling in a large building will involve the use of a straw loft to cut down the air space in the quarters used by the hens. The straw layer should be 12 to 15 inches deep and may be supported most readily by using woven wire fencing laid over 2 by 4 joists.

The straw loft will have the advantage not only of reducing the cubic air space but also of equalizing the temperature and of absorbing moisture so that the house will be warmer and dryer during the winter months, as well as cooler in summer, than is likely to be possible when a large building is used without such a straw loft.

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Manure Adds Average Of 13 Bushels An Acre To Corn Yields

Use of farm manure on six northern Illinois soil experiment fields operated by the College of Agriculture swelled the corn yield on these fields 13 bushels an acre a year as an average for the past four years, according to an announcement by A. L. Lang, of the college agronomy department. On one field the increase amounted to 18.1 bushels an acre a year, while the smallest increase on any of the fields as a result of the soil treatment with manure was 8.3 bushels an acre a year. The six fields are near Dixon, Springvalley, Kewanee, LaSalle, Mt. Morris and Joliet. The results which have been obtained on them not only indicate that manure is the most valuable fertilizer medium for northern Illinois soils but also refute the statement sometimes made that manure is not worth the time it takes to haul it out, Lang said.

Continued use of manure on land where there is not an abundance of limestone must be guarded against, as it is practice tends to make the soil acid and eventually causes the failure of clovers. After clovers fail to grow, the productive power of the soil dwindles rapidly and consequently it is advisable to supplement manure with limestone while the land is still productive enough to pay for the applications.

This is a sound, profitable practice, as shown by the fact that the combined use of limestone and manure on the six fields swelled the yield of corn an average of 17.7 bushels an acre a year during the past four years as compared to an increase of 13 bushels an acre a year for manure alone.

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Wider Use Being Made Of Concrete In Farm Building

Concrete, which can be used economically in at least part of almost all structures, is being used more extensively each year on the farm as well as in the industries, according to R. C. Kelleher, of the farm mechanics department, College of Agriculture. This is the natural result of recent developments in concrete construction, the limited supply of lumber and the realization of certain advantages of concrete in construction work, he said.

Whether or not concrete can be used economically depends upon the type of structure that is being built. Some structures can be built entirely of concrete, while others are built of concrete in combination with such materials as lumber, hollow tile and brick. Foundations, basement walls and ground floors are now built almost exclusively of concrete. Timber will not last long in such places, because decay is rapid in wood which is alternately wet and dry.

Concrete is perhaps used more extensively in dairying than in any other type of farming. Sanitation is one of the essentials in this type of farming and the dairy barn is easily kept clean and sanitary if the floors, gutters and mangers are built of concrete. On the hog farm, the concrete feeding floor and hog house floor provide clean living conditions for farm animals.

Another advantage of concrete on the farm is its effectiveness for building out rats when it is used in the construction of feed rooms, corn cribs and graneries. In home sanitation, concrete finds many uses in the construction of cisterns, well covers and septic tanks. It also can be used to advantage in such miscellaneous structures as the milk house, root cellar, side walk and water trough.

Other materials than concrete often are more economical for the side walls and super-structures of buildings. However, concrete frequently is used to advantage for such purposes in the form of blocks or stucco. For high side walls, beams and overhead floors, concrete is seldom the proper material for farm construction, as this would require steel reinforcement and expensive form work. If concrete is used in complicated reinforced construction, the work should be done from detailed plans by an experienced builder,

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Proper Fall Finish Will Fit Pullets For Heavy Laying

Pullets should be so finished in the fall that they will have good, plump bodies and be ready to lay good sized eggs over a long period of time. They should be in such condition that they will gain rather than lose weight during the first few months of laying. Care must be taken not to retard body development. Some flocks of early pullets develop too rapidly sexually. In this case it may be wise to reduce the meat scrap one-half or eliminate it if some milk is used. Mash feeding with minerals should be continued to insure a large frame. Plenty of grain, particularly yellow corn, is good for getting the pullets in plump condition.

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Can Start Bush Fruits Quickly With Fall Cuttings

Large, vigorous plants of most common bush fruit varieties can be developed in a single season by making fall cuttings of them soon after the first of October and setting them out immediately, according to A. S. Colby, associate chief of pomology at the College of Agriculture. The chief advantage of this plan is that it gives the grower well rooted plants which are in the ground ready to start growing at the opening of the season next spring. Varieties which can be handled in this way include Perfection Wilder, London Market and White Grape currants and the Downing, Oregon Champion and Poorman gooseberries.

Only shoots of the present season's growth should be taken when the cutting wood is being selected. Several smooth, healthy, well matured yearling growths should be cut from different parts of the bush. Some growers and nurserymen strip the leaves from the canes and make the cuttings earlier than the first of October, but it is both safer and easier to wait until the wood is ripe and hard before taking it. The cuttings should be from six to ten inches long, the longer the better, and should be set out in rows as soon as possible after they are cut.

The site where they are planted should be well drained and have soil that is of moderate fertility and both deep and friable. The cuttings should be planted in furrows that are wide enough apart for cultivation and deep enough so that not more than two buds are exposed. If the work is done by hand, a trench may be dug several inches deep and the cuttings placed from four to eight inches apart against the perpendicular side. The furrow should be partially filled in and the soil tramped firmly about the base of the cuttings. This is a necessary part of the work if the completed operation is to be successful. The remainder of the trench may then be filled and firmed down well.

With the approach of freezing weather in November, the cuttings should be mulched to prevent heaving by frost during the winter months. A shallow ridge of soil may be thrown up over the cuttings with a plow or shovel cultivator or a mulch of strawy manure or other similar material may be used. If the cuttings are covered with soil, there is some danger that they will be injured when they are uncovered in the spring. In any event the mulch should be removed early before the growing season begins.

- M -

Fall Selection Puts Best Hens In The Breeding Pen

Improvement of the farm flock of chickens cannot be brought about alone by culling out the boarder hens throughout the summer, it is pointed out by John Wa ert, poultry extension specialist of the College of Agriculture.

A thorough and systematic examination of each bird must be made in the fall if the best ones are wanted for the breeding flock. Those hens which continue to lay in the fall and which show good standard characteristics should be used for breeders. Chicken raisers not only should train themselves to cull out the undesirable hens, but also to spot the exceptional hens for the breeding pen.

- M -

Neglected Separator May Be A Big Waster Of Cream

Separating butterfat from the rest of the milk in a cream separator is a delicate process and lack of attention to details, which may seem unimportant, often cause considerable fat to be left in the skimmilk, it is pointed out by A. L. Young, of the farm mechanics department, College of Agriculture. The manufacturer has done a commendable job in making a machine that will skim as accurately as does the modern separator when it is properly handled and it should be given the sort of care that a high class product deserves, he said.

"In the operation of such a machine the little things count for more than when a machine of less refinement is being used. Consequently the experienced user will insist that the separator be kept level and fastened securely to a solid foundation, that all the bearings are lubricated with good separator oil, that all the old dirt and oil be cleaned out occasionally with gasoline or kerosene, that the machine be operated at the proper speed with the milk at the proper temperature, that the machine be washed thoroughly each time it is used and that it be protected from the dust and kept dry when it is not in use.

"Too often the user fails to watch these points because even when the separator is sorely neglected it will continue to deliver a fairly good amount of cream at one spout and skimmilk at the other. Users sometimes fail to realize that a separator which is even a little out of level or which has a bowl which vibrates or is partly clogged with dirt is very likely to send considerable butterfat out the wrong spout. To do good work a separator must be well built, run at the correct speed and kept in good running order.

"Particular attention should be paid to the directions furnished with the machine. It should be remembered that delicate bearings operating at high speed will last a long time if they are properly cared for but that they are quickly ruined by dirt or lack of good oil when neglected."

- M -

Mistakes In Tile Drainage May Cause Needless Bills

Careless workmanship in tile drainage may result in the useless spending of money, because every mistake that is made is put under the ground, it is pointed out by E. W. Lehmann, head of the farm mechanics department, College of Agriculture. Incidentally, this is about the best time of the year to consider installing tile drains wherever there is a wet spot, he said.

"When the tile drain is being built, the main tile should be placed along the natural line of drainage and the laterals located so that they will intercept the soil water. An effort, of course, should be made to get as much slope as possible to the tile. The depth of the tile and the distance between the laterals both depend upon the condition of the soil. In this connection it should be remembered that the condition of the subsoil is just as important a factor as the condition of the surface soil. If the soil is tight, the lines should be placed close together and not so deep. The general practice in areas where tile drainage is successful in Illinois is to place the lateral tile about six rods apart and three and a half feet deep."

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII October 7, 1925 Number 40.

Two Illinois Litters Top Former World's Record Weight

Illinois has bettered the former world's record weight for a single litter of pigs at six months of age and has done it not only with one litter but two different ones, both of which were bred, fed and developed on the same farm, according to official figures announced by W. H. Smith, of the College of Agriculture, who has charge of the Illinois Ton Litter contest.

Two litters of purebred Poland China pigs entered in the contest by the Ideal Stock Farms, Freeport, which are operated by the W. T. Rawleigh company, have just recently come off feed at the end of the allotted six months time with respective weights of 4,789 and 4,511½ pounds of pork to their credit. The former world's record, which was made last month by a Kentucky litter, was 4,323 pounds. The Kentucky litter contained 12 purebred Poland China pigs, while the heavier of the two Illinois litters contained 16 and the lighter 15 pigs. Both litters were sired by the same boar and were fed under direction of Farm Adviser W. A. Herrington.

Unless some Illinois breeder or feeder is successful in topping the weight of the heaviest Stephenson county litter the state championship in the Illinois Ton Litter Ton Litter contest will go to the Rawleigh farms for the second consecutive year, according to Smith. The contest is being conducted by the agricultural college in cooperation with farm advisers to prove the merits of good breeding, proper feeding and the right kind of management in getting pigs up to a market weight at an early age. All breeders and feeders who are successful in making a single litter of pigs weigh a ton at six months of age receive the official gold medal of the contest.

More than six tons of dry feed was consumed by each of the litters in reaching the new world's record weights, according to figures compiled by Sleeter Bull, in charge of the meats division at the agricultural college. Good practical methods were used in developing the two litters, while the rations which they received were composed of ear corn, shelled corn, meal, tankage, mineral, kitchen waste and skimmilk. The meal included ground corn, bran, linseed meal, beef scrap, middlings and gluten feed, while the mineral was composed of salt and charcoal. Each of the litters had access to 7/8 of an acre of rape pasture.

Each of the two litters required a shade more than three pounds of feed, calculated on a dry basis, for each pound of gain which it made. This was in addition to the pasture. The average daily gain of the individual pigs was practically the same for both litters. Pigs in the heavier of the two litters each gained an average of 1.66 pounds a day, while those in the lighter of the two litters made an average daily gain of 1.67 pounds.

The smaller of the two litters was similar to the type which gave the best results in recent swine type experiments at the agricultural college, according to Bull. Practically all of the pigs in this litter were finished out not overdone at the end of the six months, while some of the pigs in the other litter were of the extreme rangy type and were unfinished and very rough.

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Printed and distributed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, Director.

Sanitation Stressed As The Key To Control of Diseases

Fowl typhoid, which seems to be especially serious just now in southern Illinois poultry flocks, as well as other poultry and animal diseases, cannot be stamped out until farmers put sanitary measures in force on their farms. This was the keynote sounded at the annual fall conference of the National Trail Veterinary Medical Association which was held last week at Toledo and which was attended by approximately 30 veterinarians and other interested persons in that section. Serums, bacterins and medicines will do little good until chicken yards, feed lots, farm buildings and the farms themselves are cleaned up and kept clean, it was pointed out by the various speakers. Local veterinarians have the opportunity and the privilege to be the leaders in this sanitation work and thereby make farm flocks and herds in this section of the state more profitable, Dr. Robert Graham, chief of animal pathology and hygiene at the College of Agriculture, University of Illinois, told the veterinarians.

Just what fowl typhoid and other poultry diseases mean to the poultry industry was brought home to the veterinarians by Waldo Vickrey, manager of the Mattoon plant of a poultry feeding concern. He pointed out that for a period of 15 days his plant had lost a minimum of $100 daily because of fowl typhoid and other diseases and then added that the poultry industry cannot be stabilized until there are healthy flocks on the farm.

Illinois ranks second among all states in number of poultry and third in the value of this stock, John Vandervort, poultry extension specialist of the agricultural college, said in another address. He pointed out that an industry of this size merits careful consideration and thought from local veterinarians. A poultry sanitation project which the college will introduce in a few counties of the state this fall was explained.

Dr. Graham explained how the agricultural college is attempting to impress farmers with the importance of sanitation by means of educational cards which are being distributed through veterinarians of the state. Each of these cards deals with some particular disease or disease problem and carries simple, practical suggestions for controlling the disease or solving the problem through cleanliness. Dr. A. T. Peters, Peoria, spoke on, "Demineralization", and Dr. J. S. Koen, Bloomington, reported briefly on the recent meeting of the Illinois State Veterinary Medical Association at Peoria.

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Rest And Liberal Feed Swell Milk Flow of Fresh Cows

Cows which are given a rest of from six to eight weeks and liberally fed before calving usually produce more milk during the succeeding lactation period than cows that calve in thin condition, according to records cited by W. B. Nevens, assistant chief of dairy cattle feeding at the College of Agriculture, University of Illinois. This is especially important this fall, because the short, dry pastures in many parts of the state during the past summer have left scores of cows in thin flesh and not capable of doing their best, he pointed out. Good fall pasture may furnish enough feed for cows that calve early, but if the pasture is meager or if the cows are to calve in the late fall or early winter it is best to supply good clover or alfalfa legume hay together with a concentrate mixture. A suitable mixture for this purpose can be made of 300 pounds of ground corn and 100 pounds of ground barley or corn and 100 pounds of ground oats. From three to six pounds of the mixture may be fed to each cow daily, depending upon her condition. In addition, the cows should get all the good quality clover hay which they care to eat. After freshening, cows should get a concentrate mixture containing a higher percentage of protein.

