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BULLETIN
OF THE
UNIVERSITY OF TEXAS
1915: No. 66

NOVEMBER 25

1915

Schoolhouse Meeting
Discussion of
Poultry on the Farm

Prepared by

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Published by the University six times a month and entered as
second-class matter at the postoffice at
AUSTIN, TEXAS

SF 487
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The benefits of education and of useful knowledge, generally diffused through a community, are essential to the preservation of a free government.

Sam Houston.

Cultivated mind is the guardian genius of democracy. . . . It is the only dictator that freemen acknowledge and the only security that freemen desire.

Mirabeau B. Lamar.

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To the Chairman of the Schoolhouse Meeting:

The discussions of the questions given below have been prepared for the meeting to be held at the schoolhouse on Friday afternoon and are for the use of the person who conducts the meeting. Usually it will be best to have the questions written upon the blackboard before the meeting opens. When the time for discussion arrives, first have the question read aloud and then call for discussion from the members present. Occasionally the chairman should call out someone whom he knows to be well qualified to answer the question. At times it is well to let such person know several days in advance that he or she will be called upon so that special preparation may be made by study of some of the bulletins referred to in the bibliography or of other literature. As soon as discussion has brought out whatever of interest the members present may know, then have read the discussion of the question that is given below, and, if desirable, allow discussion of that. Good judgment must be used by the chairman in calling out discussion and in stopping it before it becomes unprofitable. At times it would be well to omit or pass lightly over certain questions and concentrate on others. Be sure to stop before the members are tired and always try to have the ideas that are brought out applied to the local conditions and needs. When a meeting results in a desire to carry out some practical plan, arrange for those interested in this plan to remain after the meeting and take the necessary steps at once. Strike while the iron is hot.

Fellow Teacher and Fellow Citizens:

The topic to be discussed today is one of the highest importance for the prosperity of Texas farms. We have not yet begun to take poultry raising seriously in Texas. With our mild winters and continuous green throughout the year, Texas is far better situated for poultry raising at a minimum of both cost and labor than Missouri or Illinois or New York, where snow and ice covers the ground for many months each year and poultry must have expensive houses, and be fed its entire ration for six months in the year. Yet the farms in these States are making millions each year on poultry, whereas, Texas farms hardly produce enough for their home tables. Furthermore, the number of fowls on the farms in Texas actually decreased from 1900 to 1910 from 15 million to 14 million, while the fowls in Oklahoma increased from 5 to 9 million, in Kansas from 13 to 16 million, in Missouri from 16 to 21 million. Still worse, our poultry is of much lower grade, the average value per fowl in Texas being 36 cents, as against 44 cents in Oklahoma, 47 cents in Kansas and 57 cents in Missouri.

If one does his own rough carpentering he can build for about twenty dollars a poultry house large enough to accommodate a hundred hens in accordance with the plans in this bulletin. The fountain feed-hoppers and watering devices can be made for a few cents out of an old goods box. With this equipment, and with the planting of a succession of small patches of wheat, oats, rape, turnips, chard, beets, sunflowers, Egyptian wheat, milo or similar crops, the poultry can be raised at almost no expense but the labor. This labor is all light and can be done by children and by adults at odd hours. Think of what it would mean if every farm home in Texas would build up a flock of a hundred good hens. If these hens laid nine or ten dozen eggs each per year, the eggs would bring, at 25 cents per dozen, ninety-six million dollars, besides leaving enough eggs for hatching to keep up the supply of hens and sell off each year ten million dollars worth of surplus roosters and culled hens. This sum is more than half the value of our cotton crop and could be secured without decreasing that crop a single bale. Let us awake to our opportunity.

The main obstacles to success in poultry raising thus far in Texas have been the use of scrub stock and the ravages of insects. Unless these problems are met properly, failure is certain, for scrub poultry covered with mites, lice, or blue bugs will not pay for its keep. The discussion in this bulletin will show how these difficulties may be overcome. The methods of handling poultry here given have been worked out by the best trained scientists and tried out in successful actual experience for years by practical poultry raisers, so that there can be no doubt that if these directions are carefully followed out success must result.

Let us begin to recognize poultry raising as one of the most profitable side lines on our farms, and put ourselves in position to profit from it.

Not only is poultry raising profitable, but it is a fine thing for the development of a boy. It is good for a boy to have something of his own to care for, and something to give him a little income of his own. The daily attention to his poultry, the study of bulletins and books on the subject, the working out of his plans and overcoming his difficulties develop his intelligence and his character. It is equally as good for a girl. There are hundreds of thousands of boys and girls on Texas farms that would develop themselves and the poultry industry of Texas at the same time if encouraged properly to do so. Let us give them a chance.

A. CASWELL ELLIS.

SCHOOLHOUSE MEETING

DISCUSSION OF POULTRY ON THE FARM¹

QUESTIONS

1. Name some advantages that poultry offers for supplying the farm home with cheap meat, and some advantages of poultry raising in general.
2. For the person who has no poultry at all, suggest some good methods of getting started.
3. What breeds of chickens are best adapted to this locality for egg and meat production?
4. Why should the farmer keep but one breed?
5. What is the smallest size flock a farm should have?
6. Name three systems of poultry farming which may be successful on a general farm or a poultry farm.
7. When is an incubator desirable?
8. Discuss the care of baby chicks for the first 48 or 72 hours after hatching.
9. Discuss the proper management of young chicks after the first 48 or 72 hours.
10. What are capons?
11. What are the advantages of caponizing?
12. Give some practical suggestions for the housing of chickens in Texas.
13. Discuss plans and specifications for a house that will accommodate 100 hens.
14. Discuss the advantages and disadvantages of allowing hens to run on the open range.
15. How may poultry diseases best be prevented?
16. Name some means by which diseases may be spread among fowls and give some general methods of combating any contagious disease that may chance to break out among your chickens.

¹The authors are indebted to Mrs. Benigna G. Kalb, Governor of Texas Farm Women, for helpful suggestions in the preparation of this bulletin.

