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CLASS PROJECTS  
FOR  
AGRICULTURE STUDENTS



River Falls Normal School  
of  
Educational Agriculture

W. S. Welles - - - - - Director

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## CLASS PROJECTS

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THESE are things to do. When finished they come as near representing individual work as we can get. These are the main points in each course represented. This does not take the place of class discussion and lesson assignments. It is an attempt to fix the individual attention upon important things and challenge each separate mind to a struggle for solution of the problem involved. Each student has indicated to him what finished work he must check out on with his instructor before he receives credit in these courses. It puts the whole burden where it belongs—on the student. His teacher is his guide.

W. S. Welles

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### AGRICULTURE 23

#### WEEDS AND SEED INSPECTION

1. Name and identify 100 common plants — most of them weeds. (Keep this list in your notes)
2. Name the noxious weeds of Wisconsin. Define noxious weed.
3. Name the weeds classed as "Agricultural impurities" in Wisconsin.
4. Make clear drawings of seeds of weeds in 2 and 3. Note color or characteristics beside the drawings.
5. Show prepared specimens of all you can find of those named in 2 and 3 in this vicinity. Mount them on blank note paper. Keep in note covers.
6. Make one 24-hole seed mount from weeds in 1, 2 and 3.
7. Show tabulated list of medicinal weeds—15.
8. Verify a list of 25 common roadside weeds.
9. Make up one good chart on "Weed Losses to Agriculture".
10. Make a complete list of dispersal agents of weed seeds with examples.
11. My farmer neighbor has refused my request that he cut Canada Thistles on his land next to mine. What can I do? I do not want his thistle seed. Be very specific and accurate in your statement. What other weeds by name may be handled in a similar fashion?
12. Repeat to me the scientific names of half of the weeds in both noxious and impurity lists.
13. Identify the set of 50 tubes of common field and garden seeds.
14. Make acceptable inspection of 10 seed samples offered for identification of all seed. Check your work by the desk.
15. Make acceptable analysis by weight of two (2) seed samples offered so as to meet legal requirements. Calculate the actual value of pure seed in each sample at market price. (St. Paul market sheet). Check by desk book.
16. Make acceptable bulk analysis of three seed samples offered and give results in approximate percents.

17. Prepare a tag for use on a bag of clover seed offered for sale as seed.
18. Where, by whom and how, is seed analyzed in Wisconsin? Cost?
19. Amount of seed to make "sample" of timothy, clover, etc.
20. May one farmer sell bad seed to another without transgressing the law? Explain carefully.
21. Make good list of birds that eat weed seeds.  
Make good list of weed seeds eaten by these birds.
22. Keep clean, full notebook. Include list of the best books and bulletins on weeds with names of company publishing and cost.

### AGRICULTURE 15 MARKETING

1. A brief discussion in your notes for each of six phases of the marketing problem: INDIVIDUAL. PRODUCERS'. COOPERATION. THE MIDDLEMAN. TRANSPORTATION. RURAL CREDITS. CONSUMERS COOPERATION.
2. Keep reference and abstract of all articles read under each general head: FOOD SUPPLY. DISTRIBUTION. MARKETS and MARKETING. MIDDLEMAN. COOPERATION. RURAL CREDITS. The minimum number is 10.
3. Where are the producing regions for Corn? Wheat? Oats? Rye? Flax? Barley? Potatoes? Clover Hay? Alfalfa? Hogs? Beef Cattle? Sheep? Show these by blocking out an outline map of U.S.
4. Prepare a sheet as directed for the quantity of each item in 3. You are to sell all during this course. The one showing the greatest profit has his grade increased by 5; the next by 4; the next by 3. etc. Each sale is by ticket as directed. Prices are the highest cash price on date of sale. Market sheet from St. Paul or Minneapolis papers used. Sales must be of grade on our list. Show cost of production of each item-

Corn—No. 3	Yellow.....	1000 bu.
Wheat—No. 2	Northern.....	800 bu.
Barley—No. 1	Feed.....	700 bu.