Grain Drill Gauges Sometimes Err As Much As 25 Per Cent

Scales or gauges used on grain drills cannot always be depended upon, for tests have shown that in some cases they are off as much as 25 per cent, according to I. P. Blauser, of the farm mechanics department, College of Agriculture. It therefore is a good practice to test the grain drill frequently to make sure that it is sowing the desired amount of grain. Errors may be caused by the kind and purity of the grain and from wear by worn parts in old drills. Short pieces of stem may cause inaccurate sowing. Consequently, seed grain should always be recleaned to remove the short pieces of straw and weed stems as well as the weed seeds and small grains.

"Calibrating the grain drill is a simple matter and requires but a few minutes. In doing this calibrating, it is first necessary to determine the number of times the wheel revolves while one acre is being sown. This can be determined by dividing the area of one acre - 43,560 square feet - by the area which is sowed by the drill during one revolution of the wheel. For example, a drill with 12 seed tubes that are seven inches apart will sow a strip seven feet wide. Then if the circumference of the wheel is 12½ feet, the area which is sowed by the drill during each revolution of the wheel can be determined by multiplying seven feet by 12½ feet. This gives 87½ square feet. Dividing the area of one acre - 43,560 square feet - by 87½ square feet then shows that it takes 497.8 revolutions of the wheel to sow an acre. With this figure determined, one or both wheels of the drill should be raised so that they can be turned by hand. With the box full of grain, the drill should be set at a certain rate and the wheel given a sufficient number of revolutions to sow ¼ or ½ an acre. The grain that is sowed should be caught and weighed and checked against the setting of the drill. This will show the error if there is one and adjustments may be made accordingly."

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Proper Storage Adds To Returns From Garden

The summer garden can now be literally carried into the cellar where it will continue to yield much that otherwise would go to waste. Late carrots served with peas this winter will make a succulent dish. The carrots should be taken up when the ground is not wet and then topped carefully. They should then be placed in boxes of earth in a cool part of the cellar. Some may be buried in pits in the open, as mild freezing does not injure them and they keep longer this way than they do in the cellar. Beets and parsnips may be stored in the same room with carrots. Like carrots, they should be put in boxes of soil to prevent their drying out. Potatoes also may be stored in the same room but should not be buried in soil. They should be exposed to air circulation but not to light. They should be put in a dark bin or corner.

Cabbage and turnips store well under the same conditions suitable for carrots and beets, but should not be placed in a cellar under the dwelling as they give off obnoxious odors likely to pervade the whole house. An outside cold house or storage pit is more satisfactory for these vegetables. Celery also does well in outside storage, but if it is taken up with generous squares of earth with each stalk it will keep fairly well packed upright on the floor of the cellar. Celery should not be stored with turnips or cabbage as it absorbs their odors.

The onion is another vegetable which should be among the good things stored--but not in the basement. Onions withstand some freezing, if not handled while frozen, but require a well ventilated, dry place. The attic is a good place if not too warm. Onions should be stored in crates or loosely woven bags, care being taken to make sure that the onions are dry and mature. -- C. A. Bernier, College of Agriculture, U. of I.

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS.

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII | October 14, 1925 | Number 41

College Enrollment Takes Upward Turn After Five Years

For the first time in six years, the enrollment in the College of Agriculture, University of Illinois this year shows an increase over what it was the previous year and so far as Illinois is concerned the turning point evidently has been reached in the problem of decreased enrollment in agricultural colleges, according to registration figures announced by H. W. Mumford, dean of the college.

Although the increase in the total enrollment of the agricultural college is not large, it is especially significant that 39 per cent more freshmen men are registered in the institution at the present time than was the case last year, Dean Mumford pointed out. At the present time the registration in the college totals 651 students as compared to 641 at the same time last year. The freshmen class, however, contains 208 men students as compared to only 149 last year at this time. That a good percentage of the increase in enrollment comes from the farm is indicated by the fact that 85 out of 117 representative freshmen who were questioned lived on the farm.

Better times, in general, for the farmer and the prospects for a good corn crop are responsible for the big increase in the freshmen class and the turn of the tide in the college enrollment, according to members of the college staff who have been in close touch with a number of the freshmen during the time that they were getting started in their college course. This is in line with the predictions of authorities who held to the opinion that the slump in the enrollment of agricultural colleges was only temporary and would be checked with the return of the farmer's prosperity.

In view of the decreased enrollment in agricultural colleges throughout the country during the past few years and the consequent scarcity of trained workers, there never was a time for greater opportunities in agricultural work than there is right now, in the opinion of Dean Mumford.

The slump in the enrollment of the Illinois agricultural college which has been checked by the increased registration this year started in 1920. Only the year before, just after the close of the world war, enrollment in the college hit a new high mark when a total of 1,271 students registered in the institution during the school year. The highest enrollment previous to that time was 1,257 during the school year of 1915-1916.

- M -

Plan Soybean Seed Harvesting Demonstration For October 21

Practically every type of soybean seed harvester, from the cradle to the combined-harvester-thresher, will be demonstrated in the soybean seed harvesting demonstration which the College of Agriculture, cooperating with the Champaign County Farm Bureau, will stage on the farm of John T. Smith, just southwest of Tolono, on Wednesday, October 21. The demonstration will last from 10 until 4 o'clock with a dinner at noon at customary prices by the Champaign County Home Bureau.

Published by the College of Agriculture Extension Service, May, 1914. H. W. Mumford, *Director*.

B. & O. To Run "Better Dairy Sires Special" Next Month

Nineteen central and southern Illinois towns and cities in fourteen counties of that section will be visited during the second and third weeks in November by a "Better Dairy Sires Special" which the Baltimore & Ohio railroad will operate along its lines in cooperation with the College of Agriculture, University of Illinois, and other interested agencies, it has been announced here. Exhibits, lectures and demonstrations will be used to impress farmers and dairymen with the value of purebred sires in more profitable dairying, while an opportunity also will be given for interested farmers to buy a purebred dairy bull of their chosen breed right on the spot.

Stops will be made at Flora, Iuka, Carlyle, Breese, O'Fallon, Norris City, Ridgway, Shawneetown, Lawrenceville, Sumner, Olney, Altamont, Beecher City, Cowden, Pana, Taylorville, Springfield and Beardstown. The train will be made up of ten cars including an exhibit car, lecture car, a flat car for cow demonstrations, cars for the livestock which will be on exhibition, four cars of purebred bulls and cars for the accommodation of the staff which will accompany the train.

In order to make it possible for interested farmers to buy a purebred sire when the train passes through their section of the state, 50 bulls of three dairy breeds - Jersey, Holstein, Guernsey - will be carried on the train. Arrangements also are being made with local business men at each of the places where the train will stop to give away a bred grade heifer to some farmer who visits the train at each of the 19 points.

At each of the stops C. S. Rhode, dairy extension specialist of the agricultural college, will outline the necessary steps in building a profitable dairy herd and A. J. Glover, editor of a dairy journal, will speak on the subject, "Scrubs Vs. Purebreds". O. K. Quivey, general agricultural agent of the B. & O., who will be in charge of the train, also will speak.

Representative cows of the different breeds will be selected from the agricultural college herds and taken on the train to show farmers and dairymen what to look for in high producing animals. The National Dairy Council will have an exhibit showing the value of milk and its products as human food.

- M -

Sunflowers Yield More Dry Matter Than Corn In Tests

Studies made by dairy cattle feeding specialists of the College of Agriculture on the composition and yield of sunflowers showed that they produced about 50 per cent more dry matter an acre than silage corn grown nearby the same season. Previous to the investigations on composition and yield of sunflowers, the specialists had conducted feeding and digestion trials with sunflower silage. These studies have been prompted by the wide attention which sunflowers have attracted as a silage crop in those parts of Illinois where chinch bugs have prevented the growing of good crops of corn for silage. Sunflowers also have been grown for silage in the semi-arid regions, the northern part of the United States and in Canada. Studies dealing with the effect of time of planting upon yields showed that late planting -- in June and July -- resulted in pronounced decreases in yields. Results of the studies are contained in a new experiment station bulletin, No. 268, which may be obtained free by writing the college at Urbana.

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Yield Insurance Seen As Improver Of Farmer's Credit

Insurance of crop yields under blanket policies covering all insurable risks to growing crops holds much promise for improving the credit position of American farmers, in the opinion of Charles L. Stewart, chief of agricultural economics in the agricultural experiment station, College of Agriculture. By means of such insurance crop hazards can be passed along to insurance companies, he pointed out.

Some states have done more than Illinois toward collecting such information on crop yields as would enable yield insurance to be applied with close adaptation to each locality. Nevertheless, Illinois farmers have long been supplying yield estimates to both the federal and state departments of agriculture. These estimates could well be used as the basis for crop yield insurance, for they have been preserved in a form that is useful to persons and agencies concerned with measuring the shifts in crop yields in the various counties of the state. In many counties having widely diverse soil types, township figures would be necessary before crop yield insurance could be properly applied.

The tendency to mix yield insurance with price insurance, or price guarantee, is not to be favored, in the opinion of Stewart. The risks in the decline of unit prices for crops are serious, to be sure, but they tend to be universal, especially in the case of export grains. When price changes for any product tend to be fairly uniform throughout the world there is little point in trying to use unit price insurance for the benefit of individual producers.

"World wide adjustment of production to demand should be sought as the basis for price action in the case of products having world markets. An export grain producers' international conference held in connection with the general assembly of the International Institute of Agriculture at Rome, May, 1926, could do more to bring satisfactory price conditions during the next decade than any amount of crop price insurance."

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Sangamon Youngster Garnering State Beef Club Honors

Homer Mendenhall, a 17 year old member of the Sangamon county boys' and girls' baby beef club, has distinguished himself as one of the best of the state's future beef cattlemen, according to E. I. Pilchard, boys' club work specialist of the College of Agriculture. Just recently the Shorthorn calf which young Mendenhall fed and developed in his club project this year set a new top price for the auctions of boys' and girls' club calves which are held weekly at the Chicago Union Stock Yards. Previous to this, the calf had won the reserve grandchampionship in the baby beef club show which Illinois farm boys and girls staged at the state fair.

When Homer's calf, which weighed 1,000 pounds, was sold in the Chicago auction, it brought the highest price that has ever been paid for a baby beef in these sales since they were started more than a year ago by the International Livestock Exposition. Jack Hill, chef of the Stock Yards Inn, bought the animal for $19 a hundred. This top price of $19 a hundred was reached after former top prices were beaten three times in the club calf sale.

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Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Corn Cribs Will Need Attention To Handle Big Crop Properly

With a bumper corn yield in sight, every fit corn crib on the grain farms of Illinois probably will be filled to overflowing by the time the crop is harvested, according to W.A.Foster, of the farm mechanics department, College of Agriculture. Overtaxed as all available cribs will be, special care will have to be taken to see that they protect the grain from rodents, moisture and fire or else the most cannot be made out of the good crop this year, he pointed out.

"Temporary use will be made of old cribs that have long been out of service, while others probably will be remodeled and equipped for storage. A limited number of new cribs may be built before the harvest season is over, in which case plans for all the different types, including the modern farm elevator can be secured at the agricultural college. With the season thus far advanced, however, most corn growers will probably give their attention to getting the most and best service out of the cribs which they already have.

"An A-shaped slat form placed through the center of exceptionally wide cribs will make them safe for soft corn. This form ventilates the corn so that it dries out readily and will not spoil. Drain tile, inverted troughs, rails or posts placed in the corn also open passages for air circulation and aid in drying out the corn.

"Rats can be built out of the crib by putting concrete floors on both the driveway and the bins and then placing hardware cloth of small mesh to a height of 24 inches on the studding before the crib boards are nailed on. A strip of galvanized metal, eight inches wide, should then be placed at the top of the hardware cloth, both in the driveway and on the sides, so that it extends outward and downward about the crib. The slope of the metal should be about the same as the bevel of the crib board. Rats cannot climb over the metal edge, but it must not be forgotten that they can climb up the end gate or wagonrack which leans against the crib.

"Using concrete on the floors of the bins and the driveway will not cause grain on the floor to spoil from dampness, provided the floor is given a crown and a gravel fill is placed under the floor to break the conduction. Roll roofing also is sometimes used between the floor courses to prevent conduction.

"If the doors from the driveway swing against the end of the crib or are rolled past it on a track, crib boards should not be used at the end of the crib. Rats have a ready passage in climbing up between the door and the crib end. If the crib boards are used on the ends, wire should be placed the full height of the crib, but it is better to put matched siding on the ends when doors are used."

- M -

Will and Lake counties divided September honors for milk production by the 12,000 or more Illinois dairy cows in the 24 active dairy herd improvement associations of the state. A Will county cow earned in the best individual record for the month with 76 pounds of butterfat and 1,960 pounds of milk to her credit, while the highest producing herd for the month was from Lake county.

Stored Potatoes May Be Damaged More By Warmth Than By Cold

High temperatures, rather than low ones, are to be guarded against in the storing of potatoes for the winter, it is pointed out by J.J. Pieper, assistant chief of crop production at the College of Agriculture. Quite often farmers are so careful in controlling the temperature of the potato storage room that they do not get the temperature low enough, with the result that the potatoes may sprout two or three times and finally become practically useless for seed. On the other hand, the chances are that potatoes will not be injured, even though the temperature may drop several degrees lower than the freezing point for a short while. Some authorities believe that potatoes will not freeze at 32 degrees Fahrenheit.

"The ideal temperature for the potato storage room is slightly above freezing. Authorities disagree as to the exact temperature, but no doubt it should be somewhere between 34 and 38 degrees Fahrenheit. The potato is alive and continues its life activities while in storage. If the temperature is high and all other conditions are favorable, the tuber sprouts, thus reducing its store of plant food. Each set of sprouts that develops is weaker than the former set.

"Perhaps the most neglected factor in the storage of potatoes is that of ventilation. Respiration goes on in the stored potato and during this process oxygen is utilized, while certain gases which are detrimental to the stored tubers are given off into the air. It is only through ventilation that there can be an exchange of good and poor air. On warm days, when it is possible, the storage room should be opened and free ventilation permitted. On cold days it will be necessary to use only the regular provided ventilation. In the ventilating of potatoes, especially those that are to be eaten, it is important that light be kept out of the storage room.