17. What insects are troublesome in your community, and how may they be combated?

18. What is a good food ration for baby chicks?

19. What food is best for the production of eggs? How would you modify this ration to fatten fowls?

20. (a) How would you secure a pure-breed flock that averages ten to twelve dozen eggs per hen per year? (b) What are some of the points to be observed in selecting laying stock? (c) What are some of the points to be observed in egg production?

21. How can you have your hens lay in winter when the price of eggs is high?

22. (a) How often should eggs be gathered? (b) How may infertile eggs be secured, and why are they preferable to fertile eggs?

23. What is meant by candling or egg-testing? How may a simple and inexpensive egg-tester be made?

24. How may spring eggs be preserved for winter use?

25. What are some of the causes of infertile eggs? How should eggs be selected for hatching.

26. Name some factors to be considered in marketing eggs.

ANSWERS TO QUESTIONS

No. 1. (1) It requires only a small amount of land and capital. (2) It offers quick and paying returns; first, in eggs and meat for the table; second, in cash which may be had from the surplus every month in the year. (3) Eggs have the same kind of food value as meat; they offer a cheap substitute for it, and when properly cooked are more easily digested than meats; and they are better food for growing children. (4) Poultry requires less food in proportion to the return than any other form of live stock. (5) With proper equipment, it requires comparatively little time and labor, and, in the mild climate of Texas, but very little expense for housing. (6) It is a healthful occupation and is well adapted to either sex. (7) Poultry utilizes many of the waste products about the place and contributes much valuable fertilizer to the soil. (8) It is the most convenient source of fresh meat. (9) The products can be marketed easily and at all seasons of the year. (10) It enriches the soil. (11) It distributes the labor throughout the year and furnishes work that all members of the family can help with. (12) It is suited to either country or village conditions.

No. 2. (1) Buy a few pure-bred birds of the breed preferred. These need not be high-priced show birds, but should be from healthy, heavy-laying stock. A combination egg and meat breed is usually best for the farm, though as a rule one will do best with that variety he or she personally likes best. There are many good breeds. Good hens should lay not less than ten to twelve dozen eggs per year. It shows poor business judgment to keep hens that average much less, though the average for Texas is probably less than forty eggs per hen per year. Hens that have passed their first year of laying are better breeders than pullets, though well matured pullets may be used if older birds cannot be had. It is better to mate a well matured cockerel with hens. It is also important that the male come from a strain of heavy egg producers, as heavy laying is a quality which may be transmitted through the male as well as the female. (2) If unable to buy pure-bred birds, you

may start with ordinary healthy chickens, and later buy one or more sittings of eggs from healthy, pure-bred hens, hatching them under the common hens. When matured, this new stock should be kept separated from the mixed stock, and the latter gradually disposed of, so as to leave only the pure-bred on the yard. If this separation is not practicable, kill or sell all males except those of pure breeding before the pure-bred pullets begin to lay, and later dispose of the birds of mixed breeding as soon as you can raise pure-bred hens to take their place. This method is quite satisfactory, especially since the outlay is small, and practical experience is thus gained on cheap birds. The use of an incubator is not recommended in the beginning under average farm conditions, and plans for installing an incubator should not be made until the flock is of sufficient size to produce within a week or ten days the number of eggs required by the capacity of the machine. It is unwise to hold the eggs longer than a week or ten days before setting, and in hot weather even less time should be allowed. (3) A start with pure blood may also be made by securing day old chicks from some reliable breeder whom you know to have healthy stock. In this case, broody hens or some kind of chick hover and brooder must be provided to care for the chicks. Or one may begin by buying six or eight-weeks-old pullets, these being practically past the danger period, and the male birds may be added when ready to use for breeding purposes.

The greatest care should be used to secure eggs or foundation stock from breeders who breed only from healthy birds. Constitutional vigor is more important than any other one factor in the selection of breeding stock. Never buy birds or eggs from diseased flocks. All things being equal, if you can find the kind of stock you want, it is better to buy in your own neighborhood where you can know just what the breeding stock is. The idea that pure-bred stock cannot be raised satisfactorily on the farm has long since been disproved. Pure-bred birds require no greater care, no better housing, and no more feed than should be given to scrub stock for best results. Good stock will give better returns for the same care, and because of the owner's pride in them, the better breeds are more likely to receive the attention which will give the most satisfactory

returns. It is folly to keep hens which lay only forty or fifty eggs per year when reasonable prices will buy good stock that will produce three or four times this number. Occasionally a scrub hen may be a good layer, but as a rule scrub chickens are poor egg producers, and besides they have not the power to transmit the heavy laying quality to their offspring.

No. 3. One of the egg and meat breeds, called American breeds, such as the Rhode Island Reds, Plymouth Rocks, or Wyandottes, is usually to be preferred for farm conditions. Strains of the American breeds have given as high egg yields as the Leghorns, Minorcas, and other Mediterranean breeds, and they furnish much better carcasses for the table or the market, either as broilers or roasters. However, well-bred fowls of the Mediteranean or English breeds are highly desirable. It is important to secure a good strain of whatever breed you choose, for there are great differences in strains of the same breed. Some strains of Leghorns, for example, have averaged over 200 eggs per year per hen, while other Leghorns will average hardly half that yield.

No. 4. If a basket of eggs from a mixed flock is sent to the market it will contain some white eggs, some brown, and some cream colored. There is a great variety of sizes and shapes. This lack of uniformity is unattractive and tends to bring down the price. If the farmer had sent a basket of all white eggs or all brown eggs of uniform size, he would have received a better price for his product. To obtain these good prices, the farmers should have but one breed of chickens on his farm. Then he would have a flock in which he would take much pride and give them good attention. The eggs produced from such birds would be all of the same color, size and shape, and when marketed the customers would be better pleased, since uniformity is usually much desired.