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Hay—No. 2	Clover Mixed.....	40 T
Hay—No. 1	Alfalfa ..	15 T
Hogs	90 head at 225 pounds each.	
Cattle	25 head at 1225 pounds each.	
Oats—No. 3	White.....	1000 bu.
Rye—No. 2	.....	500 bu.
Potatoes	White Stock.....	2000 bu.
Flax—No. 1	.....	300 bu.
Lambs	75 head at 100 lbs. each.	

- Get the fullest history you can here or at home, on the marketing of one product from producer to consumer. Potatoes, eggs, butter etc. Aim to show where money can be saved consumer and profit given producer. Show all items of cost involved.
- Make a graph of the daily variation in market price for the nine weeks for six (6) of the products (Your choice).
- Prepare an abstract of the Wisconsin Bulletin on Marketing Potatoes or of the one on Marketing Cheese.
- Outline the steps in organization of a cooperative society under the Wisconsin law. About 15 to 20 steps.
- Prepare one large graph of one product as you will be directed.
- Write up the points gained by the trip to the Chamber of Commerce in Minneapolis and Equity Cooperative Exchange in St. Paul.
- List all instances of products handled by cooperation. Beside these, list those that could be handled so. Mark with × all cases you know of actually operating by cooperation.
- Discuss briefly the New York plan of auction selling of apples in cooperation. (See Rural New Yorker in book-case.) Can it be applied to general farm crops?
- Make one graph to show run of Board of Trade and Equity Exchange prices.
- Summarize recent legislation, or attempts thereat on Rural Credits.

## BIOLOGY 2 ADVANCED BOTANY

1. Trace in writing by Gray's key, three (3) flowering plants of different families.
2. Make out the general scheme of plant classification as used by the key. Use one of the examples in 1 to fit into the scheme.
3. Give a set of written instructions by steps 1 - 2 - 3 - etc. for use of the key to identify an unknown plant.
4. Collect, prepare, mount, identify and label properly, 100 flowering plants.
5. Give a set of written instructions for the work of 4.
6. Group all your specimens by families. Show a complete list of your specimens under families in your notes.
7. Keep good clean notes. Mount specimens on blank sheets of note paper. Keep in covers.

## AGRICULTURE 25

### AGRICULTURAL PEDAGOGY

1. What is teaching? Who teaches agriculture in schools? What preparation have they?
2. Why have agriculture on the school study list?
3. How shall it be taught to accomplish this end?
4. To whom shall it be taught?
5. What is to be taught under this head?
6. Which are you to consider, student? parent? community? yourself?
7. In what way does each react on your work?
8. How much of each item in 5 is to be taught?
9. What things about this work are you expecting to find easy?
10. What difficulties will you meet?
11. How can you use the easy things to support the hard ones.
12. Illustrate the process of teaching from the raw material?
13. The classroom, location, size, equipment, etc.
14. Text books—How used? Number? Ones suitable? Lesson assignments.

15. Note books—How important? Plan of making for best results to student. What kinds of note entries?
16. Chart and Mounted Material—What? How made? Use?
17. Laboratory equipment—Minimum list needed with names of things, cost and where to purchase. Outdoors as laboratory.
18. Land for School use? Yes or no. Why?  
The School owned plat. Rented land. Tools. Farm animals needed. How best used for student benefit?
19. Student projects. What they are. Variety. Purpose. Credits given. Home project. Value and handling. School projects. Limitations of school work. Purpose. Manner of handling—financing—profits etc. List of 20. Work one out in detail.
20. General principles for Agriculture teachers.

### TEN PRINCIPLES AND STANDARDS FOR AGRICULTURE TEACHERS

1. Telling is not teaching.
2. Work it out rather than talk it out.
3. Take time to reason as you work.
4. In any topic, strike at the heart of it with the first question to the class.
5. Tie each topic to each student with a personal interest knot.
6. Doing something with the hands doesn't mean that the work is practical.
7. Every subject study proves its right to survive by the measure of service rendered. No service, no survival.
8. Leave the question to be settled by the individual.
9. There is much agricultural learning floating about in most any student's mind. Our business is to get it together in related order and make it usable.
10. School work that is made of home work looks well and wears well. It gives good service.