"Moisture, the third point in the storage of potatoes, is hard to control where the storage room is not located on well drained land. The storage room should be so dry that mold will not grow on the walls or floor. Quite frequently it is necessary to build a wooden storage bin, raised from the ground, so that the potatoes will not come in contact with the moist walls or floor of the basement. In order to control the moisture in the storage room, it will be necessary to ventilate frequently and to use lime or plaster of paris on the floor."

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Early Laying Pullets Are Best Producers - Should Be Marked

Pullets that begin to lay early usually are the heaviest producers in the flock and for this reason it is an excellent practice to mark them so that they can be given due consideration for their performance next year when it comes time to cull the flock, it is pointed out by L. E. Card, chief of poultry husbandry at the College of Agriculture. Pullets that are extremely late in starting to lay are always certain to be the least desirable birds to use as breeders. In breeding for higher egg production, individuals of this type should be kept out of the breeding pens.

If the early laying pullets are banded with numbered leg bands, all that is necessary is to make a record of the individual band numbers and the approximate date on which egg laying starts. Another equally satisfactory scheme is to use colored leg bands, in which case a different colored band should be used to mark the pullets that start laying in the different months.

Kane Dairymen Get Added Profits By Pasturing Cows On Legumes

By keeping their herds on either alfalfa or sweet clover pasture during the summer, six members of the Kane County No. 3 Dairy Herd Improvement Association last month realized an average of 29 cents more on each 100 pounds of milk which their cows produced than they would have realized had the animals been kept on just ordinary grass pasture, according to figures compiled by H.E. Jamison, assistant in dairy extension at the College of Agriculture. It took an average of 85 cents worth of feed to produce 100 pounds of milk in these six herds during the month as compared to $1.14 in all herds of the association, many of which were kept on ordinary pasture. The Kane county organization is one of the 24 active dairy herd improvement associations which the agricultural college and farm advisers of the state have formed to aid farmers in more efficient milk and butterfat production.

There are 592 cows in the Kane county No. 3 association and during September the average production of each cow in the association was 180 pounds of milk and 8½ pounds of butterfat less than it had been in May. The hot, dry weather of late summer was especially severe in that section of the state and the cows suffered from short pastures. However, the average production of each cow in the six herds that were pastured on either sweet clover or alfalfa pasture during the entire summer dropped only 88 pounds of milk and four pounds of butterfat below what it had been in May. In other words, these cows each produced 92 pounds of milk more during the month than the average cow in the association.

This difference of 92 pounds of milk was worth $2.35 a cow a month to the six dairymen who provided the legume pasture. In addition these cows will be in better shape to go into winter quarters and doubtless will produce much better during the early winter than the others. Looking at it from another angle, the cows on the legume pastures returned their owners $2.81 worth of milk for every dollar's worth of feed which they ate, while the average for all cows in the association was a return of $2.13 on each dollar's worth of feed. Kenneth Green, tester in the Kane county association, has supplied his members with facts which should be valuable to them in planning their pastures in the future.

- M -

Hen Houses That Are Old And Dirty Undermine Pullets' Health

A clean house is the first essential in good poultry management and furthermore the cleaning should be done before the pullets are put in the house for the winter, according to John Vondervort, poultry extension specialist, College of Agriculture. Clean, healthy pullets cannot be expected to remain so if they are placed in a filthy hen house which is likely to harbor worms eggs and disease germs.

"Nests, roosts, water dishes and other utensils should be taken out of the house and cleaned and then left in the sunlight. Dropping boards should be cleaned and all litter and manure scraped from the floor. The floors sidewalls and ceiling should then be swept, after which the interior of the house should be thoroughly scrubbed with hot water containing lye at the rate of one pound to 40 gallons of water. No disinfecting should be done until after the house has been thoroughly cleaned and allowed to dry out. The final step includes replacing the fixtures and putting clean litter on the floor and material in the nests. Houses should be cleaned and fresh material put in the nests monthly."

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII | October 28, 1925 | Number 43

Unwise To Postpone Spraying For Peach Leaf Curl Until Spring

Spraying of peach orchards cannot be postponed from now until spring, if peach leaf curl, one of the serious pests of peaches, is controlled effectively, according to H. W. Anderson, associate chief of pomological pathology at the College of Agriculture. This spraying must be done before the buds swell in the spring. This frequently is impossible if the spraying is put off until spring, because the temperature may be too low for effective spraying or the ground too soft from thawing to allow heavy spray rigs to be used in the orchard. The condition of the orchard will determine what dormant sprays should be used in the orchard at this time of the year. Lime sulphur alone, made at the rate of one gallon of commercial lime sulphur to nine gallons of water, will be enough if no scale has been found in the orchard. When properly applied this solution is a sure check for leaf curl and in addition will control scale under ordinary conditions.

However, if the orchard has a bad infestation of scale or if there is enough scale present to cause the grower uneasiness, the dormant spray should be boiled oil emulsion made according to standard formulas at the rate of one and one-half gallons to 50 gallons of water. This spray will not control leaf curl, however, and if the grower has had trouble with leaf curl in the past he should do one of two things: either apply lime sulphur in the fall and oil emulsion in the spring or else, instead of using water to dilute the oil emulsion he should use a 4-4-50 Bordeaux mixture. In other words, he should add one and a half gallons of stock oil emulsion to 50 gallons of Bordeaux mixture. Although the first procedure unquestionably will control leaf curl, it is expensive because two sprayings are necessary. The second procedure will certainly control scale and also will probably control leaf curl, since Bordeaux mixture is as effective as lime sulphur in checking leaf curl.

The oil emulsion Bordeaux referr d to is not the stock oil emulsion made by using Bordeaux mixture as an emulsifier instead of soap. This is the so-called cold mix emulsion, the use of which is not recommended because the oil separates too easily and may seriously injure peach trees. A free circular, No. 277, published by the experiment station of the agricultural college gives complete directions for making boiled oil emulsion and other spray mixtures.

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Illinois Juniors Uphold Their Record In Dairy Cattle Judging

Farm boys of Illinois kept up their reputation as dairy cattle judges by taking second place in the national dairy cattle judging contest for boys' and girls' club members which was staged in connection with the recent National Dairy Exposition at Indianapolis. Last year the Illinois team took tenth in the contest, while the year before the team from this state was first. This latter team later went to London, England, and won first in the international contest. The team this year was composed of three DeKalb county boys, Leonard Lonegran, Donald Nelson and Clifford Erickson, and was coached by R.C. Nelson, assistant farm adviser of DeKalb county, and C. S. Rhode, dairy extension specialist of the College of Agriculture. The team from Maryland was first this year.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director.*

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College of Agriculture—University of Illinois

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October 28, 1925 Number [illegible]

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Demonstrate Newly Developed Methods For Harvesting Soy Seed

New and improved methods which are expected to go a long way toward stopping the enormous waste of soybean seed during harvest were demonstrated before a crowd of more than 500 at the soybean seed harvesting demonstration which the farm mechanics department of the College of Agriculture, in cooperation with the Champaign County Farm Bureau, recently staged on the farm of John T. Smith, near Tolono. Combined harvester-threshers especially equipped for handling soybeans were demonstrated as the latest and most improved method of harvesting soybean seed, while some of the more common methods, including the mower and buncher, the binder and the self rake reaper, were demonstrated for the benefit of farmers who grow soybeans primarily for hay and harvest just enough beans to sow the next year's crop.

Seed harvesting is the biggest problem of the soybean grower, largely because the crop is a comparatively new one and no special machinery has been developed for gathering the beans. One of the combined harvester-threshers which was demonstrated has only been adapted for soybeans during the past three weeks and was demonstrated for the first time at the meeting. It is an adaptation of the combined harvester-thresher for wheat and oats. It was pointed out during the demonstration that the use of a combined harvester-thresher saves from three to four bushels of beans an acre over other methods when the yield of beans is good.

A mower with a buncher attachment, a self-rake reaper and a binder were tested out in harvesting soybeans in one field on the Smith farm, and of these three methods the binder proved to be the heaviest waster of beans. Slightly more than 25 per cent of the beans were lost when harvested with a binder, it was calculated. More than 18 per cent of the beans were lost when they were harvested with a mower and a buncher attachment, while the loss in the case of the self-rake reaper was 14.6 per cent of the beans. Two special soybean harvesters, both of the beater type, also were shown during the demonstration. One of these was the Carolina harvester and the other the Union harvester.

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Fall Plowing Seen As Step Toward Lower Crop Production Costs

Crop production costs can be lowered and profits increased by fall plowing because this practice makes for economical use of labor and power, two of the biggest expense items in the growing of crops, it is explained by R.C. Ross, of the farm organization and management department, College of Agriculture. The highest labor peak of the year on most corn belt farms comes in the spring when oats are being seeded and the ground is being prepared for corn, he pointed out. In many years all available man labor and power must be used to capacity to get seed beds properly prepared and the crops planted on time, because weather conditions limit the time in which this work can be done. This pressure can be relieved by fall plowing. Ordinarily there is a period at this time of the year, even after corn husking, when land which has been in pasture, meadow, small grains, second year sweet clover or corn land that has been fed off or husked early, can be broken without conflicting with other work.

"Fall plowing also reduces the total amount of work which must be done in the spring. This makes it possible to prepare seed beds better and on many farms will reduce the amount of hired labor needed and the number of horses which otherwise would have to be kept. Hired labor generally is recognized as a direct expense, but the keeping of extra horses to supply adequate power for a short time is even more costly. The horses will be idle during much of the year, while the hired labor can be turned off when the rush is over."

Poor Feed And Care Lead To Certain Ailments Of Fresh Cows

Improper feeding and care are responsible for at least four of the more important ailments of dairy cows at calving time, according to W.B. Nevens, assistant chief of dairy cattle feeding at the College of Agriculture. These four ailments are inflammation of the udder, impaction of the stomach, milk fever and the retention of the afterbirth. In order to prevent these troubles or at least reduce their severity, dairymen should give their cows little or no concentrates for a day or two before calving. If concentrates are fed they should be of a light, laxative nature, such as wheat bran or beet pulp. After the second day concentrates may be fed at the rate of a half pound daily as long as milk production continues to increase.

"The roughage which the cows get should consist of moderate amounts of good legume hay, sliced roots, fresh grass or corn silage. Under no circumstances should the cows be allowed to drink ice cold water just before or after calving. The water should be warmed slightly for a day or two. A dry, well bedded box stall should be provided and if the barn is cold or drafty the cow should be blanketed. Giving a warm bran mash after calving usually helps. This can be made by putting four to six quarts of wheat bran in a pail and pouring enough boiling water over it to moisten it thoroughly. This should be allowed to stand for ten minutes and then diluted with cold water and fed while warm.

"Inflammation of the udder often may be relieved by milking three to four times daily and then thoroughly massaging the udder with the hands for 10 to 15 minutes after each milking. Unsalted lard or camphorated oil may be rubbed in to help reduce the swelling.

"Impaction of the stomach or bowels usually requires medical attention, but feeding according to the recommendations which have been given may help prevent it. As a further preventive in cows that are being fed heavily, the concentrates may be moistened 20 to 30 minutes before being fed.

"In addition to following careful feeding methods, dairymen can guard against milk fever by removing only enough milk from the udder during the first two days after calving to relieve the pressure. Retention of the afterbirth may be associated with an infectious disease, but also may result from an insufficient amount of feed, particularly lime, or from moldy feed, spoiled feed or overfeeding accompanied by constipation."

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Schedule Announced For Better Dairy Sire Special Of B. & O.

The schedule for the Better Dairy Sire Special which the Baltimore & Ohio railroad, in cooperation with the College of Agriculture and other interested agencies, will operate through 14 Illinois counties during the second and third weeks in November has been announced as follows:

Flora, 1:15 p.m., November 9; Ina, 8:00 a.m., November 10; Carlyle, 1:15 p.m., November 10; Breese, 8:00 a.m., November 11; O'Fallon, 1:15 p.m., November 11; Fairfield, 8:00 a.m., November 12; Norris City, 1:15 p.m., November 12; Ridgway, 8:00 a.m., November 13; Shawneetown, 1:15 p.m., November 13; Lawrenceville, 8:00 a.m., November 16; Sumner, 1:15 p.m., November 16; Olney, 8:00 a.m., November 17; Altamont, 1:15 p.m., November 17; Beecher City, 8:00 a.m., November 18; Cowden, 1:15 p.m., November 18; Pana, 8:00 a.m., November 19; Taylorville, 1:15 p.m., November 19; Springfield, 8:00 a.m., November 20; Beardstown, 1:15 p.m., November 20.

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Flora, 1:15 p.m., November 9; [illegible] November 10; [illegible] 15 p.m., November 10; Kinmundy, [illegible] November 11; Olney, 1:15 p.m., November 11; Fairfield, 8:00 a.m., [illegible] Ridgway [illegible] November [illegible]

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII | November 4, 1925 | Number 44

Dairy Herd Improvement Association Makes Good First Day

LaSalle county's second dairy herd improvement association, which was just recently organized by Farm Adviser W. W. McLaughlin and the extension service of the College of Agriculture, made good with its 25 farmer-members on the very first day that it was in operation. The first herd records which were compiled by Edward Ehredt, of Elizabeth, field man of the association, prevented the sale of two valuable cows which might otherwise have been disposed of at a sacrifice by their owner, F. A. Blue, one of the members of the association.

The two cows were slated to be sold because one of them was suspected of giving thin milk and the other was a bit off color for Mr. Blue's Guernsey herd. Fortunately, Mr. Blue's herd was the first one tested for the milk and butterfat records of the various cows in it, and when these records had been completed it was found that these two cows were the two highest producers of butterfat in the herd.

Milk from the cow which had been suspected of giving a low testing product showed a test of 4.6 per cent which compared favorably with the test for the rest of the herd. She had a monthly production of 913 pounds of milk to her credit, thus giving her a record of 42 pounds of butterfat for the month.

The dark red cow which looked to be out of place among the fawn and white Guernseys produced 863 pounds of milk which tested 5.1 per cent butterfat and contained 44 pounds of butterfat.

After seeing the results of this test, Blue and his partner were convinced of the value of definite production records in culling a dairy herd. Every cow in this herd, as in all other herds that are enrolled in dairy herd improvement associations, will have a chance to prove her ability as an efficient milk and butterfat producer before she is discarded, it was pointed out by H. E. Jamison, assistant in dairy extension at the agricultural college, who assisted in organizing the association in this county.