When any live or dressed poultry is to be sold, the market shows a very great preference for a uniform product. A lot of yellow skin birds or white skin birds is much more desirable than is a mixture of both. In the marketing of live birds, either young or old, a one-color lot causes the buyer to feel that they must be raised by a person who takes good care of his stock, and to pay for them accordingly. It is very easy

to feed and house a flock of one breed, as their needs and wants are alike. To get the best results from a flock, the poultryman should study the needs and requirements of breeds. If he has but one breed, his work in this respect is reduced to a minimum. For the same reason, it is easy to rear and develop chicks of one breed. In hatching, again excellent results are obtained. The eggs not only hatch more uniformly, but better and more vigorous chicks are produced, due to the excellent care given the flock because the raiser of one breed naturally takes a great interest in his stock.

No. 5. As long as farmers keep small flocks they will take little interest in them, and the income from them will be very small. From observations in different sections the rule seems to be, the smaller the flock the less interest there is in poultry and the more mixed and mongrel is the flock. Flocks smaller than seventy-five are not considered as commercial enterprises, or important enough to receive proper care. With a flock of one hundred hens the owner is likely to take care of them, provide a comfortable, convenient house, feed and attend to them properly and regularly. The returns from such a flock will indeed be very profitable, the number of eggs will be large and can be sold to appreciative buyers. The flock should be pure-bred, because chickens, like all other forms of livestock, do best when properly and carefully bred. A pure-bred flock of 150 good producers, properly handled, is worth more to a farmer than five bales of cotton at ten cents per pound.

No. 6. The three common systems of poultry farming which may be successful on a general farm or a poultry farm are:

The "Community" system, in which the birds are all housed under one roof in large flocks. These houses are permanent and usually of the long house type. This method is most economical of buildings and labor. The main disadvantage being the rapid spread of disease if once introduced.

"Semi-Community" is another system very similar to the Community method, the birds being housed in somewhat smaller houses grouped close together. More land and labor are required but the congestion is relieved somewhat.

The "Colony" system is a method of dividing the birds into small flocks of twenty or thirty and housing them in small

colony houses scattered about the farm. The birds have the maximum amount of range and this method is very desirable and can be used where orchards are available, locating the houses through such orchards. The colony system necessitates the greatest expense for housing and labor, usually gives good results but not enough better to make up for the extra expense.

No. 7. If 100 or more eggs are to be hatched during the hatching season, then an incubator is desirable. Where 100 or more hens are kept it will usually be much more economical to hatch with an incubator rather than with setting hens. In such a flock half the number should be renewed each year. That means that 50 or more pullets should go into winter quarters in the fall. To produce 50 or 75 pullets means the setting of at least 300 eggs. If 60 per cent of these eggs hatch there will be 180 chicks to start with and usually 75 per cent of those, or 140, are reared to maturity. Of these 140; one-half, or 70, are pullets and all these pullets will not be good ones. So that ordinarily 300 eggs or more must be hatched. To hatch these under hens would mean the services and care of a great number of chickens, while two hatches in a 150 egg incubator would care for them easily.

When fowls are raised to be marketed alive as meat it is desirable that they be hatched and reared in good sized flocks, and at as near the same time as possible, thus minimizing the cost of feed and labor. For this reason an incubator can be used to advantage even though the flock is small.

No. 8. As soon as hatching is complete remove all unhatched eggs and egg shells. Leave chicks in the machine for eighteen to forty-eight hours longer. Open ventilators to give plenty of fresh air and lower temperature of incubator to 95 to 100 degrees F. This is to harden the chicks. When the chicks are hatched they contain the yolk of the egg in their body, which supplies them with food for from twelve to fifty-two hours. For this reason no other food is necessary until this food has been absorbed.

No. 9. (1) Provide fine grit, charcoal, shell and bone from the start. (2) Give grass range or plenty of green food. (3) Have fresh, clean water always available. (4) Feed only sweet, wholesome foods. (5) Avoid damp and soiled litter. (6) Disinfect brooders frequently. (7) Feed no spoiled meat

products. (8) Keep chicks active by allowing to become hungry once daily. (9) Feed *moist* mash sparingly. (10) Keep *dry* mash always before the chicks.

No. 10. Capons are castrated male birds. This operation consists in removing the sex organs, and should be done when the birds are eight to twelve weeks old. This operation is performed for the same reason that we castrate pigs and calves.

No. 11. (1) Larger and heavier fowls at killing time. (2) Sweeter meat of finer flavor. (3) A much higher selling price. (4) A lower cost, due to ease of fattening. (5) A more docile disposition and better endurance of close confinement. (6) Can be used when desirable for hovering young chicks.

Nos. 12 and 13. (5) In the mild climate of Texas, elaborate and expensive hen houses are not necessary. Almost every farm has some unused building or shed that can easily be converted into a very serviceable poultry house. A water-tight shed roof with adequate wind-proof walls on the north, west, and east sides is sufficient. A house 20 feet long by 14 feet wide, with front wall 7 feet high and the rear wall $4\frac{1}{2}$ feet, will furnish adequate room for a flock of 100 birds. Such a house is shown in Figures 1 and 2. Have the roof slope to the north and cover the front or south side with chicken wire only. Place the roosts at the rear, and have roosts and nests removable for cleaning. Do not put one roost above another, as all the chickens will want to crowd to the highest roosts. If the house is built of very light material, in those sections of the state where there is much stormy wind, it may sometimes be well to anchor it to a few posts placed securely in the ground to prevent its being blown over. Protection from the hot summer sun is as important as protection from the cold winter winds. Plant castor beans and sunflowers around the place for quick shade, and fruit trees for permanent shade.

The floor should be raised at least six inches above the outside level, in order that it may remain dry in wet weather. A concrete floor is best, but an earth floor may be used by replacing the top two or three inches of soil once or twice a year. If the location is low or flat, the house should be filled in with earth to a depth of eight or more inches. It is

advisable to keep the floor of the house covered with cheap hay, pine straw, leaves, or other litter into which the grain may be thrown to keep the hens working. Never use mouldy material for this purpose. The litter should be removed at least once a month or oftener if badly mixed with droppings or damp from continued wet weather.