## AGRICULTURE 17

### ECONOMIC ENTOMOLOGY

1. List of 25 economic insects by name, sight, and home.
2. Collection of 15 economic insects mounted in Riker Mount.
3. Names and examples of 8 orders of insects.
4. History of destructive migrations of locusts in U. S.
5. Dissection and carding of external anatomy of grasshopper.
6. Diagrams and notes on internal anatomy of grasshopper.
7. Study of house fly—Collection—Raise brood in laboratory—notes on life history. Methods of destroying.
8. Make chart on topic "Housefly and Disease."
9. Insect enemies of corn: corn ear worm, corn wire worm, etc. Hunt examples. Prepare notes of information.
10. Insect enemies of wheat. Keep notes and drawings on chinch bug.
11. Make model of a fly trap. Try it out in a school or home. Report.
12. Make a life history mount of cabbage butterfly.
13. Write up the white lawn grub and make collection. Notes on observation of its work.
14. Plant lice collection with host plants. Life history.
15. Raise plant lice in laboratory. Notes.
16. Collection of night flying moths. Work done by moths.
17. Laboratory culture of potato beetle. Notes.
18. Write up scale insects. How are they to be eradicated? Keep at least one example in collection.
19. Write up honey bee history.
20. Make list of common insecticides with use and formulæ.
21. Prepare two insecticides and try them out.
22. Drawing of anatomy of spiders. Notes.
23. Study and culture of mosquitoes. Work out in laboratory.
24. Beetle collection with notes.

25. A clean, complete note book of useful notes and drawings on economic insects. Include list of best books on subject.

## AGRICULTURE 24

### AGRICULTURAL BIOLOGY

1. See cell division in pleurococcus. Notes and drawings.  
(Notes include distribution and value)
2. Grow three varieties of yeasts. Notes and drawings.
3. Demonstrate presence of yeast in silage. How? Notes.
4. Show two products of yeast by laboratory culture.
5. Make 4 tests of distribution of yeasts. Notes.  
(Notes on process and results. Figures help clearness)
6. See complete budding process in yeast. Notes and drawings.
7. Complete notes on work of yeasts in the world.
8. Grow two varieties of mold. Show figures for four stages in development—spore—germinated spore—mycelium—hypha. Use two culture media. Notes and drawings.
9. Make 4 tests of the distribution of molds. Notes.
10. Test the food elements used by your molds. (Starch—Sugar—Protied—Fat) Notes.  
Test the substance of the mold itself. Notes.
11. Do molds require light for their development? Notes.
12. What degree of concentration of liquid food prevents mold development? Why?
13. Life history of bread mold (R. Nigricans).
14. Complete notes on work of molds in the world.
15. Grow two common varieties of mildew in laboratory. Notes and drawings.
16. Diagram carbon cycle in world life.
17. Explain how plant and animal substance returns to elemental condition to be used over. Show all chemical formulæ for this in the four food classes.
18. Diagram protein cycle in world life.
19. Diagram of cell division process in six (6) stages.
20. Explain on basis of 19 the occurrence of mutation, or sports

21. Explain the exact relation of oxygen to plant and animal body functions.

22. Show presence of alcohol in silage by test.

Why does alcohol appear in silage? Show formula.

23. Work out complete exposition of alternation of generations in bread mold (*Nigricans*) by drawings and notes. Apply the same facts of life cycle to corn. Is there any alternation there.

24. Show tabulation of six enzymes in nature with their work and products. Do toxins go here? What is the difference? How give antitoxic treatment for disease?

25. Keep clean, neat note book. Include list of best books on this subject.

## FEEDS AND FEEDING

### AGRICULTURE 13

1. Make a chart showing the nutrients in an acre of corn at the tasseling, milk, denting, silage and matured stages.

2. Prepare a chart showing digestion of nutrients.

3. From an outline furnished you record a study of the following feeds: corn, gluten meal, gluten feed, ajax, hominy feed, oats, barley, malt sprouts, brewer's grains wheat bran, middlings, flour middlings, red dog, linseed oil meal, flaxseed meal, cottonseed meal, rye, buckwheat middlings, soybean, beet pulp, milk, skim milk, whey, tankage, dried blood, condimental and stock foods.