The new association is the second one to be organized in LaSalle county since January and the twenty-fourth active association for the state. Officers of the new association are: President, F.M. Bumgarner, McNabb; secretary, William Temple, Serena; and treasurer, Ernest Schroeder, Ottawa.

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Fall Preparation Gives Spring Gardening An Early Start

Fall preparation of the garden is required if a favorable start on next year's operations is obtained. By preparation is meant planning the crops for next year and profiting by the past year's mistakes as well as taking care of the actual work to be done in the garden. A small area highly fertilized, thoroughly cultivated and intensely cropped is likely to give more satisfactory results than a large area poorly fertilized or inadequately tilled.--E.L.Weaver, Olericulture, College of Agriculture, U. of I.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

Third Fewer Sows Needed In Sanitary Raising Of Porkers

Many Illinois farmers this year have raised the usual number of pigs with one-third fewer sows by following the swine sanitation system advocated by the College of Agriculture, and county farm advisers, according to E. T. Robbins, livestock extension specialist of the college. In some cases fully as many pigs have been raised by half as many sows as formerly, and in all cases practically all of the pigs saved at farrowing time have come on to maturity. This has meant a lower cost of producing pork and consequently much more profit for farmers who followed the sanitation system. In past years, without sanitary precautions, many pigs on these same farms have died from worms and necrotic infection.

A good example of how the system works out in practice is to be found in the case of Charles Snyder, Versailles, president of the Brown County Farm Bureau. In former years, without the use of the sanitation system, from 30 to 40 per cent of the pigs which he saved at farrowing time usually died within the four following months from worms and necrotic enteritis. This year, with sanitation, his 14 sows saved 97 pigs, none of which died during the summer. These pigs spent the summer on sweet clover pasture with scarcely a bushel of corn for the whole bunch. It is true that they were thin, but they also were thrifty and ready to mature fast on new corn. Snyder had fully 35 more shotes alive this fall than he would have had under the old plan. Valuing these shotes at $10 each, his gain is $350.

C. E. Bennett, of Hugo, Douglas county, is another farmer who has had disastrous experiences in the past and who has profited from the swine sanitation system. In 1923 his sows saved 144 pigs, but half of them died later of worms and necrotic infections with the result that he had only 72 left to fatten in the fall. In 1924 he saved 134 pigs at farrowing time, but these kept dying during the summer until only 68 were left to be fattened and sold. This year he had 16 sows and they saved 123 pigs. He followed the sanitation system and only two pigs died during the summer with the result that he had 121 to turn into the corn field. He figures his gain at 60 shotes worth $10 each, or a total of $600.

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Montgomery Farmers Gain By Buying Beef Sire Cooperatively

Cooperation has been used to good advantage by five Montgomery county farmers, each of whom was in the market for a Shorthorn herd sire. The five of them attended the last Galesburg sale of the Illinois Shorthorn Breeders' Association with intentions to buy a sire for their respective farms. After getting together at the sale, however, they decided to pool their money and buy one bull cooperatively instead of five individually. They thereby not only saved money as individuals but also secured the use of a better bull than any one of the five felt that he could afford to own alone. The five owners of the bull are Sam Sorrels, W. C. Rebhan, Kelmel Brothers, Alva Jones and Carl Hitchings. They own a total of about 20 purebred and grade Shorthorn cows. The bull cost them $200 and is to be kept on each of the five farms in turn, an arrangement which is possible because all five of the farms are in the same neighborhood. It also will be convenient to take the cows to the farm on which the bull is being kept if this is desired. This club plan of buying and using beef sires might well be used by farmers in other communities, according to E. T. Robbins, livestock extension specialist of the College of Agriculture.

Wide Use Of Home Grown Feeds For Cows Will Cut Feed Bills

Corn and oats, both home grown feeds, are still the cheapest source of digestible nutrients and should be used as extensively as possible in the dairy ration this winter, it is pointed out by C. S. Rhode, dairy extension specialist of the College of Agriculture. Unfortunately, these two feeds do not put enough protein into the ration, unless the roughage that is being fed is good legume hays only, and consequently it is necessary in most cases to buy some feed that is high in protein to supplement the corn and oats. At present prices gluten meal and cottonseed meal are the two cheapest feeds for this purpose. Gluten meal should not be confused with gluten feed.

When silage and legume hays are being fed as roughage, a good grain mixture can be made of 500 pounds of ground corn, 250 pounds of ground oats and 100 pounds of ground soybeans. Another good grain mixture for use with silage and legume hays can be made from 500 pounds of ground corn, 500 pounds of ground oats, 50 pounds of cottonseed meal and 50 pounds of gluten meal. Both of these grain mixtures should be fed at the rate of 2½ pounds for each gallon of milk produced.

When no legumes are being fed, the grain mixture should be made of 100 pounds each of gluten meal, ground corn, ground oats and linseed oil meal. Another good grain mixture to use when no legumes are being fed can be made from 100 pounds each of ground corn, wheat bran and linseed oil meal and 50 pounds of cottonseed meal. These two should be fed at the rate of 2⅔ to 3 pounds of grain for each gallon of milk produced.

When legume hays supply all the roughages, the grain mixture can be limited to 100 pounds of ground corn and 100 pounds of ground oats. A second grain mixture that can be used when legume hays supply all the roughages can be made from 600 pounds of ground corn, 300 pounds of ground oats and 100 pounds of linseed oil meal. These two grain mixtures should be fed at the rate of 3 to 3½ pounds for each gallon of milk produced.

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Separation Of Pullets And Hens Recommended In Large Flocks

In flocks of 300 or more hens, maximum profits from the sale of eggs, either from the old laying flock or from the pullets, cannot be realized if the hens and pullets are managed alike and run together, according to D. C. Henderson, of the poultry division, College of Agriculture. If both the hens and pullets must be kept in one house it is advisable to separate them by means of a partition. Further separation to get the early hatched pullets away from the late hatched ones is advisable if the very best results are to be obtained from the flock. This plan is not possible on all farms, but it will repay the poultryman when he is able to do it. The pullets that are hatched early should mature earlier and carry a greater surplus of fat than the late hatched birds. These late hatched, growing pullets should be fed liberally on grain and growing mash until they are ready for the laying quarters. Allowing pullets free range to a good laying mash will bring them into production and make them return a profit during the winter.

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII | November 11, 1925 | Number 45

Sanitation Saves Month In Getting Pigs On Market

Swine sanitation, as advocated throughout the state this year by county farm advisers and the College of Agriculture, paved the way for economical pork production on hundreds of farms by making it possible for hog men to get their pigs up to a marketable size a month or more earlier than ordinarily is possible under common, unsanitary methods, according to E.T. Robbins, livestock extension specialist of the college. The value of the swine sanitation system in avoiding round worms and other associated troubles of pigs this year was demonstrated on several hundred farms in 61 counties of the state and in almost every case the spring pig crop raised on these farms already has gone to market. In some cases, the pigs were shipped out to market as early as August.

"Edward Waddill, one of the Henderson county demonstrators of the swine sanitation system who lives at Raritan, sold 150 of his 241 sanitation pigs two months ago. At five months of age, these pigs averaged 182 pounds each, which was more weight than Waddill's best pigs carried last year when they were a month older. The 90 smaller shotes which were sold later this fall were all good ones but not so large as those which were sold first.

"Another Henderson county demonstrator, W.W. Ross, Terre Haute, had 145 sanitation pigs ready to ship weighing 200 pounds each when they were about six months old. He also had a few hogs which were two months older but which were raised the "Wormy way". These were scrawny and averaged smaller than the sanitation pigs.

"Emmett Ashbaker, Mt. Sterling, in Brown county, raised one litter of pigs the old way and put the rest of his spring pig crop under the sanitation system. When the pigs raised the old way weighed 125 pounds, the sanitation pigs averaged about 200 pounds. It would have taken the backward pigs a month or two to have reached a weight of 200 pounds."

Early maturity of pigs alone more than pays for the little extra labor which the sanitation system requires, according to Robbins. In addition, there is the saving of many pigs which the worms would have killed after the animals had been fed to weights of 20 to 75 pounds, he added. The sanitation system calls for clean sows before farrowing, clean farrowing pens and clean pastures to which the pigs should be hauled when they are ready to leave the farrowing pen.

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Natural lighting within the home has not kept pace with artificial lighting, in the opinion of W.A. Foster, of the farm mechanics department, College of Agriculture. Starting with the candle, artificial lighting has advanced to the nitrogen bulb stage. When it comes to the matter of natural lighting, however, more care usually is taken in the correct location of the windows in the hog or poultry house than those in the aver ge farm home. It is true that the long windows from ceiling to floor screened with their blinds and curtains have given way to better shaped openings through which light diffuses to both ceiling and floor, but still too little thought is given to the placing and size of window openings, Foster believes.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

Cotton Not Making Good As Safe Crop For Illinois

Because of a comparatively short season and other hazards, cotton cannot yet be considered a safe crop for southern Illinois, according to experiences with it since 1911 on the experiment field which the College of Agriculture, maintains at Unionville. Except for one season, cotton has been grown on the field ever since 1911 but only one crop has made close to a bale an acre, while all the others have given only poor to fair yields.

The best varieties of cotton have not been acclimated to the weather conditions under which they must be grown and, as is the case on the experiment field, poor drainage does not allow for as early seeding as the advance of the season would justify, according to A.H. Karraker, of the college agronomy department. Furthermore, early frosts of late September stop the development of immature bolls and thereby cut down the yield.

Despite the fact that tile drains have been installed on the experiment field, the drainage of it is still poor. The typical upland of this section, however, is better drained and cotton therefore can be seeded earlier on it than on the experiment field. Many growers also seed cotton ridges and thereby obtain favorable conditions for early rapid growth, especially during a wet season. Level seeding is practiced on the experiment field, however, because it retains the moisture during the dry part of the summer and also makes cultivation easier.

Proper soil treatment is another of the problems which must be met by farmers who attempt to grow cotton in this section. As a ten-year average, the yield of cotton on untreated land on the experiment field has been 190 pounds of seed cotton an acre. In contrast to this the yield has been 373 pounds of seed cotton an acre when the land was treated with manure alone; 525 pounds an acre with a treatment of manure and limestone; 549 pounds an acre with a treatment of manure, limestone and rock phosphate; 168 pounds with a treatment of residues alone; 279 pounds with a treatment of sweet clover and limestone; 291 pounds with a treatment of sweet clover, limestone and rock phosphate, and 472 pounds with a treatment of sweet clover, limestone, rock phosphate and kainit.

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Wheat Yields Swelled Eight Bushels By Phosphate

Wheat yields on seven soil experiment fields maintained in northern Illinois by the College of Agriculture this year were increased an average of six to eight bushels an acre by treating the soil with rock phosphate, according to results announced by H. J. Snider, assistant chief of the fields. At present wheat prices, these increases gave a substantial return on the rock phosphate, he pointed out. The fields are located at Joliet, Aledo, Dixon, Kewanee, LaMoille, Mt. Morris and Spring Valley.

On these fields the land treated with manure and limestone and with sweet clover and limestone produced an average of 32 bushels of wheat an acre. Where rock phosphate was added to the manure and lime treatment the yield jumped to 38 bushels an acre, and where rock phosphate was used in addition to sweet clover and lime the yield averaged 40 bushels of wheat an acre.

Heavy Manuring And Fall Plowing Improve Gardens

Soil must be much richer for successful gardening than for general farming. Liberal application of manure therefore will be beneficial. Stable manure should be applied broadcast at the rate of 40 tons an acre. This is equivalent to a ton for every four square rods. The manure should be plowed under deep before the ground freezes. When the garden is thus plowed in the fall the manure is more nearly incorporated in the soil, the land can be worked earlier in the spring, the plowing is done and operations may start just as soon as spring opens. The manure adds plant food and organic matter to the soil and thus improves both its chemical and mechanical condition.

When manure is not available, organic matter may be added to the soil by growing and turning under a cover crop. When legumes are used for this, nitrogen also is added to the soil. Rye is the best cover crop to sow late in the season. It should be sown on that part of the garden intended for late crops next year and plowed under next spring when about 18 inches high.

If the ground is poor, commercial fertilizer may be applied just after working the soil next spring. An application of phosphorous usually is beneficial on Illinois soils. When possible, at least 400 pounds an acre of acid phosphate should be applied to furnish the phosphorous. -- B.L. Weaver, Olericulture, College of Agriculture, U. of I.

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Knowing Age Of Hens Protects The Flock Profits

Many farm flocks of chickens are less profitable than they might be because there is no way by which the old hens, which are not worth keeping beyond the second year of laying, can be identified and disposed of each year, according to L.E. Card, chief of poultry husbandry at the College of Agriculture. It is true in general that a hen will lay fewer and fewer eggs each year after the first. Consequently it is a wise practice to use some scheme for marking the hens to indicate their age.

"One of the simplest methods is to use hog rings. A hog ring placed on the left leg of all pullets put into winter quarters this year and a similar ring placed on the right leg of every pullet raised in 1926 will make it easy to tell the age of any bird in the flock when culling is being done in 1927. If it is desired to carry any birds beyond the second year of laying an extra ring may be placed on the right or left leg as the case may be to identify these individuals.

"A marking of this sort will be of benefit not only in decreasing the percentage of hens that are poor layers because of age, but also in keeping the flock free from certain diseases and from scaly leg, because of the fact that older birds are more likely to be affected."

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We are coming to realize that roads possessing roadsides intelligently planted will be more effectively protected against erosion than roads lacking such planting. Roadside trees and bushes will provide ideal nesting places for birds essential to agriculture; will show off adjacent property advantageously and assist definitely in raising the value of contiguous land, and will provide shade along the miles of concrete pavement that in summer are so intolerably hot. -- K.B. Lohman, landscape architecture, College of Agriculture, U. of I.

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII | November 18, 1925 | Number 46

Salt Not As Poisonous For Chickens As Commonly Believed

Although poultrymen generally believe that chickens are very readily poisoned by common table salt, an experiment which has just been completed by poultry and nutrition specialists at the College of Agriculture demonstrates conclusively that the toxic effects of salt upon poultry have been far overestimated. Growth of 9-weeks old chickens was not retarded although they were fed for three months on a ration containing four pounds of salt in each 100 pounds of feed. Furthermore, no ill effects were shown in 11 to 12 weeks of feeding by 14 chickens that were fed a ration containing eight pounds of salt in each 100 pounds of feed, although their growth was slightly retarded due to the slow adjustment of their appetites to the disagreeably salty feed.