Scattering acid phosphate over the litter and under the roost

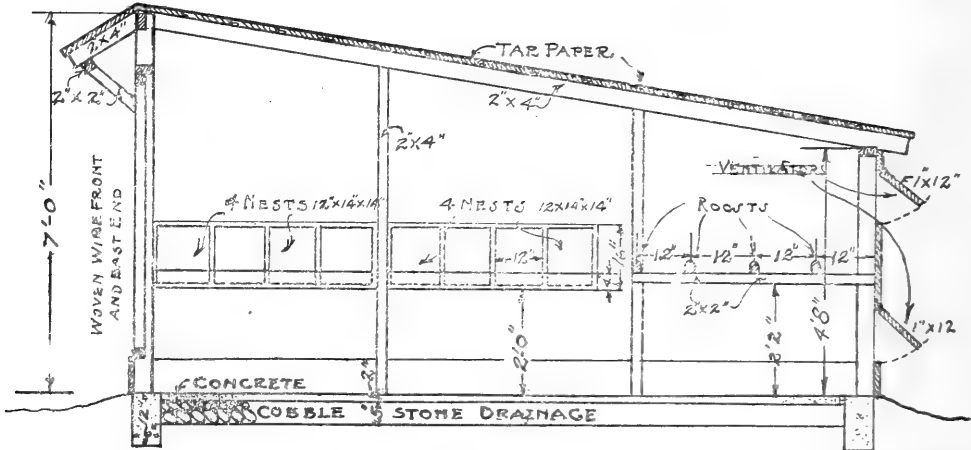


Figure No. 1.—The above house, 14x20 feet, will accommodate 100 hens. The nests shown are alike in both ends of the house. More can be added if sixteen prove insufficient. The concrete floor is not necessary, but highly desirable. The front should face south. The back and the west end should be boarded up. The east end and front should be made of woven wire only, except in the very cold sections of the state. For a flock of 30 to 45 fowls, the roosts may be reduced to three and the size of the house to 10x12 or 12x12 feet. Dropping boards may be added if desired.

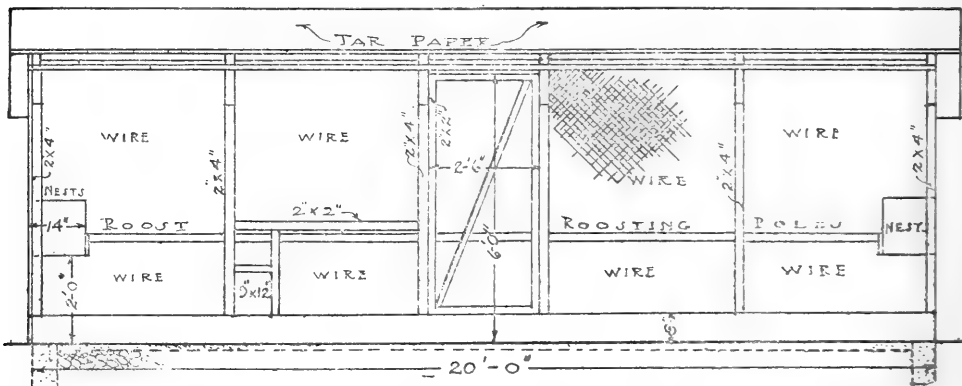


Figure No. 2.—Shows construction of front of poultry house.

twice a week will give splendid results in the way of deodorizing and keeping down mites, besides improving the value of the manure for fertilizing. The same powder may be used under

the litter in the nest and likewise under the litter in the hovers for baby chicks. Painting the roost with kerosene and crude carbolic acid, especially at the points where they rest on the supports, will aid in getting rid of mites where they are bad.

No. 14. Under ordinary farm conditions, in raising poultry for home use, the cheapest thing to do is to fence the garden and allow the chickens to run free. Hens on the open range get most of their food in summer, and a good share of it in winter. They are destroyers of farm insects and distributors of fertilizer.

However, there are some disadvantages in having chickens run at large: (1) Chickens are scavengers, and privy vaults and such filth should be screened from them if they run at large. When free, they drink polluted water, and feed on dead carcasses and other sources of filth, which not only lower their physical vigor but often produce disease and death. (2) If they run at large, they are likely to roost in exposed places and be injured by weather or predatory animals. When fowls run free, they should be fed in the poultry house so that they will make their residence there instead of around and in the barn and dwelling house. (3) When chickens are at large they are often injured by stock, especially by hogs. This is largely due to the fact that many farmers feel that the chickens should obtain all their own food. Feeding the chickens a little both morning and evening eliminates this trouble somewhat so that the chickens do not go to the hog pens or get in the way of feeding sows.

No. 15. (1) Breeding only from birds of vigorous constitutions.

(2) A system of poultry management which is thoroughly hygienic: (a) Cleanliness of houses and yards. (b) Thorough and frequent disinfection. (c) Plenty of fresh air and light in the poultry houses. (d) Avoid dampness. (e) Provide clean and dry litter. (f) Do not allow land to become contaminated. Rotate crops on land with poultry. (g) Burn all dead birds at once. (h) Isolate all sick birds. (i) Keep fowls free from lice, mites, and all external parasites.

(3) Hygienic feeding: (a) Feed pure feeds, avoid musty and moldy grain, table scraps which have spoiled, decayed

fruits and vegetables. (b) Keep all utensils clean. (c) Avoid overfeeding. (d) Provide plenty of green food. (e) Provide fresh and clean drinking water. (f) Make fowls exercise for food.

No. 16. Diseases are most commonly spread among fowls in the following ways: (1) By introducing new birds from unhealthy flocks. Sore head and insect pests are often started in this way. (2) If the drinking pans and feed hoppers get infected with contagion, the whole flock is exposed. (3) Rats are carriers of disease and insects. Beware of them. Often the same is true of sparrows. (4) Careless management. (5) By visiting infected flocks and poultry yards and then going into your own without cleaning your clothing and shoes.

Prevention is the best cure. Disease always weakens vitality. Birds that have once been sick are never desirable breeders. For this reason it is well to keep the watering pans and feed hoppers clean at all times. Keep clean litter on the floors and in the nests. Filth always harbors insects and disease.