4. Prepare a mount of feeds.

5. Make an outline study of these roughages, -alfalfa, clover, fodder, stover, timothy, red top, oat straw, wheat straw, millet, soy bean, cow pea, mangel, rutabaga and beets.

6. Prepare a chart illustrating the yield of protien per acre of the above roughages. Same for total digestible nutrients.

7. Illustrate the result of the following method of feeding.

a. Adding a nitrogenous supplement to a carbonaceous

b. The amount of corn, bran and oil meal necessary to supply the nutrients in a bushel of oats. Show the difference in price at the present market prices.

## 10 CLASS PROJECTS FOR AGRICULTURE STUDENTS

8. Calculate a good ration for fattening steers. Show the amount of land required to put on a gain of 300 pounds and the probable returns from an acre used for this purpose.

9. Calculate 3 rations for a 1000 lb. dairy cow producing 30 lbs. of 4 per cent milk daily. In ration No. 1 use clover for the roughage, in No. 2 use alfalfa and in No. 3 use timothy. The other feeds to be the same. Show the acreage required for each ration for a winter feeding period and the probable returns from an acre in the two rations.

10. From the records of cows studied in the cow testing association, draw conclusions regarding the importance of this work. Illustrate with data.

11. Give a complete discussion on the growing and fattening hogs, showing the most profitable methods of feeding at different times of the year. Show the acreage required to raise a hog from birth to market, and probable returns per acre. Illustrate the construction of a self-feeder.

12. Give some good rations for work horses. Show how the acreage required to feed the horse may be lower than at present on your farm.

13. Give some good rations for fattening sheep. Show the acreage required and probable returns per acre.

14. Show the results of problem given during the course.

15. Write a synopsis of all reports on bulletins given by members of the class.

### AGRICULTURE 1, FIELD CROPS

1. On a map of Wisconsin indicate the distribution of corn over the state by placing a star in each county for each 100 thousand bushels produced. Use Wisconsin Blue Book.

2. Make a field selection of 10 ears of seed corn.

3. Report on the results obtained in hill selection of seed potatoes. Illustrate by data the value of hill selection.

4. Give the characteristics of the varieties of potatoes in Wisconsin.

5. Make and label the following drawings of the corn kernel of the dent, flint, pop, pod, soft and sweet types:
  - a. Germ side of kernel.
  - b. Longitudinal section at right angles to the thickness.
  - c. Cross - section at  $\frac{1}{4}$  distance from the tip.
  - d. Cross - section at the middle.
  - e. Longitudinal section at right angles to the width, thru the center of the kernel. Enlarge the drawings to 4 times the natural size.
6. Make drawings of dent kernels showing difference in feeding value.
7. Make the following drawings of the corn plant.
  - a. Pistillate and staminate flowers.
  - b. Show the relation between the shank and husk and leaves and culm.
  - c. Cross and longitudinal section of the culm.
  - d. Show the permanent and temporary roots, stem and leaves of a sprouted kernel.
  - e. Primary and secondary roots of a matured stalk.
8. Give good descriptions of Wis. No. 8, Wis. No. 12, Wis. No. 7, Northwestern dent, Pride of the North and Murdock from sample ears given you.
9. Score and give placings with reasons of the samples of corn furnished you.
10. From the outline furnished you give a complete description of corn.
11. Prepare a mount illustrating the different kernel types.
12. Make the following drawings of wheat and rye:
  - a. Spike.
  - b. Spikelets with rachis.
  - c. Flowering glume
  - d. Palea.
  - e. Sterile flower.
  - f. Kernel - dorsal and ventral view.
  - g. Cross section of kernel.
13. Give descriptions of the types and varieties of wheat given you.
14. Make these drawings of barley (2 and 6 rowed.)
  - a. Spike.
  - b. Group of spikelets.
  - c. Spikelet—dorsal and ventral view.
  - d. Palea.
  - e. Outer and flowering glumes.
  - f. kernel.