Tests made on chickens weighing three to four and one-half pounds did show, however, that salt given in doses as a solid or concentrated brine was more toxic than salt given in the feed. In those tests it was found that the smallest dose of salt required to kill a 4-pound chicken was approximately one-fourth of an ounce. One-fifth of an ounce per 4-pound bird did not have fatal results, however, in a test on six chickens. A total of 75 chickens of three breeds were used in the test.

Judging from the results which were obtained by dosing chickens with salt in the form of a solid or concentrated brine, the minimum fatal dose of salt for a man weighing 160 pounds would be eight ounces, if salt were no more poisonous for a man than for a chicken, according to H. H. Mitchell, chief in animal nutrition at the college. On the same assumption, the smallest fatal dose for a 1,000-pound cow would be a little less than four pounds of salt.

Many instances have been reported in which chickens supposedly were killed by eating salt meat or fish, salty kitchen wastes or brine left from the curing of meat or the freezing of ice cream. The result has been that some authorities have recommended that the proportion of salt in a mash for chickens should not be higher than five to ten ounces in each 100 pounds of mash when the mash mixture made up about half the total ration, and that no salt should be given to young stock until it was two months old. "Because of the common occurrence of salt in domestic and industrial wastes and by-product feeds that are occasionally or regularly fed to poultry, the college performed this experiment to settle definitely how much salt a ration may contain before the growth of chickens is retarded and to determine how large a single dose of salt a chicken may safely take."

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Kane and Lake counties divided honors in the number of high producing cows which won a place in the October summary of the 24 active dairy herd improvement associations of the state. Each of these counties had two cows among the ten best ones. Moultrie county took the honors in the number of high producing herds for the month by placing three among the ten best ones. Lake county contributed two of the ten best herds. McDonough, McLean, JoDaviess, Moultrie, McHenry and Vermilion counties each had one cow among the ten best ones for the month, while Will, Vermilion, DuPage, Peoria and Kane counties each were represented by one herd among the ten best ones for the month.

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Worst Chick Plague Shows Up In Almost Every Tested Flock

Only 17 of the 758 Illinois poultry flocks which the College of Agriculture has tested during the past two years for contagious bacillary white diarrhea have proved to be free from this disease, the most highly fatal one of all baby chick plagues, according to results of the test announced by Dr. Robert Graham, chief of animal pathology and hygiene. The third year of the tests is just now being started in a further effort to aid flock owners in reducing their baby chick losses next spring.

The 758 flocks which have been tested during the past two years contained more than 100,000 chickens and represented better than half the counties of the state. Of these 758 flocks, 367 were tested during the year ending June 30, 1924. There were approximately 42,000 chickens in these flocks and of this number 18 per cent were found to be infected with the disease. This past year, ending June 30, 1925, more than 50,000 chickens in 391 flocks were tested for the disease with the result that approximately 12 per cent of all these chickens were found infected. Two flocks that were free of the disease were found in the tests last year, while 15 flocks came out with clean records during the tests of the year just past.

The blood, or agglutination test which the college is now applying to poultry flocks of the state for the third year is an important step in the control of bacillary white diarrhea. Complete control of this plague depends upon eliminating the infection in mature hens which are used for breeding purposes and upon destroying the infection in hatching trays, brooder pens and yards. The blood test is important in this program because to date it has proved to be the best means of detecting the disease in mature birds. Incidentally prevention is the only weapon that can be used successfully in combating the plague, for there is no medicine which cures it.

Blood samples for the test are drawn from the hens by the local veterinarian in each case; the samples are tested by the laboratory of animal pathology and hygiene at the college, and then when the infected birds in the flock have been removed and the premises disinfected under direction of the local veterinarian, the flock is accredited free from bacillary white diarrhea by the state veterinarian.

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Plant Breeding May Check Undesirable Mottling Of Soybeans

Mottling, an undesirable character of soybeans which has attracted a good deal of attention from growers during recent years, seems to be largely the result of environmental conditions, but there also are indications that it may be controlled to some extent by breeding, according to C. M. Woodworth, chief of plant breeding at the College of Agriculture. "That breeding may be a means of controlling mottling is indicated by the fact that certain varieties show a greater tendency to mottle than others, although they are all grown under the same conditions. Midwest, Ito San, Manchu and Hong Kong all mottle considerably when grown here on the college farm, while Dunfield and certain selections of the A. K. variety show little or no mottling. Also differences are found in the same variety with respect to amount of mottling. In the Manchu variety some plants were extensively mottled while others showed little or none. When progenies were grown separately from these plants, the degree of mottling exhibited by the parent tended to be transmitted. Thus, plants which were classed as non-mottled gave progeny which were mottled but only one-third to one-half as much as the progeny of considerably mottled plants. All these progenies were grown under as nearly the same soil and climatic conditions as possible."

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Cleanliness Around Pig Pens Takes Gamble From Hog Business

A little cleanliness around the pig pen this year has done more to stabilize the hog business on several hundred Illinois farms than all the legislation and political panaceas can ever hope to accomplish, according to E. T. Robbins, livestock extension specialist of the College of Agriculture. Whereas in former years these several hundred farmers have been accustomed to losing 10 to 50 per cent of their pigs because of round worms and other associated troubles which are encountered under old common methods of pork production, they cooperated this year with the agricultural college and their county farm advisors in demonstrating the institution's recommended swine sanitation system and thereby matured and marketed more than 95 per cent of the porkers which they saved at farrowing time. Accordingly, much of the gamble has been taken out of pork production on these farms and the confidence of the cooperating demonstrators in the hog business has been restored.

After visiting 254 of the swine sanitation demonstrations in 30 counties of the state, Robbins recites these instances to show what simple cleanliness has done for the hog business on these farms: "Nathan Westcott, Butler, did not lose any of the 51 pigs saved at farrowing time; Benning Brothers, Raymond, lost one out of 75; Dana Stevenson, Hamilton, lost two out of 95; Frank Bowen, Hamilton, lost one out of 98; Ray Cochran, Warsaw, lost three out of 67; Thompson Brothers, Basco, lost two out of 84; H. R. Graham, Denver, lost four out of 106; Silas Andrews, Mt. Carmel, lost none and raised 65; Carl Stewart, Monmouth, lost five out of 202; Bert Perdue, Berwick, lost one out of 56; Harlan Watson, Roseville, lost five out of 154, and A. D. Bradshaw, Smithshire, did not lose any out of 90.

"G. A. Lazier, Rochelle, lost one out of 50, Edward Waddill, Raritan, lost two out of 243; Charles Snyder, Versailles, had 97 pigs at farrowing time and raised all of them; W. W. Ross, Terre Haute, lost only one from a bunch of 146; C. E. Bennett, Hugo, lost two out of 123, and Lambert Brothers, Colusa, lost one out of 108.

"Many of these men said that in the past they had been accustomed to losing from 10 to 25 per cent of the pigs during the summer and some had lost 50 per cent before trying sanitation. In contrast to this, the losses under the swine sanitation system have been less than five per cent, regardless of the size of the hog business on which the plan was used."

Clean sows before farrowing, clean farrowing pens and clean pastures to which the pigs should be hauled, not driven, and kept there until they are at least four months old are the chief points in the swine sanitation system.

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White County Poultry Club Puts Better Methods On Many Farms

A boys' and girls' poultry club composed of 827 White county farm boys and girls who raised a total of about 4,100 purebred chickens this year paved the way for purebred poultry and better poultry methods on at least 600 farms in that section of the state, according to C. E. Gates, club work specialist of the College of Agriculture. The chickens which the youngsters raised are valued at around $3,690 and practically all of them have stayed on the farms where they were hatched and raised. More than 76 per cent of the 827 girls and boys who were enrolled in the club at the start of the work last spring carried their projects through to a definite end. Carmi's Kiwanis club cooperated with the extension service of the agricultural college and Farm Adviser E. W. Creighton in promoting the club by furnishing one setting of purebred hatching eggs to 800 of the club members on the return-pullet plan. The 27 remaining members received their eggs from the local farm bureau.

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Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Best Utilization Of Marginal Lands Is Broad Problem

The problem of a relatively unprosperous agriculture in well-defined sections of the United States is one which is causing increasing concern to both the federal and state governments. The fundamental cause of this lack of prosperity appears to be a lack of intelligent utilization. Every state in the Union has such lands, and that their most advantageous utilization is a matter of public concern is coming to be more and more clearly seen. However, no one has a right to even make a guess as to how these regions may be made more prosperous until the factors which make them as they are now are understood. This understanding can come only as the result of a comprehensive study of the situation as it exists in each area in question.

The term "marginal" as related to land has come into use to designate those areas, which, for one reason or another, are not yielding sufficient returns under the system of management being used to support a prosperous population. These lands are frequently of such nature that they cannot be made to yield the returns of which they are potentially capable without state or federal assistance. Notable examples of this are the dry lands of the west, some of which have been successfully changed from marginal lands to highly productive lands by irrigation.

Illinois is fortunate in not having a larger percentage of marginal land. We do, however, have considerable land in the state which must now be placed in the marginal group. The four relatively large sand areas in the central and northern part of the state belong, in part, in this group. The seven southern counties contain much marginal land and the flat region from Shelby to Johnson counties contains much land that is marginal in nature.

The utilization of these lands to the best advantage is a problem of vital public as well as individual concern, as stated above. It can be solved only by determining just what the factors are that make these particular areas marginal and what their potentialities are if properly utilized. The only hope for its solution lies in a comprehensive investigation to determine just why the situation is as it is, and how it may be changed.

It is futile to go into a county and tell the farmers that their soil will grow wheat, and that if they will adopt a certain plan of soil management, they can increase their yields 10 bushels an acre. These farmers want to know first whether they should grow wheat. To answer this latter question requires far more comprehensive knowledge than to answer the former, and no attempt should be made to answer it until all the known factors have been studied and correlated by those competent to make such a study. Illinois is fortunate in that a solid foundation for this study is being laid by the Agricultural Experiment Station thru its soils and crops work. The state soil survey is continuing to make rapid progress in the classification of the soils of the state, the Division of Crops is increasing its efforts to determine crop and variety adaptations, and the experiment fields are accumulating much information regarding soil treatment. The information furnished by these agencies is essential, for the soil is fundamental, but they alone cannot solve the problem. The study must be broadened and made to include all of the factors in land utilization before a sane program of development can be mapped out.--R.S.Smith, Chief, Soil Physics, College of Agriculture, U. of I.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914 H. W. Mumford, *Director*.

Alfalfa Valuable For Fall Pigs Because Of Vitamins

Fall pigs, which are just now being weaned and put on winter feed, will gain faster and more economically if a small amount of alfalfa meal is added to their ration or a rack of good quality alfalfa hay is placed in their lot, says W. E. Carroll, chief of swine husbandry at the College of Agriculture. The alfalfa supplies some necessary vitamins that the growing pigs must have, he explained. If this and other steps are taken to see that fall pigs are properly handled, they should turn out to be just as good profit makers as spring pigs, he added.

"Ear corn or even shelled corn will not meet the needs of the growing pig and fatten him economically. Even a ration of corn and tankage, which is a vast improvement over the rather common ration of corn alone, is inferior to a feed of corn, tankage and alfalfa meal or alfalfa hay. Depending on the relative prices of tankage and oil meal, the feeding of oil meal may be a means of cheapening the ration. Corn supplemented with a mixture of two parts tankage, one part linseed oil meal and one part alfalfa meal will produce faster gains than a ration of corn and tankage. This mixture of tankage, linseed oil meal and alfalfa meal can be fed handily in one compartment of a self-feeder with shelled corn in the other compartment.

"Of course a supply of clean water should be within reach of the pigs at all times and it should be kept from freezing during cold weather. Salt also should be kept before the pigs. This can be fed in the ration or a better way still is to give the pigs free choice of it. A low grade of granulated salt or the coarse stock salt can be used. Most block salts are so hard that the pigs have trouble in getting as much as they need.

"If the ration previously recommended is used, it is questionable whether the gains of the pigs can be made more rapid or economical by adding a mineral mixture to the feed. If oats are somewhat cheaper a pound than corn, the addition of possibly one-fourth oats to the corn will help to cheapen the ration, but more than this will reduce the gains.

"Some protection from severe weather also will probably pay for the trouble of furnishing it and in addition the pigs should be given a dry bed."

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Almost Sixth Of Corn Crop Cost Saved By Hogging Off

Harvesting corn by hogging it down saves about 15 per cent of the cost of growing this crop and thereby makes it possible to produce pork cheaper on this less expensive feed, according to P. H. Stephens, of the farm organization and management department, College of Agriculture. Figures gathered by the department last year in Knox and Warren counties show that it took the average man a little better than five hours to husk an acre of corn yielding 45 bushels of grain. When the expenses for the board of the huskers and the keep of the teams were considered, the cost of husking amounted to around ten cents a bushel, or 15 per cent of the cost of producing the corn. On two-thirds of the Knox and Warren county farms from which the figures were obtained at least a part of the corn crop was hogged off.

In addition to eliminating the cost of husking and thereby lowering the cost of hog feed, hogging off corn is a good farm practice because the hogs are more apt to be healthy under the open field feeding conditions and, then too, the manure is placed directly on the land where it does the most good.

Selling Apples By The Pound Cuts Consumption Of Them

People are eating fewer apples and thereby cheating their health and cutting the revenue of apple growers all because this fruit is now sold by the pound instead of by the peck, as was formerly done, it is pointed out by J. W. Lloyd, chief of olericulture at the College of Agriculture. When apples were sold by the measure, the housewife usually would buy not less than a half peck, but now it is more common to buy from two to four pounds at a time.

Aside from this, the most logical step that could be taken at this time to facilitate the handling of fruits and vegetables would be to abandon legal weights per bushel for such fruits and vegetables as are usually shipped in bushel baskets and adopt a standard bushel basket, the cubic contents of which is one United States standard bushel, Lloyd believes. This would make all so-called bushels of the product of the same volume and all sales of the product in the original container could be made legally on the bushel basis.