Should disease break out among the chickens, separate those that are sick. Burn the bodies of the dead ones. In bad cases clean and disinfect the entire house, removing all straw from nests and burning all refuse. Plenty of sunshine and ventilation are of great importance. Disinfect with one part of crude carbolic acid to three parts of kerosene oil. Other good disinfecting solutions are a fifty per cent solution of Zenoleum or Kreso dip. Poultry houses and equipment should be regularly and thoroughly disinfected once each month throughout the year. Scald the feed hoppers and water pans. First, give the bird epsom salts, either in a moist mash or in drinking water, and next day put a very small quantity of permanganate of potash in the drinking water, just enough to turn it a light red color. In this weak solution the permanganate of potash will not hurt the chickens but will destroy the germs. Give the salts at rate of one-third teaspoonful to an adult chicken.

No. 17. Bluebugs, fleas, lice, and mites are the summer insect pests. Sparrows often bring mites and lice. Bluebugs are frequently introduced by fowls from other flocks. Before introducing a new bird into your flock, if in a region where fowl ticks, or bluebugs, are prevalent, quarantine the birds ten

days, as this procedure will practically free the bird of ticks or bluebugs. The adult ticks feed on the bird only at night time, so that during the day the birds are free from them. The small seed ticks remain on the birds both day and night and so gorge themselves that at the end of ten days they drop off and are also matured then. Therefore, quarantining for ten days practically frees the bird from all ticks. All new birds should be thoroughly dusted with some good lice powder such as that given below and thoroughly examined to be sure that they are free from all external parasites.

Mites can be easily prevented by the proper use of acid phosphate. For lice, grease very lightly the top of head and beneath the wings of the little ones, or dust with a small portion of lice powder. A good cheap lice powder is made as follows:

$\frac{1}{4}$ pint crude carbolic acid, mixed with $\frac{3}{4}$ pint of gasoline; stir thoroughly into $2\frac{1}{2}$ pounds of plaster of paris.

The whole is forced through a sieve to break the lumps and then allowed to dry in the air. When dry it is tightly bottled and will remain effective indefinitely. To apply this powder the fowl is held by the legs with its head down. In this position the feathers fall away from the body and readily receive the powder, making it easy to work it down to the skin by ruffling the feathers with the hand. This treatment is especially recommended for setting hens.

Mites suck the blood at night and return to the perches before morning, remaining there during the day. The mite is killed by a direct application of a burning solution. A solution of $\frac{1}{4}$ pint crude carbolic acid and $\frac{3}{4}$ pint of kerosene has been found very destructive. It is sprayed all over the perches, dropping board and different parts of the house.

For bluebugs, in extreme cases, dip the chickens in any good sheep or hog dip, thoroughly clean out the house and nests and spray the roosts, walls, floors, and nests with kerosene and carbolic acid mixture. Be careful not to strangle chickens with the dip. Hold their bills closed when their heads are immersed.

No. 18. Ration for Baby Chicks: 8 pts. by weight, bread crumbs; 8 pts. by weight, rolled oats; 2 pts. by weight, meat scraps, sifted; 1 pt. by weight, bone meal. This mixture should

be moistened with sour skim milk or buttermilk and five times a day during first five days, the chicks should be fed as much of it as they will eat up clean in ten minutes. Fine charcoal and fine chick grit, together with shredded green food, are sprinkled over this mash. A little finely cracked wheat and finely cracked milo or kafir may be fed lightly scattered through the litter.

Ration after First Week. 1 part wheat bran; 1 part wheat short; 1 part milo meal; 1 part meat scraps. After fifth day or first week feed this mash moistened with sour milk or buttermilk three times a day. Also place it before chicks dry during the day. Feed grain as before, scattered through litter. Feed this way for two weeks. After two weeks feed same ration, only feed it moist once or twice a day and have it dry always before them. Feed grain same as previously.

After chicks are 8 to 12 weeks old the wet mash may be eliminated entirely and dry mash kept before them all the time. A grain mixture of wheat and whole milo should also be kept before them all the time in a self-feeding hopper. Continue this method until matured. See question 9.

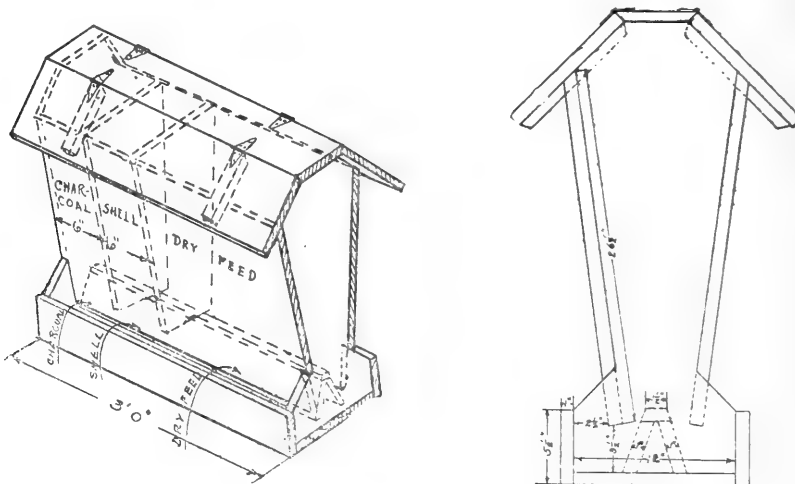


Figure No. 3.—Shows isometric view and end elevation of a useful home-made hopper for dry feed, shell, and charcoal.