## 12 CLASS PROJECTS FOR AGRICULTURE STUDENTS

15. Make the following drawings of oats:

a. Panicle. b. Spikelet. c. Outer glume d. Flowering glume. e. Palea. f. Kernel—2 views.

16. Score threshed samples of the above grains.

17. Draw the root systems of the different small grains.

Compare the development of each.

18. Become familiar with the plants of different grass crops by giving descriptions of each from the outline given you. Illustrate by drawings.

19. Give a description of millet with drawings.

20. Study and give descriptions of the plants of: alfalfa, clover, cowpeas, soybeans. Make drawings.

21. Identify seeds of all farm crops. Prepare a seed mount.

22. Record descriptions of the sorghums, also flax.

23. Make germination tests of corn, small grains, grass and clover seed. Record data.

24. Prepare a chart showing the cost and profit on one dollars worth of wheat, oats, corn, rye, barley, potatoes and alfalfa. Use statistics taken from studies on farms.

25. Give observations and conclusions drawn from all the trips taken during the course.

### FARM MANAGEMENT

#### AGRICULTURE 3

1. Draw to a scale the plan of a farm, preferably your own or one you are familiar with. Show the layout as regarding arrangement and location of fields, buildings etc. Give the scale used. The drawing is to be made in ink.

2. Prepare a statement regarding the type of soil, kind of soil, kind of farming done in the past, the yields of crops the past year and the condition of the soil at present.

3. Score your farm with the farm score card.

4. Make a farm survey of your farm on blanks given you.

5. Make any changes in the farm layout as to size and shape of fields, fences, drainage etc. This revision must be practical.

6. Show by tabulation the amount of food consumed by each class of animals per year, the acreage required for each cow, horse, pig, etc., and the total acreage necessary for each group that is to be maintained on the farm. Indicate the kind and amount of feeds that are to be purchased.

7. Make a tabulated statement, showing both in money value and percentage the proportionate investment of capital in land, buildings, live-stock and machinery.

8. Plan a practical systematic rotation that can be followed in the future.

9. Prepare a crop cost accounting table and indicate the cost of growing each crop grown on the farm.

10. Show by figures the amount of fertility lost or replaced each year by the type of farming you expect to follow.

11. State the number of men to be employed in carrying out the above plan.

12. Estimate the amount and value of products to be sold from the farm. Itemize the probable expenditures during the year.

13. Prepare a detailed account showing the methods of caring for the cows, swine etc., and the method of marketing both crop and live stock products.

## AGRICULTURE 11, DAIRYING

1. Keep an individual monthly record of at least two cows. Figure cost of producing one pound of milk.

2. Make a chart or outline indicating the advantage of dairy farming.

3. Show by laboratory test that milk contains fat, casein, albumen, sugar.

4. Calibrate four cream and four milk test bottles.

5. Test the specific gravity of sulfuric acid.

6. Test milk for butter fat. Duplicate sample. Keep record of procedure and tabulate the following data: amount of milk used, amount of acid, temperature of acid and milk, color of fat column, condition of fat column, reading of test, etc.

## 14 CLASS PROJECTS FOR AGRICULTURE STUDENTS

7. Show by laboratory experiment the effect of too concentrated acid, acid of too high temperature, milk of too low temperature.

8. Make a butter fat test of fore milk and strippings.

9. Test milk for acidity. Explain the cause of milk acidity.

10. Make a sediment test of milk from cows whose record you are keeping.

11. Make a plate culture showing the bacterial content of milk. Notes. Drawings.

12. Give a write up on sanitary milk production.

13. Test cream for butter fat. Legal standard for cream; for milk in Wisconsin.

14. Learn to operate the three separators in the laboratory. Draw a cross section of one showing the passages for milk, for skim milk and cream.

15. Test skim milk for butterfat.

16. Learn to use a lactometer. Discuss its use.

17. Make a casein test. Write a short article on the practicality of its use.

18. Make the Wisconsin curd test.

19. Work out a dairy barn score card.

20. Answer orally questions on sheets given you.

21-25. Copy all topical assignments and give a brief discussion of same in your note book.