As things now stand, several states have adopted definite standard weights per bushel for various fruits and vegetables. Such a double standard for a bushel of the same commodity is an utter impossibility. In many instances the standard bushel basket will not hold the legal weight of a bushel of a given product. This is true in the case of tomatoes. Many states require 60 pounds as the legal weight for a bushel of tomatoes, but it is impossible to pack much more than 50 pounds of them in a standard bushel basket and get the cover on.

A further barrier to the use of a double standard, or legal weight per bushel, is the fact that in many commodities the weight of a bushel varies widely between different varieties. For example, some varieties of peppers weigh only 24 pounds to the bushel, while other varieties weigh as much as 40 pounds a bushel. Even in green peas the weight of a measured bushel varies all the way from 32 to 40 pounds in different varieties. Ben Davis apples weigh considerably less to the bushel than some of the more juicy varieties. Then too, a bushel by volume of the same variety of apples will weigh differently depending upon the size of the specimens, since a bushel of small apples is considerably heavier than a bushel of large ones of the same variety.

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College To Hold Tractor Short Course January 11 - 16

More efficient care, repair and operation of the power units now being used on the farms of Illinois is the object of a short course on gas engines and tractors which the farm mechanics department of the College of Agriculture will hold during the week of January 11 to 16. Those taking the course will have access to the college's gas engine and tractor laboratory which contains ten popular makes of tractors, twelve tractor engines mounted on frames, thirty-five farm gas engines and a representative assortment of magnetos, carburetors, air cleaners and engine parts. Engine and tractor construction, engine timing, make and break ignition, high tension ignition, carburetor study and adjustment, tractor and gas engine trouble work and tractor operation will be taken up in four to five hours of laboratory work daily. In addition there will be three hours of lecture work daily in which will be explained the operating principles involved in the construction of engines, valves, valve timing, ignition and fuels. Lubrication and engine troubles also will be explained. A small fee will be charged to cover the cost of materials used in the course.

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII | December 2, 1925 | Number 48

Find Seed Corn Situation Is More Serious Than Suspected

Crop specialists at the College of Agriculture, who have been taking stock of the state's seed corn supply find that the situation is far more serious than most farmers suspect and indications now are that a shortage of good seed is entirely likely at planting time next spring. Much corn which ordinarily would be taken for safe seed contains a high percentage of dead kernels as a result of the late October freeze which caught Illinois corn with a high percentage of moisture. The investigations which the college has been making of the seed corn situation include germination tests here at the college, reports from judges of at least two corn shows recently held in different parts of the state and statements from farmers and county farm bureaus.

In a normal year, corn in most parts of Illinois would have been fully matured by the time of the late October freeze and therefore would not have been affected by it, but three or four weeks of rain just before the freeze delayed the crop and left it with such a high moisture content that the freeze worked havoc with the vitality of the seed wherever it struck, according to J.C. Hackleman, crops extension specialist of the college. Corn in the northwestern part of the state seems to have been hit the hardest by the freeze, while that in the southern portion apparently came through with little damage.

Representative samples of corn from Logan, Tazewell, Mercer, Hancock, Macon, Vermilion, Champaign, Ogle, JoDaviess and LaSalle counties were obtained for the germination tests which the college made and in every case the grain was found to contain a high percentage of moisture at the time of the freeze and therefore is showing an alarming number of dead kernels. Seven samples from LaSalle county varied all the way from 16 to as high as 23½ per cent in moisture content and only two of the samples contained no dead kernels, these two being the ones with the lowest moisture content. Thirty-three per cent of the kernels were dead in the sample containing 25½ per cent moisture.

From Macon county two samples of seed showed an average moisture content of 19½ per cent and contained seven per cent dead kernels; five samples from Hancock county had a higher average moisture content than those from LaSalle county and contained 17.6 per cent dead kernels, while 40 samples selected in a boys' corn club show in Vermilion county contained an average of 16.3 per cent dead kernels. Forty-eight samples taken from the men's classes in this same show contained 12½ per cent dead kernels.

"Farmers who followed the recommended practice of field selection of seed corn and picked considerable seed before the October freeze and then stored it properly are again lucky", Hackleman said. "Those farmers who did not select and store seed before the freeze should begin immediately to look carefully for seed. In many cases corn that was husked and cribbed before October 28 is now the most likely source of corn with 90 per cent vitality. In looking for seed ears, choose those that are bright and lustrous, heavy and solid with kernels that show a small amount of soft crown starch. In so far as possible the seed ears should have clean, bright, silky white shanks."

Printed in further acc of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director.*

Better Dairy Sire Special Paves Way For Improved Methods

Marked benefits to the dairying business in southern Illinois are expected to follow in the wake of the Better Dairy special which the Baltimore & Ohio railroad, in cooperation with the College of Agriculture, county farm advisers and the National Dairy Council, operated through 14 counties in that section of the state during two weeks of the past month, according to a report by C.S. Rhode, dairy extension specialist of the college.

Outstanding among the results which came from the operation of the special was the fact that a total of 48 purebred dairy sires from the best herds of the state and 21 heifers, all of which were bred to purebred sires, were placed on farms in that section of the state. The bulls were sold by representatives of the various breed associations who accompanied the train, while the heifers were given away, local business men awarding one to some farmer at each of the stops which the train made. More than 2000 farmers and dairymen who registered at the train were reached with a practical message on improved dairying, while approximately 1800 women were given suggestions as to new uses of milk in cooking and 3000 high school students were told of the value of milk in the human diet. About 10,000 grade school children also viewed the educational milk and health exhibits in the exhibit car.

Flora, Iuka, Carlyle, Breese, O'Fallon, Fairfield, Norris City, Ridgway, Shawneetown, Lawrenceville, Sumner, Olney, Altamont, Beecher City, Cowden, Pana, Taylorville, Springfield and Beardstown were the 19 towns at which the train stopped. Rhode, O.K. Quivey, general agricultural agent of the B. & O. and A. J. Glover, editor of Hoard's Dairyman, talked to the farmers; Miss Elsie Stark, food nutrition specialist of the National Dairy Council, addressed the women. The High School pupils also were addressed by a speaker from the council. One of the attractions on the 10-car train consisted of three representative cows from the agricultural college dairy herd which in the past has set a total of 25 state and two world records in milk and butterfat production.

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New Soil Circular Gives Tips On How To Learn About Soils

The detailed survey of Illinois soils which is being made by the experiment station of the College of Agriculture has now been completed in more than 80 counties of the state and soil reports for 30 of these counties have been published, according to a new circular entitled, "What the Illinois Farmer Can Do to Learn About His Soils", which the institution has just published and now has ready for free distribution. When completed, the survey, together with other investigations which are being carried on in conjunction with it, not only will be a complete inventory of the state's soils but also will furnish reliable information as to the best methods for maintaining and increasing the productive power of practically all farm land in the state, the circular points out.

In explaining how the soil survey and other investigations of the experiment station may be of value to the farmer in teaching him more about his soils, the circular states that the results of these investigations are being published in the form of bulletins, circulars and county soil reports. Regardless of whether or not the results of these investigations have been published, they are available to all residents of the state through correspondence or personal consultation without charge. The nature of the soil survey and the college's soil investigations is such that it is seldom necessary for a farmer to have samples of soil from his own fields subjected to complete chemical analysis. Copies of the publication may be obtained by writing the college at Urbana.

Creosoting Is Best Done By The Hot And Cold Bath Method

If careful creosoting will double the life of a post or timber, which is not impossible, the farmer can afford to spend nearly as much on the job of creosoting as the original cost of the post and still save the cost of the first replacement of it, it is pointed out by E.W. Lehmann, head of farm mechanics at the College of Agriculture. Costs of creosoting, of course, vary with the kind of wood that is being treated and the method that is used. The best creosote now costs 60 to 75 a gallon in barrel lots and when the hot and cold bath method of treatment is used, one-fourth of a gallon or more is likely to be used for each post. In dipping, the creosote goes much farther and cost of the oil is correspondingly reduced. Brush treatment costs run between five and ten cents a post.

Creosoting posts and timbers by the hot and cold bath method is best. In this method the posts are left in the hot oil one to three hours. They are then taken out and plunged at once into a tank of cold oil or they can be left in the first tank until the hot oil gets cold. Although this method of treatment costs more and takes more time, it soaks the post more thoroughly in the oil and lengthens the life of it accordingly. Dipping the posts into hot oil is perhaps the next best method. This plan requires some type of a vessel such as a small oil tank or an empty oil drum in which a reasonably large quantity of creosote can be heated. The oil penetrates every check and crack of posts plunged into this bath and a complete covering with the preservative is assured.

While the brush method of creosoting is the simplest and the least expensive, it likewise is the least effective. The creosote should first be heated to a temperature of 150 degrees Fahrenheit or more. Several coats of it should then be applied with a brush, each coat being allowed to dry before the next is applied. The chief objection to the brush method is that the coating of oil is all on the surface and if further seasoning takes place and checks develop, the untreated interior of the post is exposed to decay-producing agencies.

Winter Killing Of Garden Plants Apt To Be More Serious

Winter killing of garden plants is apt to be more serious than usual this year, unless these plants are given a protective covering in the form of manure, leaves or straw, it is pointed out by James Hutchinson, of the floriculture division, College of Agriculture. These plants have made an unusually luxurious growth during the past few months as a result of heavy rainfall and consequently they have not had a chance to go through the usual ripening period which prepares them for the winter.

- M -

Peoria County Has State Champion Pig Club Boy Third Year

Staying up all night with one of his purebred Duroc Jersey sows at farrowing time is just one of the things which Donald Cameron, 18 years old, of Hanna City, who is the new state champion of the state's 1,800 pig club members, did in his efforts to make a success with his pig raising business during the past season, according to a report which he has made to club officials at the College of Agriculture on his work. Young Cameron is the third Peoria county boys' pig club member to win the state championship in the last three years.

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

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Volume VIII | December 9, 1925 | Number 49

College Stock Wins Seven Championships At International

Livestock from the College of Agriculture made a highly creditable showing at the twenty-sixth Chicago International Livestock Exposition by capturing a total of seven championships, the most important of which was the reserve grand championship on fat steers. This award, which is next to the premier one of the exposition, was won by Laddie Fairfax, a Hereford calf which relinquished the grand championship and the top honor of the show to a yearling Aberdeen Angus from the Iowa State Agricultural College only after a stiff contest. Laddie Fairfax also was made the champion Hereford steer and the champion calf of all breeds. Other champions shown by the college were the champion pen of Duroc Jersey barrows, the champion single Duroc barrow, the reserve champion Oxford ram and the reserve champion Rambouillet ewe.

A number of lesser prizes were won by the college, these including first, third, sixth and seventh on senior Hereford calves; first on Hereford herd; sixth on senior yearling Angus steer; third on Angus bull calved between June 1 and September 30, 1924; second in the get-of-sire class for fat steers of all breeds; first in the John Clay special competition for calves of all breeds calved after September 1, 1924; fourth on yearling Shropshire ram; fourth on Shropshire ram lamb; third on yearling Shropshire ewe; fourth on three Hampshire ewe lambs; fifth on fat yearling Hampshire wether; fourth on fat yearling Oxford wether; first on Oxford ram lamb; fourth on three Rambouillet ram lambs; first and third on Rambouillet ewe lambs; first on three Rambouillet ewe lambs.

First on medium Duroc Jersey barrows; first on heavy Duroc barrows; second on pen of medium Duroc barrows; first on pen of heavy Duroc barrows; first on five Duroc barrows; second on light Hampshire barrows; fourth on pen of light Hampshire barrows; fourth on Heavy Poland China barrow, and third on pen of heavy Poland China barrows. The college also took first on Poland China carcasses weighing between 300 and 400 pounds and sixth in the John Clay special competition for five barrows of any breed and size. W. J. Hampton, shepherd of the college sheep flocks, took third shepherd's prize.

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R. R. Snapp Is Author Of New Book On Beef Cattle Husbandry

Among the recent books written by staff members of the College of Agriculture is "Beef Cattle" by R. R. Snapp, assistant chief of beef cattle husbandry. As pointed out by the author, the book has been prepared primarily for the college student and hence an effort has been made to compile what is considerably more than a practical feeding manual. The aim in preparing the book has been to include a consideration of the broader aspects of beef production as well as a discussion of the more practical phases of cattle husbandry. The book is one of the Wiley agricultural series.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914 H. W. Mumford, *Director*.

Best To Seed Sweet Clover Early Despite Danger Of Freeze

More is lost than gained by postponing the seeding of sweet clover until all danger of the young plants being frozen is past, according to George Dungan, assistant chief of crop production at the College of Agriculture. It is true that freezes sometimes occur after early seeded sweet clover has started its growth in the spring and that reseeding may be necessary if the freeze is severe enough to kill the young plants. This is a risk which cannot be avoided. The advantages in excellent stands and vigorous plants, commonly resulting from early seeding, are too great to justify delaying the time of seeding until all danger of heavy freezes is past. One of the big arguments in favor of early seeding is that it enables the plants to become deeply rooted before summer droughts come.

"Unhulled sweet clover seed may be sown on wheat fields during the winter. It usually is not advisable to sow such seed earlier than February, although no particular harm is likely to result from seeding as early as December or January. Unhulled seed must be sown especially early because it contains about 90 per cent of hard seeds which cannot absorb water readily. The alternate freezing and thawing of late winter and early spring softens the coats of these hard seeds with the result that they germinate just as soon as the weather becomes warm. From 20 to 30 pounds an acre of unhulled seed should be used.

"If sweet clover seeding is delayed until after the middle of March, hulled scarified seed should be used. Fifteen pounds of good scarified seed is enough. The treatment which the seed gets during the process of scarification makes it possible for the grains to absorb water immediately and prompt germination is the result.

"Limestone and inoculation are two other requirements for success with sweet clover. Without a sweet soil and thorough inoculation with nodule forming bacteria, sweet clover will not be a complete success no matter when it is sown."

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Nine Dates Already Scheduled For County Tractor Schools

Tractor manufacturers will cooperate with their local dealers, county farm advisers and the extension service of the College of Agriculture, in holding tractor schools throughout the state this winter in order to give farmers practical training in the construction, operation and repair of tractors, it is announced by F. P. Hanson, farm mechanics extension specialist of the college. Nine such schools already have been scheduled and others probably will be arranged in the near future. More than 500 farmers turned out for 16 such schools held last winter and overhauled 108 tractors. This is the third year for the project.