No. 19. In feeding for growth and egg production, a large proportion of protein and mineral are required in the ration. Such food as meat scraps, milk, and cottonseed meal are rich in protein. In a properly made laying ration, the proportion of protein to carbohydrates and fats should be as 1 is to 4 and

6. Wheat and its products, especially bran, contain much more protein than corn and the other grains. Corn, kaffir, milo, and feteria are starchy foods and produce excessive fat when fed in considerable quantities. For egg production, strengthen the protein element and do not give too much of the starchy fat-producing grains. Wheat bran is a desirable egg food. There are many good feeding mixtures in use for laying hens. The following is a very good ration: 50 lbs. wheat shorts; 70 lbs. milo meal; 40 lbs. wheat bran; 40 lbs. meat scraps. This is a dry mash and should be fed in a hopper available

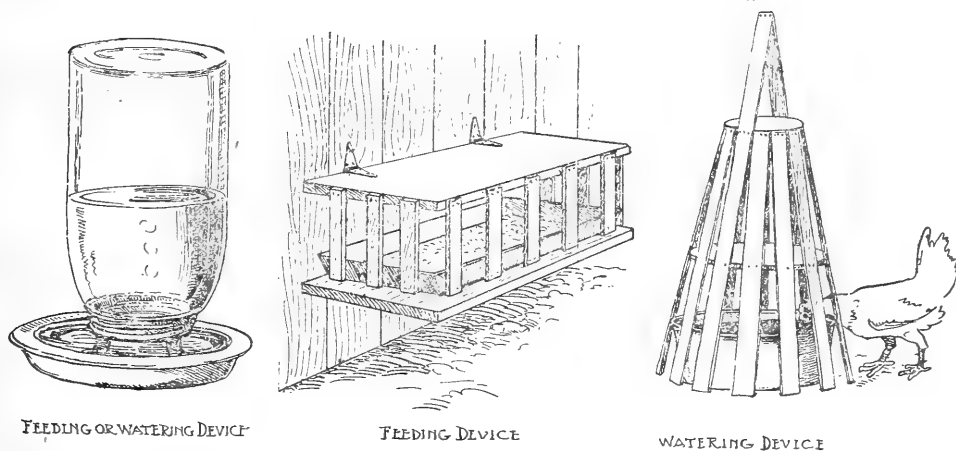


Figure No. 4.—The device at the left consists of a galvanized iron soup plate into which an ordinary Mason fruit jar is screwed so that the water or food in the jar constantly feeds down into the plate as fast as it is used up. This plate costs about ten cents. The other two devices are easily made at home and are very useful in keeping the food and water clean.

to the birds all day. This is the egg producing part of the ration. This should be supplemented by a grain ration composed of a mixture of corn chops and whole milo or whole milo alone. In the above ration 80 lbs. of cottonseed meal may be substituted for the 40 lbs. of meat scraps. When fowls are to be fattened, restrict the exercise and feed the starchy foods. Give them plenty of clean sour milk if it can be had. Sour milk makes the best meat food, induces egg production and goes a long way toward keeping hens healthy.

A perfectly balanced all-purpose ration should include some protein, some starch, some mineral and some green food. The green food is especially valuable as an appetizer and tonic. Peanuts when chopped up, vine and all, make a very good ration.

In summer, when there is plenty of green food and insects on

the range, feed lightly with some form of grain in the morning and evening, making the evening somewhat the heavier meal. In winter it is always necessary to supply some green food. This can be provided by alfalfa, rape, Swiss chard, or a small patch of wheat or oats for winter chicken pasture. In sections of the state in which there is no winter pasturing at all green food in form of cabbage, beets, and sprouted oats may be provided.

Exercise is also essential to laying. For this reason, it is often well to scatter grain in a small amount of liter on the ground so the hens will be obliged to scratch for it.

For laying hens, it is well at all times to keep wheat bran, or a dry mash of bran, corn meal, shorts, and cottonseed meal where they can feed upon it at will. Also, gravel, crushed oyster shells, ground bone, or crushed limestone and crushed wood charcoal should be kept where they can be got at all times. The gravels aid in grinding the solid food in the gizzards of the fowls and make digestion possible. The lime from the oyster shells and other sources furnishes the substance for the formation of the egg shell. The charcoal at times helps digestion.

Do not neglect the water. Give your chickens plenty of clean, fresh water three times a day in warm weather and twice a day in cold weather. Wash the water pans every day and scald at least once a week to kill bacteria and prevent disease.

No. 20. (a) If you have no poultry, or have only scrub stock, get a start from high producing flocks by one of the methods that have been suggested. There are flocks of pure-bred chickens that average over 200 eggs per hen per year. There are flocks on Texas farms that average over twelve dozen eggs per hen per year. Scrub hens, as a rule, are not good layers no matter how well they are fed and cared for.

(2) Give the ration that a laying hen needs. Good care and good stock must go together to get good results. See that your hens are well sheltered, not too fat, and get plenty of exercise. Then if your average egg production is not satisfactory, separate those you think are not laying and see how many eggs you get from them. If they prove to be poor layers kill or sell them.

(b) External characters to be considered in selecting laying

stock. The following features are associated with the possibility of heavy production. Always keep in mind breed shape or type: (1) Width of body—to allow ample room for the digestive and reproductive organs. (2) Depth of body—for same reason as No. 1. (3) A rather long body carried high in front and low behind, with the large part of the body back of the leg joint. (4) Neck medium in length and rather full hackle. (5) Tail carried rather high showing vigor. (6) Head medium, comb and wattles large, and well colored. (7) Body V-shaped when viewed from side, top, and rear. (8) Close, compact feathering, and short, stout beak, with bright eyes. (9) Legs rather short and wide spread. (10) Good size.

(c) Breeding for egg production: (1) Keep only pure-bred birds. (2) Breed from heavy producers and consistent layers. (3) Breed from mature birds. (4) Practice line breeding. (5) Breed from birds that were early producers as pullets. (6) Breed from late molters. (7) Breed from heavy eaters. (8) Breed from early risers and late retirers. (9) Practice proper management. (10) Breed from birds of high constitutional vigor, which means health, activity and vitality.

For scientific purposes each hen is numbered by a leg band, and the trap nest is used. These nests are so constructed that when the hen enters the nest the door closes and she can not get out again until released by some person. By this means poultry breeders are enabled to keep individual laying records and the full pedigree of their stock. Since these nests require an attendant to release the birds at frequent intervals, they are not desirable on the ordinary farm, but where desirable are very valuable.

If you wish a high average production, do not keep hens that have grown too old to be useful. As hens grow old their laying ability decreases at the rate of about 25 per cent per year. Ordinarily hens over two years old should not be kept. Hens four years old are past their period of usefulness as layers. Leg band the pullets this year on the right leg and next year on the left and so on. By altering this way there will be no difficulty in identifying the old birds.