Remark: (Use uniform paper and write up all projects and notes in regular form neatly in ink.)

## AGRICULTURE 7. FARM MECHANICS

1. Explain what is meant by the term four cycle. Beginning with the suction stroke, follow thru the cycle, explaining what takes place during each stroke, the valve events, ignition, etc.

2. Explain with sketches the tram method of setting an engine on dead centre.

3. By diagram and explanation show the difference between inductance or accumulator coil and induction coil.

4. Make a sketch or wiring diagram of a make-and-break ig-



nitron system.

5. Explain fully the three tests for trouble in the ignitor and the necessity of the proper order in making these tests.

6. Diagram the jump spark ignition system.

7. Make a gas engine trouble chart.

8. Locate trouble and start engine running.

9. Find the per cent of organic matter in coarse and in fine aggregates.

10. Determine the per cent of 100 mesh and 50 mesh particles in fine aggregate.

11. Make original design for concrete models for any of the following articles: fence post, porch post, bird bath, ornamental flower container, gate post, corner stone for drive way, lawn settee, feeding trough, wash line post, hitching post. (Draw to scale)

12. Construct out of concrete one of the following: hay cap weights, fence post, section of sidewalk, feeding trough, building block, etc.

13. Design and figure cost of a concrete septic tank for a family of six people.

14. Work out list of problems on concrete.

15. Diagram and explain the Leader Water System.

16. Explain the Perry Automatic System.

17. Make a sketch of a single acting hydraulic ram. Double hydraulic ram.

18. Explain by sketch the principle of a single acting pump. Show the difference between a single and double acting pump. What are displacement and differential pumps?

19. Make a long splice ( $\frac{1}{2}$  in. rope).

20. Repair a broken strand in a hay rope.

21. Make a short splice.

22. Learn to make the following knots: right and left over hand knots, square knot, binder knot, blood knot, bowline, sheepshank, millers knot, carrick bent, weaver knot, crown splice, walker knot, wall and crown knot, timber litch, well pipe hitch, manger knot, naiter tie.

23. Make a rope halter.
24. Lace a 2 inch, 3 inch and 4 inch belt.
25. Learn to make the double hinge lace.
26. Solder a pail, can, or any other available article.
27. Babbitt a worn bearing.
28. Make a complete plan for one farm structure. Include list of needed material.
29. Fill out blank silo sheets submitted to you.
30. Obtain all free literature available on subjects considered in Farm Mechanics, and submit for checking.

### AGRICULTURE A

1. Present specimens of five soil forming minerals.
2. Present specimens of five soil forming rocks.
3. Present specimens of sand, silt, and clay. Describe origin and physical make up of each.
4. Make a table showing how much manure of 10 lbs. N—5 lbs. P—10 lbs. K per ton composition would be required to replace the N, P, and K removed by an average crop of corn, wheat, and clover on 120 acres in a three year rotation.
5. Place ten ears and give reasons.
6. Test ten ears of corn and germination. Tabulate your results.
7. Itemize the cost of raising a bushel of corn. Tabulate.
8. Itemize the cost of raising a bushel of wheat. Tabulate.
9. Make a short splice using half inch rope.
10. Make a long splice using half inch rope.
11. Tie eight different knots. Write names and farm uses for each.
12. Make up a small solution of Bordeaux mixture. Write up steps, formula, and uses.
13. Make up a small amount of kerosene emulsion. Write up as before.
14. Tabulate steps in making the babcock test. Show test of one sample accurately made.
15. Compose a balanced ration for a one thousand pound dairy cow giving thirty pounds of 3.5 per cent milk daily, using feeds

that can be largely grown on the home farm

16. Work out a good three year crop rotation. Diagram and discuss it.

17. Lay out plans for a home garden, 50 ft. x 150 ft., for a family of five. Draw to scale and write out an order for the right amount of seed.