Counties for which schools have been scheduled and the dates for them are: Morgan, January 4 to 9; Jefferson, January 11 to 16; DuPage, January 11 to 16, tentatively; Wabash, January 24 to 30; Montgomery, February 8 to 12; Edwards, February 15 to 19; Randolph, February 15 to 19, and Brown, February 22 to 26. One school already has been held in Johnson county.

A special tractor and gas engine short course will be held at the college January 11 to 16 in addition to the county schools.

Limestone And Sweet Clover Swell Hay Yield At West Salem

Land on the soil experiment field which is maintained near West Salem by the College of Agriculture, which was treated with limestone and a green manure crop of sweet clover has yielded from one to two tons an acre more of timothy hay an acre than untreated soil, according to John Lamb, of the college agronomy department. Timothy and another hay crop, red top, are among the most important money crops of southern Illinois and the results which have been obtained on the field therefore are of special significance.

Despite the reputation which timothy and red top have for being soil robbers, the experiment field results show that the nitrogen content of the soils on which they are grown can be maintained or even increased, provided the two crops are grown in a rotation which provides for the turning down of sweet clover an average of once every three or four years.

Both timothy and red top are naturally adapted to the soil and climate of southern Illinois and will grow well under the most unfavorable conditions. They are of further value in cropping systems that are used in this section because of conditions which are peculiar to this part of the state. In an ordinary year the heavy rains of spring and early summer leave a narrow margin of time for working the tight clay soils with their poor underdrainage. Probably less than half of the land may be put in shape for a crop that goes in after the rains have subsided, while the rest of the land must be in crops such as timothy and red top which already are on the ground and growing, Lamb said.

Furthermore, timothy and red top may be seeded after soybeans or corn without extra cultivation in many cases or along with wheat, rye or oats and for the next few years require only harvesting. With these natural advantages in their favor, timothy and red top can be made to yield even greater returns to farmers in this section of the state, if they are grown under the conditions which have proved successful on the experiment field, Lamb pointed out.

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Thirty-Six Counties Take Up Terracing In First Five Years

Although it has only been five years ago since terracing, the most practical method of preventing costly soil washing, was first demonstrated in Illinois, this practice has spread until it is now being followed in more than 36 counties of the state, according to F. P. Hanson, farm mechanics extension specialist of the College of Agriculture, University of Illinois. He considers the rapid spread of terracing during the past five years as convincing evidence that farmers have found this practice worthwhile and effective. Adams county was the scene of the first demonstration on terracing in the state.

"Naturally a good many farmers have been skeptical about the value of terracing, but this has been largely because the practice is a comparatively new one and new methods usually are taken up rather slowly. While it is true that terracing is a new practice in Illinois, it is not an untried one, for it has been used in the south since 1885. The fact that all terraces that have been properly built and maintained in Illinois are giving satisfactory service is a strong recommendation for such work. Good crops were harvested this fall on terraced fields that would be in gullies if cultivation had been continued without terracing. It also is true that more and more fields are being terraced before orchards are planted on them. This is what should be done. It is possible and often practical to terrace orchards where trees are large, but it is easier and less expensive to do the terracing before the trees are set."

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

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Many Features Already Billed On Program For Farmers' Week

Assurance of reduced railroad rates for those making the trip, the scheduling of the annual meeting of the Illinois Agricultural Association, the billing of a number of prominent speakers and arrangements for a farmers' banquet at which beef from the reserve grand champion fat steer at the last Chicago International Livestock Exposition will be served are among the steps which already have been taken toward guaranteeing the success of the annual Farmers' Week at the College of Agriculture during the week of January 18 to 22, 1926, according to an announcement by those in charge of the event.

In his announcement of the week, H. W. Mumford, dean of the college, points out that in these days when many people are talking about what should be done for farmers, it is also an opportune time for farmers to consider what they may do for themselves. The week is an opportunity for the farmers of the state and the staff of the agricultural college to get together for mutual helpfulness, the announcement adds.

Practically all railroads of the state will offer reduced rates of fare and one half for the round trip to farm folks attending the meeting, according to word just received by the college. Acceptances also are being received from prominent speakers who have been asked to appear on the program.

Heading the list of outside speakers who will be here during the week to talk to the farmers and their wives will be W. M. Jardine, secretary of agriculture, and Frank O. Lowden, former governor of Illinois, both of whom are scheduled to appear before the annual meeting of the I. A. A. Other speakers whom the college has placed on the program are Dr. George F. Warren, professor of agricultural economics and farm management at Cornell University, Ithaca, N. Y.; Dr. R. A. Pearson, president of the Iowa State Agricultural College, Ames, Ia.; Gilbert Gusler, market specialist of Chicago; Dr. Lena K. Sadler, of the Chicago Institute of Research and Diagnosis, and Dr. L. R. Jones, plant pathologist from the University of Wisconsin, Madison, Wis.

During the week there will be separate sessions for those interested in soils and crops, farm mechanics, horticulture, dairying, farm organization and management, livestock and beekeeping. Added attractions will be the annual Illinois Seed Grain Show in which a new "corn king" for the state will be selected and a "Little International" livestock exposition to be staged by students of the agricultural college.

At the farmers' banquet to be held Thursday night, January 21, beef from Laddie Fairfax, the Hereford steer from the agricultural college herd which was made the reserve grand champion fat steer of the last Chicago International Livestock Exposition, will be served. When auctioned off at the International, Laddie was bought by the Sears-Roebuck Agricultural Foundation and presented to the college for use at the banquet.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

Trials Show That Sows With Suckling Pigs Can Be Self-Fed

Self-feeding of brood sows that are suckling pigs proved practicable and feasible when tried out this fall by swine specialists of the College of Agriculture, in one of the experiments which they are conducting on the college farm. From the results of the test, the specialists believe that sows suckling pigs can be put on the self-feeder by the time the pigs are a week old and possibly earlier, provided alfalfa meal is used in varying proportions in the ration as a diluting agent during the early feeding. The advisability of using the self-feeder method for sows suckling pigs will depend, of course, upon whether or not the feed can be ground for less than the expense of the extra labor required in hand feeding, W. E. Carroll, chief of swine husbandry at the college, pointed out.

In the experiment, eight sows and their litters, containing a total of 54 pigs, were put on self-feeders just as soon as they were moved from the farrowing house. The youngest litter was ten days old and the oldest 14 days old when this was done. One acre of bluegrass was available for each four sows and litters. Rations used in the self-feeders were selected with a view of meeting the needs of the sows and yet not giving them an opportunity of taking on more nutrients than could be utilized by the young pigs through the milk. At the start, a mixture of equal parts of ground corn, ground oats, middlings and bran was used. This was fed for 18 days, but at the end of that time it appeared that a more concentrated ration could be used safely. Accordingly, the bran was dropped and the proportion of corn increased so that the mixture contained two parts of ground corn, one part of ground oats and one part of middlings. With both rations, a supply of tankage was kept in separate compartments of the self-feeders.

By the time the pigs were weaned the sows had been self-fed on pasture for a total of 56½ days and during that time the eight sows and the 54 pigs ate 7,995 pounds of the mixed feed and 610 pounds of tankage. This was an average daily consumption for one sow and litter of slightly less than 18 pounds of the mixed ration and 1.3 pounds of tankage.

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Experiment Station Findings Are Summarized In New Report

Recent progress which the experiment station of the College of Agriculture has made toward solving of the farm problems of Illinois is set forth in a new type of annual report which the institution is issuing this year for the first time for the benefit of farmers and other interested persons. Some 200 or more lines of work, or projects, which the experiment station is conducting at the present time are covered in the report, brief summaries and new found facts being given in connection with the various projects.

"The task of writing up the scientific phases of an experiment, giving the necessary supporting facts and figures, is one that takes time, and we occasionally hear the complaint that the experiment station is too slow in giving the results of its work to the public and that the public does not realize the fund of information which the station has to offer," F. W. Mumford, director of the station, points out in his introductory statement. "It is hoped that this elaborated annual report will serve to correct this difficulty in some measure by acquainting the public with the scope and character of the problems which the station is attempting to solve and its success thus far in solving them." The report is entitled, "Recent Progress in Solving Some Farm Problems of Illinois."

Junior "Corn King" To Be Named At Illinois Seed Grain Show

One of the 1,166 farm boys and girls in 30 counties of the state who have grown utility type corn as their boys' and girls' club project during the past year will be named the state's first official junior "corn king" at the annual Illinois Seed Grain Show to be held at the College of Agriculture, in connection with the annual Farmers' Week, January 18 to 22, it has been announced by J. C. Hackleman, crops extension specialist of the college, who has charge of the show.

Naming a junior corn king for the state is a new feature of the grain show which is made possible by the fact that the Illinois Bankers' Association has posted $[illegible] to be awarded as cash prizes in a new junior section of the competition. The adult classes will carry $500 in cash prizes, also donated by the bankers' association. Competition for this prize money and for the adult corn king title now held by Dean Hoblit, Atlanta, Logan county, is expected to be keen.

Good seed corn has always been the watchword of the annual grain show and will receive even more careful attention this year, in view of the serious condition of much seed corn in the state and the possibility of a seed corn scarcity next spring. Every ten-ear sample of corn that is sent in not only will be scored on its physical perfection but also will be given a careful germination test. The utility score card, by which the corn will be judged, gives 35 per cent of the total value of a sample to its performance on the germinator. On corn show day, Wednesday, January 20, the germinated seedlings from the various samples entered in the show will be placed on display so that visitors and exhibitors can see how the samples performed during germination.

Classes for clover seed, oats, wheat and soybeans also will be provided in the premium list of the grain show. Another feature of the show will be a grain judges course and examination. Six instructors selected from the college staff and from the leading farmer corn judges of the state will give the instruction in this course. A certificate qualifying them to act as corn judges will be awarded to those who are successful in passing the course.

Corn that is to be entered in the grain show must be in Urbana by 6 o'clock Saturday night, January 2, 1926, Hackleman said.

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Grange Members Reelect E. A. Eckert State Master For 1926

A year of successful expansion was reported by officers of the Illinois State Grange at the annual meeting of the organization held last week at the College of Agriculture. E. A. Eckert, Mascoutah, was reelected master of the organization and Rockford was chosen as the 1926 meeting place. Other officers elected were: Overseer, A. J. Wolf, Magnolia; lecturer, Miss Anna M. Stahl, Washington; steward, Wesley M. Sarver, Davis; assistant steward, G. E. Allgren, Bishop Hill; chaplain, Mrs. E. J. Johns, Rockford; treasurer, D. Q. Trotter, Jerseyville; secretary, Julian Smith, Osco; gate keeper, C. H. Conover, Robinson; ceres, Mrs. Lula Gibson, DeKalb county; flora, Mrs. Laura Stooky, St. Clair county; pomona, Mrs. Frank Lander, Boone county; lady assistant steward, Miss Edna Klingel, St. Clair county, and executive committee members, Frank Jones, Peoria; L. B. Eidman, Mascoutah, and G. F. Hubbard, Rockford.

Trotter, who was reelected treasurer of the state Grange, has established a record of never having missed an annual meeting of the organization in 48 years. He also has just rounded out 30 years as treasurer of the state Grange.

One of the 1,100 farm boys and girls in 2- counties of the state who grew utility type corn as their boys' and girls' club project during the year, will be named the state's first official junior "corn king" at the annual Illinois Grain Show to be held at the College of Agriculture in connection with the Farmers' Week, January 18 to 22, it has been announced by J. C. Hackleman, crops extension specialist of the college, who has charge of the show.

Naming a junior corn king for the state is a new feature of the grain show, made possible by the fact that the Illinois Bankers' Association has put up $... to be awarded as cash prizes in a new junior section of the competition. The section will carry $200 in cash prizes, also donated by the bankers' association. Competition for this prize money and for the adult corn king title, now held by ... Atlanta, Logan county, is expected to be keen.

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Grange Members Reelect E. A. Eckert State Master for 1926

A year of successful expansion was reported by officers of the Illinois State Grange at the annual meeting of the organization held last week at the College of Agriculture. E. A. Eckert, Mascoutah, was reelected master of the organization and Rockford was chosen as the 1926 meeting place. Other officers elected ... overseer, A. J. Wolf, Magnolia; lecturer, Miss Edna M. Stahl, Washington; steward, ... M. Sarvor, Davis; assistant steward, G. S. Allyn, Bishop Hill; chaplain, ... J. Johns, Rockford; treasurer, D. Q. Trotter, Jerseyville; secretary, ... Cocot; gate keeper, C. H. Conover, Robinson; Ceres, Mrs. Lula Gilmore, ... Flora, Mrs. Laura Stocky, St. Clair county; Pomona, Mrs. Frank Lamet, ... county; lady assistant steward, Miss Edna Kissell, St. Clair county, and executive committee members, Frank Jones, Peoria; L. E. Gilman, Mascoutah, and G. F. Hubbard, Rockford.

The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII December 23, 1925 Number 51

Legumes Head Soils And Crops Program For Farmers' Week

Pioneer work of the College of Agriculture in recognizing and demonstrating the value of legumes in crop rotations is to be followed up and elaborated on during the annual Farmers' Week at the college during the week of January 18 to 22. Legumes have been given a prominent place on the soils and crops program for the week and many different phases of the legume question are to be discussed. This is of special significance, in view of the fact that the Illinois station was probably the first state experiment station to recommend the proper growth and utilization of legume crops as the sole source of nitrogen, one of the most important plant food elements for crop production.

The economic importance of legumes on Illinois farms, the soil saving qualities of legumes, the value of different legumes for soils improvement and the question of legumes as soil "robbers", are among the topics which have been scheduled for discussion on the soils and crops program. W. L. Burlison, head of the college agronomy department, and R. S. Smith, E. E. DeTurk and O. H. Sears, members of that department, will be the speakers on these particular subjects.