No. 21. Hatch your layers in March or April. If hatched too early, they will molt in the fall and continue molting

through the winter, seriously hindering winter laying. Late pullets, on the other hand, do not usually have the constitutional vigor of early ones and hence do not lay so well through the winter. Hatch from good layers only. Feed well when young, provide good range, keep free of insects and protect from too much hot sunshine. In winter, protect from cold and rain, and feed as suggested in No. 19.

No. 22. In this climate, during the hot summer months, eggs should be gathered as soon after they are laid as possible and kept in a cool place until used. Particularly is this true of fertile eggs. At a temperature above 60 degrees, the chick germ in the fertile egg soon begins to develop and spoils the egg. For this reason infertile eggs are preferable. This is especially necessary in warm weather.

Infertile eggs may be secured by keeping the male birds separate from the laying hens. This does not decrease the number of eggs produced, but the eggs produced then do not contain a fertilized chick germ, and hence keep better. These eggs, of course, cannot be used for hatching.

No. 23. (1) The condition of the interior of an egg can be determined by holding it near a flame or a bright light directly in front of the eye. A fresh egg will have a very light-colored, indistinct yolk when examined in this way. Eggs that show blood rings or other discolorations either contain partially developed embryos or are otherwise spoiled.

(2) An egg-tester can be made in an inexpensive way by placing a kerosene lamp inside of a shoe box stood on end, with a hole somewhat smaller than an egg cut in what was the bottom of the box, but is now the side, directly opposite the flame, and with a hole cut in the end above the top of the lamp for ventilation. Place the egg against the opening in the side, and the illumination from the lamp within will show whether the egg is in proper condition. Only by testing, or candling each egg can you guarantee your eggs to be in prime condition. Hotels, restaurants, grocers, and private homes will pay top prices for such eggs. (See figure 5.)

(The teacher should have some boy or girl make an egg-tester and bring it to school with a dozen eggs for experimentation next week. Have on hand a number of fertile and in-

fertile eggs. If possible, set some eggs for a few days before and have on hand some that have been incubated one day, three days, five days, and seven days. This will very strikingly demonstrate why infertile eggs are preferable. After showing the egg before the candle, break it into a saucer for further

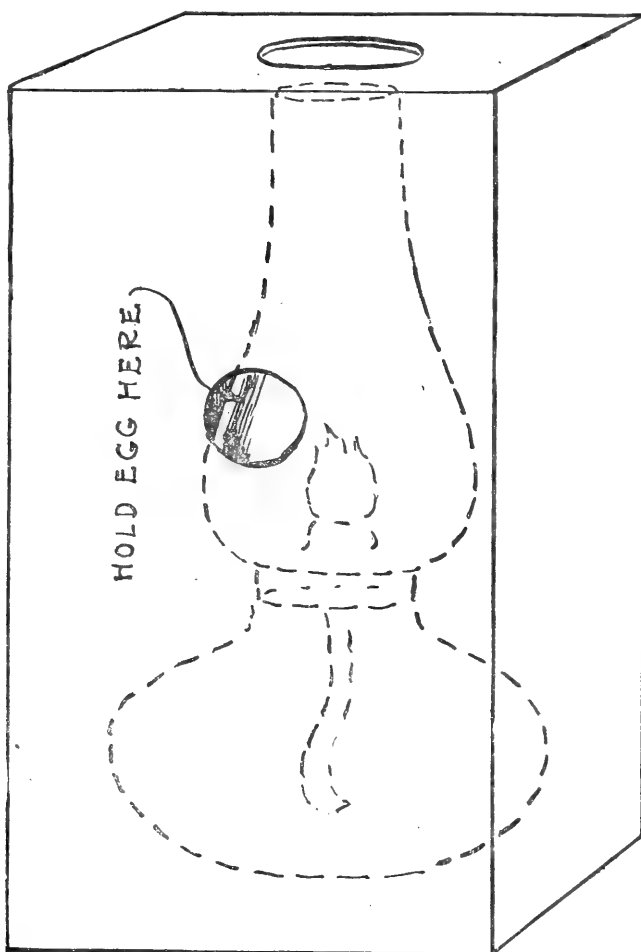


Figure 5.—The above tester is made easily from an old cardboard shoe box by cutting one hole in the side or bottom of the box large enough to admit an egg but not let it pass through, and cutting another hole in the end of the box to allow the lamp or candle to burn freely.

study. Also ask those present to state other methods that they use for testing eggs. There are many others.)

No. 24. One of the best methods of preserving eggs on a small scale is in sodium silicate, or water glass, which can be purchased at almost any drug store for one dollar per gallon. Dissolve one quart of water glass in ten quarts of water that has been boiled and cooled. Mix very thoroughly and pour the

solution into a sterilized stone jar. Put in this jar none but infertile, naturally clean, fresh, uncracked eggs. If one egg should be bad, it will spoil all the rest. Cover the jar and keep it in a dark, cool place, preferably in the storm cellar, if you have one. The temperature should never be higher than sixty degrees. As the water in the jar evaporates, replace it by more cool water that has been boiled. Always keep the liquid two inches above the last row of eggs. Unless this is done properly and the eggs and glass are kept cool the results will not be satisfactory. The taste in this case is slightly affected but not enough to prevent the use of the eggs on the table. Eggs may be kept several weeks or even months by packing them down when perfectly fresh in clean, dry salt and setting in a cool place.

No. 25. (1) Immature or extremely aged breeding stock, the former being the more common cause. (2) Insufficient time between mating and saving of eggs for hatching. (3) Weakened vitality of the breeding stock. (4) Excessively fat breeders. (5) Insufficient exercise. (6) Lack of green food. (7) Lack of sufficient animal protein. (8) Excess of females to one male. (9) Unsuitable environment.

Selecting eggs for hatching: (1) Sort eggs immediately after collecting. (2) Select eggs uniform in type, shade, size, and color; discarding all that are cracked, extremely dirty, badly shaped, or that have a rough, thin, or irregular shell. (3) Extremely small or exceptionally large eggs should not be used.