18. Keep a record of the milk production of a dairy cow for one month and calculate the profit or loss for that time.

19. Give the distinguishing characteristics of the three main breeds of dairy cattle.

20. Show specimens of fifteen different weeds. Tabulate as to habitat, description, eradication.

21. Show specimens of five economic insects. Tabulate as before.

## AGRICULTURE 2. SOILS

1. Make a cross-sectional drawing of all the geological formations from Hudson east to Stanley. Write up the effect of the outcrops on the soils formed. (See soil Survey. South part of N. W. Wis. p. 3)

2. Draw the main soil areas of Wisconsin on an outline map of this state. (See large geological map of Wis )

3. Compare the common soil-forming rocks as to class, physical make-up, composition, color, hardness, solubility. (Wis. M. Ex. 3)

4. Compare the common soil-forming minerals as to composition, hardness, solubility. structure, etc. Tabulate. (See Wis. Manual, Ex. 2)

5. Compare soil and artificially pulverized rock and minerals as seen with and without the microscope. (Procure your own samples.)

6. Examine some common soils under wet and dry conditions. Tabulate. (See Wis. M. Ex. 1)

7. Outline the kinds of soils formed by water, wind, ice, gravity. Also show the extent of the loessial and glacial provinces on an outline map of the United States.

## 18 CLASS PROJECTS FOR AGRICULTURE STUDENTS

8. Determine the volume weight (apparent specific gravity), the pore space, and true specific gravity of soils. (Wis. M. Ex. 3)
9. Learn how to take soil samples and field notes. Get five samples and write up notes of the field on which you took your samples.
10. Determine the amount of organic matter in soils. Two methods.
11. Determine the moisture holding capacity of different soils. Tabulate.
12. Determine the capillary movement of water in the different soils.
13. Determine the effect of different mulches on evaporation.
14. Determine the wilting coefficient of different soils. (Ref. soils and soil fertility, Whitson and Waister. P. 305)
15. Compare the rate of flow of water through different soils. Also compare the power of absorption of different soils.
16. Work out a drainage project.
17. Make the Truog test for soil acidity.
18. Determine the amount of water soluble salts in soil. (Wis. M. Ex. 11)
19. Compare soils relatively rich and poor in nitrogen.
20. Trace changes in nitrogen compounds. (Soils and soil fertility. p. 290)
21. Test soils for phosphoric acid.
22. Judge and classify soils given you.
23. Determine the effect of cropping on the water content of soils. (Wis. M. Ex. 21)
24. Compile a table showing the return of as much nitrogen, phosphorus and potassium in manure and other fertilizers as is removed by average crops in a three year rotation.

## AGRICULTURE 10. ANIMAL HUSBANDRY

(Omit 1)

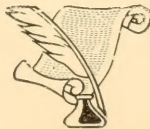
1. Pick out the best feeder in Mr. Farmer's lot. Verify your selection next Spring or sooner.

2. Trace out the pedigree of certain designated animals.
3. Diagram the different cuts of meat for cattle, sheep, and swine.
4. Show how different animals may be thrown.
5. Prepare a farm animal for showing.
6. Make out a premium list for a stock show.
7. Write up in detail how a breed of wagon horses may be established.
8. Diagram showing points of different animals.
9. & 10. Tabulate comparative data on score card for different breeds of animals studied.
11. Arrange your 18 sets of answered questions in order in your note book.

## AGRICULTURE 27

### HOME PROJECT SUGGESTIONS

1. Introducing alfalfa, 1 acre.    2. Dairy herd records.
3. Potato production.    4. Corn, ear to row test.
5. Poultry production.    6. Potato seed plot.
7. Corn production, 1 acre.    8. Curing alfalfa.
9. Growing pedigree oats.    10. Farm record.
11. Record of beef production.    12. Home vegetable garden.
13. Rations suitable for home herd.    14. Weed seed collection.
15. Renovating an old orchard.    16. New rhubarb culture.
17. Weed census of home farm.    18. Landscape gardening.
19. Making set of agricultural slides.    20. Spraying orchard.
21. Growing laboratory material for school.    22. Hog raising.
23. Bird migration chart.    24. Keeping record of markets.







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