Other discussions on the soils and crops program will center around limestone, phosphate, corn breeding, seed treatment for the control of corn root rot, the corn borer, a comparison of foreign and home grown clover seed, the alfalfa wilt disease, wheat adaptation and disease resistance in plants. Speakers who will take care of these subjects will be L. H. Smith, F. C. Bauer, C. M. Woodworth, G. H. Dungan, J. J. Pieper and Benjamin Koehler, all of the college agronomy department, and W. P. Flint, entomologist of the state Natural History Survey, and Dr. L. R. Jones, plant pathologist from the University of Wisconsin, Madison.

One of the big attractions of the week in the soils and crops line, of course, will be the annual Illinois Seed Grain Show in which a new "corn king" will be crowned for the state. Other attractions during the week will be the meeting of the Illinois Agricultural Association, addresses by W. M. Jardine, secretary of agriculture, and Frank O. Lowden, former governor of Illinois; a farmers' banquet at which beef from Laddie Fairfax, the college's reserve grand champion fat steer at the last Chicago International Livestock Exposition, will be served, and a "Little International" livestock show staged by students of the agricultural college.

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Two College Jerseys Are State Champions In Their Class

Fairy Boys' Girlie and Fancy's Sophie, two Jersey cows in the herd of the College of Agriculture, were the 1924 state champion butterfat producers in their respective classes, according to an official announcement received by the college from the American Jersey Cattle Club. Fairy Boy's Girlie is the state champion over cows of all ages in class AA while Fancy's Sophie is the state champion over cows of all ages in class AAA.

The [illegible]

College of Agriculture—University of Illinois

[illegible]

December 26, 1929

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The economic importance of legumes on Illinois farms, the soil saving value of legumes, the value of different legumes for soils improvement and the use of legumes as soil "builders", are among the topics which have been scheduled for discussion on the soils and crops program. W. L. Burlison, head of the college agronomy department, and R. S. Smith, E. E. DeTurk and O. H. Sears, members of the department, will be the speakers on these particular subjects.

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Farmers Can Sell Water In Corn, But The Corn Brings Less

A bushel of corn may easily contain a gallon of water, but the farmer is only fooling himself when he thinks that he is slipping one over on the buyer by selling him grain with this high a percentage of moisture, according to John Pieper, assistant chief of crop production at the College of Agriculture. With the federal grain standards and their ease of application, the buyer can tell just how much water the corn contains and pay for the grain accordingly. Under these grain standards corn that contains more than 23 per cent moisture is sample grade, while No. 1 corn must contain less than 14 per cent moisture. Usually the difference in price between No. 1 and sample grade corn is more than enough to offset the greater percentage of water in the lower grade grain. Corn may contain 15 to 25 per cent moisture at the time of harvest.

"Many farmers hold to the false belief that wet corn gives a higher test weight per bushel than dry corn. The opposite is true and furthermore water is the dominating evil in three other major factors which affect the grade of corn. These three factors are moisture content, total damage and heat damage.

"Ordinarily, corn would grade high if it were not for the factor of moisture. Directly or indirectly, water is the cause of most of the low grades in corn. If grain is stored before it is thoroughly dry, it will mold and heat and heat damaged kernels are discriminated against severely in grain grading.

"The part which water plays in the determination of corn grades is especially important after a fall such as the past one in which much corn failed to mature and dry out properly because of the wet season."

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So-Called Repellents Fail To Protect Trees From Rabbits

After trying out 18 of the common so-called repellents which are supposed to protect fruit trees from being girdled by rabbits at this time of the year, S. C. Chandler, assistant entomologist of the state Natural History Survey, has concluded that axle grease, lime sulphur solutions, patented tree paints and the like are ineffective and that orchardists had better continue the use of wrappers or some form of mechanical protector for their trees. The 18 paints and washes which were put to test included all those that are commonly recommended as repellents and several others in addition. Rabbits caught in traps were given a chance to feed on the bark of fresh apple prunings, part of which were treated with the different repellents, and in all cases the rabbits ate the treated prunings just as readily as they did the untreated, according to Chandler.

"Suggestions are to be heard from many sources at this time of the year as to the value of applying different paints and washes to the trunks of fruit trees to keep rabbits from eating the bark. In most cases, the effect of these materials upon the bark is entirely unknown. The faith which some tree owners have in these various substances is probably due to the erratic feeding habits of rabbits. An entire block of trees usually is painted at the beginning of the season and just because there is no injury that year the owner gives all the credit to the paint, whereas it very often happens that rabbits are much worse some years than others and are worse in some places than others."

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[illegible]

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Fruit Industry Of Illinois Made Headliner For Farm Week

With Illinois holding a position as one of the leading fruit states and large areas within her boundaries devoted to truck gardening, the many problems of fruit and vegetable growing are to get their full share of attention at the annual Farmers' Week to be held at the College of Agriculture, University of Illinois, January 18 to 22. Most of the speakers on this part of the program will be staff members of the college who have made special studies of these various problems.

Farm orchards, which have been pretty generally neglected throughout the state for some time, will again have an important place on the program. This problem will be discussed by W. S. Brock, assistant chief of systematic pomology at the college. Right along this same line, M. J. Dorsey, chief of pomology, will give some pointers on the selection of nursery stock for planting. H. W. Anderson, assistant chief of pomological pathology, who is working out control measures for bacterial spot of peaches, apple blister canker and other fruit diseases, will discuss some of the common diseases of fruit trees and their control.

Investigators of the college have been working on a number of different phases of the fruit tree pruning question and the results of these tests probably will be drawn upon by W. A. Ruth, associate chief of pomological physiology, in his discussion on the pruning of orchard fruit trees. Management of orchard soils will be taken up by R. S. Marsh, horticulture extension specialist, and small fruits by A. S. Colby, associate chief of pomology.

Other topics which will be taken up on the horticulture program are the relations of bees to horticulture, back yard gardening, some of the less common vegetables, quality sweet potatoes, irrigation of Illinois vegetables, improvement of the farm home grounds, preservation of rural scenery and disease resistance of plants.

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First Corn Germination School Draws Capacity Class Of 34

A capacity class of 34 farmer-leaders from 11 different counties of the state turned out for the first corn germination school recently held at the College of Agriculture, University of Illinois as another step in the corn improvement program which the institution is backing for the state. The school is said to be the first of its kind ever held.

Enrollment was limited to farmers who have been cooperating with the agricultural college and their county farm advisers in acting as corn project leaders in their respective communities. During the week that the school was in progress these men not only were shown how to select good seed corn but also were taught to recognize the more serious corn diseases which show up when the seed is placed on the germinator.

Early next year two similar schools will be held at the college. The first of these will be held February 8 to 12 and the second February 15 to 19. Enrollment in both schools will be made through the local farm adviser. By means of such schools it is hoped to place a trained man in important corn growing communities of the state to act as a local leader in corn improvement projects which the agricultural college and farm advisers are pushing.

[illegible]

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Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume VIII | December 30, 1925 | Number 52

Farm Situation Justifies Experimental Relief Measures

Agriculture's present and future status is of such fundamental importance to the public welfare that farmers' and other organizations are justified in urging congress to consider seriously relief measures which may of necessity be more or less experimental and which under less serious conditions would be inadvisable, H. W. Mumford, dean of the College of Agriculture points out in his New Year's message to farmers. In this connection, it should not be overlooked that most changes in governmental policy are and always have been more or less experimental, he said. Dean Mumford believes that all agencies should unite on some feasible and defensible plan and work together in putting it into effect.

While advocating such a course, Dean Mumford stresses the point that whatever relief the new year may bring will not come in the form of one miraculous and sweeping stroke which will right all wrongs. On the other hand, neither will the present agricultural situation be materially improved by a policy of watchful waiting during 1926 on the part of farmers and federal and state agencies, he added. Whatever hope the new year holds for farmers lies between these two extremes, Dean Mumford believes.

"There are two forms of relief for the present agricultural situation: That which farmers can bring about by their own efforts and that which can come only through wise state and federal legislation. Both of these forms are essential and neither one alone will do the job. Satisfactory solution of existing problems therefore can best be brought about by a frank recognition of this fact and the use of the best thought of the nation in perfecting plans and putting them into effect without prejudice as to their origin.

"Talk of this plan and that plan for the relief of the farmer is apt to create the impression that the problem can be solved and the whole situation cleared up with one well executed stroke. Nothing could be farther from the truth and the farmer who holds to this impression must sooner or later be disillusioned. On the other hand, there is nothing to be gained by sitting back and trusting that in due course of time the problem will solve itself. This policy likewise is apt to be disappointing.

"The situation calls for action but not the kind of fireflicker action which burns up all its energy on some highly touted relief measure and then dies down until some new plan is proposed. What is needed is steady, united action by farmers and state and federal governments along lines that are fundamental and sound."

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

Some Interesting Experiments with Wireless Telegraphy

Farmers' Week Program To Consider Farm Situation First

No time will be lost during the coming Farmers' Week at the College of Agriculture in getting down to a discussion of the topic which is perhaps uppermost in the mind of every farmer and those interested in his welfare: The present agricultural situation and the outlook for the future. In the very first address which is listed on the program for the week, Dr. George F. Warren, professor of agricultural economics and farm management at Cornell University, Ithaca, N.Y., and recognized as one of the leading farm economists of the country, is scheduled to address the Farmers' Week visitors on the subject of, "The Agricultural Situation". He will speak immediately after H.W. Mumford, dean of the college, has made the opening remarks of the week at 1:30 o'clock on Monday afternoon, January 18.

After Dr. Warren's address, the remainder of the first afternoon will be devoted to two other talks of the same nature and a round-table discussion led by Dr. Warren. Gilbert Gusler, market specialist of Chicago, will discuss the subject, "Price Relations of Grain and Livestock", and C.L. Stewart, in charge of agricultural economics at the college, will speak on, "Price Determination".

Even after these discussions, the many questions which farmers have on the present agricultural situation are not to be dropped for the week. Special phases of the problem and the outlook in different lines of farming are to be touched on in the sessions which are being planned by different departments of the college. In the livestock sessions, for instance, W.S. Corsa, well known Percheron horse breeder of Whitehall, is scheduled to discuss the outlook for breeders of purebreds, and Charles E. Snyder, editor of the Chicago Daily Drovers Journal, is listed to speak on the outlook for the producer of meat animals.

In addition to these features, the program for the week is an especially well balanced one with many attractions billed for farm folks of the state. Headliners include the annual winter meeting of the Illinois Agricultural Association during the last two days; addresses by W. M. Jardine, secretary of agriculture, and Frank O. Lowden, former governor of Illinois; the naming of a new "corn king" for the state in the annual Illinois Seed Grain Show, and a farmers' banquet at which beef from Laddie Fairfax, the college's reserve grand champion steer at the last Chicago International Livestock Exposition, will be served.

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Bees And Beekeeping To Have Place During Farmers' Week

Beekeepers are to have their inning along with dairymen, fruit growers, livestock breeders and feeders, poultrymen and general farmers at the annual Farmers' Week to be held at the College of Agriculture January 18 to 22. The entomology department of the university is planning separate sessions for beekeepers in which special consideration will be given to the needs of beginners and to the fundamentals underlying successful apiculture. These sessions are to be held January 19 and 20.

Prominent among the speakers who have been placed on the Farmers' Week program to discuss different phases of beekeeping are A.L. Kildow, Putnam, chief inspector of apiaries in Illinois; C.P. Dadant, Hamilton, editor of the American Bee Journal, and E.R. Root, Medina, O., editor of Gleanings in Bee Culture and a manufacturer of beekeepers' supplies.

Field Results Show Opportunities Open To Adams Farmers

A striking picture of what Adams county farmers might have done toward more efficient and profitable crop production during the 14 years from 191. to 1924 had they practiced a simple, but practical, system of soil treatment which the experiment station of the College of Agriculture is using on its soil experiment field near Clayton is contained in a comparison which H. J. Snider, assistant chief of the institution's soil experiment fields, has just made between crop yield increases for the county and those for the experiment station during that period. While the yields of corn, wheat, oats and hay for the county as a whole have remained at practically the same level or made only a slight increase during the 14-year period, the yield of all of these crops has been profitably swelled and in some cases doubled on the experiment field by treating the land with limestone and a green manure crop of sweet clover, according to Snider's comparison.

The average wheat yield for the entire county, for instance, rose from 11.5 bushels in 1911 to only 16.2 bushels in 1924, while the yield of this same crop on the experiment field during that period was slightly more than doubled by the use of limestone and a green manure crop of sweet clover. Wheat on the experiment field yielded 14.1 bushels in 1911, while last year under the lime and clover treatment it made 28.4 bushels an acre. This comparison is considered especially significant, in view of the fact that Adams is a wheat growing county and more attention probably has been given to wheat than to any other crop.

Only a half bushel an acre was added to the average annual corn yield for the county during the 14-year period, while the yield of corn on the experiment field was swelled by a total of 16.9 bushels an acre during the same period.

In like manner, the limestone and sweet clover treatment boosted the oats yield on the experiment field from 37.4 bushels in 1911 to 60.8 bushels in 1924, while the average oats yield for the entire county was practically at a standstill. Yields of this crop for the entire county showed less than a half bushel an acre increase in 1934 over 1911.

While the average hay yield for the county increased from .94 tons an acre in 1911 to only 1.42 tons in 1924, the yield on the experiment field was mounting from 1.24 tons to 3.32 tons an acre under the lime-clover treatment.

Results from the field indicate fairly well what might be expected if the system of soil treatment which is being practiced on the field were applied over the entire county, according to Snider. The field is located neither on the best nor the poorest soil of the county, the land where the experiments are being conducted being about average for this section, he pointed out. Proof that farmers in this section are realizing the significance of the experiment field results and are coming to value limestone more highly is to be found in the fact that last year some 3,095 tons of ground limestone were used by Adams county farmers, he said.

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Guernsey Breeders To Hold Annual Meeting At Farm Week

The next annual meeting of the Illinois Guernsey Breeders' Association has been set for Tuesday, January 19, at the College of Agriculture, thus enabling the breeders to attend the annual Farmers' Week at the same time, it has been announced by C. S. Rhode, dairy extension specialist. Their meeting is scheduled to start at 1:30 on the 19th.

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Results from the [illegible] of soil treatment [illegible] entire county, according to Snider, [illegible] the poorest soil [illegible] and both about [illegible] methods are applied, [illegible] to value [illegible] 2,096 tons of [illegible]

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[illegible]

The next annual meeting of the [illegible] for [illegible], January [illegible]