No. 26. (1) Cull the growing stock. (2) House the laying stock properly. (3) Provide plenty of clean nests. (4) Feed properly. (5) Gather the eggs regularly. (6) Clean all dirty eggs at once. (7) Dispose of cracked and broken eggs quickly. (8) Keep the eggs in a cool and rather moist place. (9) Build a private trade. (10) Pack eggs carefully. (11) Have regular customers. (12) Sell regularly. (13) Candle all eggs before marketing. (14) Separate males after the breeding season. (15) Continually plan to improve your market.

For fuller information on poultry, consult the following bulletins, which may be had free on request from the U. S. Department of Agriculture, Washington, D. C.:

| | | |
|--|-------------------|---------|
| Poultry Management..... | Farmers' Bulletin | No. 287 |
| Poultry Raising..... | " " | No. 237 |
| Standard Varieties of Chickens..... | " " | No. 51 |
| Healthy Poultry..... | " " | No. 305 |
| Method of Feeding Poultry..... | " " | No. 244 |
| Animal Matter a Necessity for Poultry.. | " " | No. 97 |
| Mineral Matter for Chickens..... | " " | No. 225 |
| Ground Grain vs. Whole Grain for Chickens | " " | No. 94 |
| Skim Milk for Young Chickens..... | " " | No. 84 |
| Water Pans for Fowls..... | " " | No. 317 |
| The Gape Disease of Chickens..... | " " | No. |
| Construction and Ventilation of Poultry Houses | " " | No. 227 |
| The Number of Laying Hens That May Be Profitably Kept in the Pen..... | " " | No. 114 |
| Roosting Closet for Poultry..... | " " | No. 499 |
| A Successful Brooder House..... | " " | No. 225 |
| Producing Early Molting Hens..... | " " | No. 186 |
| Forced Molting | " " | No. 412 |
| The Chicken Mite..... | " " | No. 190 |
| Keeping Poultry Free from Lice..... | " " | No. 435 |
| Incubator and Incubators..... | " " | No. 236 |
| Natural and Artificial Incubation for Chickens | " " | No. 585 |
| Causes of Death of Young Chicks..... | " " | No. 309 |
| A Fresh Air Brooder..... | " " | No. 499 |
| Rations for Laying Hens..... | " " | No. 186 |
| The Marketing of Eggs..... | " " | No. 405 |
| Selling Eggs by Weight..... | " " | No. 122 |
| Cost of Eggs in Winter..... | " " | No. 190 |
| Preservation of Eggs..... | " " | No. 353 |
| Preserving Eggs in Waterglass..... | " " | No. 296 |
| Fertility of Eggs..... | " " | No. 251 |
| Fertility and Hatching of Eggs..... | " " | No. 405 |
| Poultry Manure..... | " " | No. 384 |
| Marketing Eggs Through the Creamery. | " " | No. 445 |
| Shipping Eggs by Parcels Post..... | " " | No. 594 |
| Poultry House Construction..... | " " | No. 574 |
| Important Poultry Diseases..... | " " | No. 530 |
| The Fowl Tick..... | " " | No. 170 |
| Natural and Artificial Incubation of Hens Eggs | " " | No. 585 |

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|--|---|---|------------------------------|
| Hints to Poultry Raisers..... | “ | “ | No. 528 |
| The Community Egg Circle..... | “ | “ | No. 656 |
| A System of Poultry Accounting, Bureau of Animal Industry Cir. 176 | | | |
| Mites and Lice on Poultry..... | | | Bureau of Entomology Cir. 92 |
| Suggestions on Poultry Raising for the Southern Farmer (Special) | | | |

OTHER BULLETINS

Increasing the Winter Yield of Eggs, Bulletin No. 219, Department of Agriculture, Harrisburg, Pa.

Feeding and Management of Poultry for Egg Production, Bulletin No. 211, A. and M. College, West Raleigh, N. C.

Poultry Experiments, West Virginia Bulletin No. 115, Ag. Exper. Sta., Morgantown, W. Va.

Extension Bulletin No. 10, Purdue University, Lafayette, Ind.

Constitutional Vigor, Cornell University Bulletin, 345 and 318, Ithica, N. Y.

The Interior Quality of Market Eggs, Cornell University Bulletin 353, Ithica, N. Y.

Essentials of Profitable Egg Production, New Jersey Bulletin No. 244, New Brunswick, N. J.

Diversified Poultry Farming, Circular No. 32, Ag. Exper. Sta., New Brunswick, N. J.

Common Diseases of Poultry, North Carolina A. and M. College, No. 233, W. Raleigh, N. C.

The Farm Poultry Breeding Flock, Iowa Extension Bulletin No. 19, A. and M. College, Ames, Iowa.

Write Professor T. J. Conway of the A. and M. College, College Station, Texas, or Professor Kazmeier, Department of Extension, The A. and M. College, College Station, Texas, for other bulletins and for expert advice on anything pertaining to poultry raising.

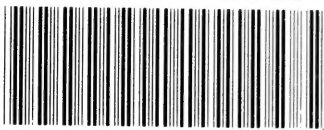
REPORT OF SCHOOLHOUSE MEETING

(Send this report, immediately after the meeting, to A. Caswell Ellis, Director of Extension, the University of Texas, Austin, Texas, and the programs and questions for the following meeting will be sent to you by return mail. Nothing further will be sent until the report is received.)

1. Name of school,.....County.....
2. Principal of School,.....
3. Postoffice Address of Principal,.....
4. Name of Chairman of Meeting,.....
5. Postoffice Address of Chairman of Meeting,.....
6. Name of Secretary of Meeting,.....
7. Postoffice Address of Secretary of Meeting,.....
8. Date of Meeting,.....
9. Subject of Discussion,.....
10. Number present: Women..... Men.....
11. Probable number that will attend next meeting,.....
12. Comments and Suggestions: (Was there much discussion? Was the meeting helpful? Will any practical movement or organization come from it? Do any wish to study the matter further? Can we help in any way?)

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