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PREPARES TEACHERS OF AGRICULTURE

When Minnesota placed agriculture in her high schools she desired men to teach it who were familiar with Minnesota types of agriculture, both scientific and practical, and also with her educational system in which they were to work. This was seen to be more essential in the case of agricultural teachers than in the case of academic teachers because the agricultural men must advise the farmers and hence must know Minnesota agriculture as practiced among the best of farmers and as taught in the state agricultural college, where special attention is given to Minnesota crops, soils, animals, equipment and systems of farming. In response to this demand the University arranged for the proper preparation of agriculture students to teach in the public schools.

A course of study was arranged, the agriculture of which is well balanced among the subjects which the man will need to teach in the high school and avoids that narrow specialization followed by some students, which, while it fits them for advanced scientific work in some specialty, leaves them unprepared to teach some of the subjects required in the high school course. Not all people realize that a man might graduate from a good agricultural college with good marks and still be so one-sided in his preparation as to be unable to teach well the broad course required in the high school.

In addition to having practical farm experience, the student should have taken a course in the theory of agriculture. Courses were also given to prepare him for the duties of the teacher. In these courses specific work was offered in methods of teaching agriculture, plans for the organization and management of agricultural work in Minnesota schools, and actual teaching of agriculture under careful supervision.

Learns Actual Teaching

The course in organization and management deals especially with conditions the man will find when he goes into a Minnesota school to teach. Its work includes a study of the statutes, rules of the high school board, courses of study, programs, suitable text books, reference books, bulletins, papers and equipment, how to handle the school plot, how to do extension work, the short course, the proper relations of the agricultural man and his work to the superintendent, and to the other teachers as well as to the county superintendent, the county agent, and the board of education, familiarity with the different apparatus, such as stereopticons, and other topics of immediate and practical value in Minnesota.

The course in actual teaching is conducted with classes in the Department of Agriculture, in the public schools of the Twin Cities and the towns near by and in the country schools of Ramsey and Hennepin counties.

This teaching is closely supervised by experts, the daily lessons being preceded by careful, detailed preparation on the part of the student and followed by discussion and criticism on the part of the critic teacher.

Through these practical courses in agriculture and teaching, it is aimed to equip the man so he may work efficiently in the high school where he is employed without having to learn conditions of Minnesota agriculture at the district's expense. He gets this preparation before he is employed.

Seniors Practice Teaching

The seniors in the College of Agriculture of the University who are preparing to teach in the high schools are having valuable experience in their actual teaching course this semester. In addition to the teaching they have done in the Department of Agriculture under close supervision, they are now teaching in the public schools of Minneapolis, South St. Paul and several country schools in Ramsey and Hennepin counties. Besides the supervision which they received from the critic teachers of the College of Agriculture, they have the benefit of the supervision and criticism of the superintendent and agricultural teachers in the schools where they are working. With this practical experience added to their college courses in methods of teaching agriculture and in the organization and management of the agricultural work in the high school they ought to be pretty well prepared for taking charge of such work in the public school next year.

PUPILS ARE RAISING GARDENS AND CHICKS

Earl H. Martin, agricultural instructor in the Nashwauk High School has started a garden contest, a chicken contest and a potato contest. Following are the rules governing the garden contest: Pupils in the fifth and sixth grades may be admitted.

Gardens may be either at home or on the school plot. They must be eighteen feet square.

Pupils must furnish their own seeds and do all their own work.

Pupils must plan their gardens and have them approved before planting.

Once a week all pupils who have gardens on the school plot must spend an hour at work on them under the direction of the agricultural instructor. In case of rain or wet grounds all pupils will meet in the agricultural room.

Pupils who have their gardens at home will report at the regular weekly sessions the amount of time devoted to their gardens since the last meeting.

Permission must be obtained to take vegetables from gardens on the school plot.

Pupils must keep a record of all vegetables grown and determine their value.

Anyone who fails to keep his garden in good shape or who damages another's must forfeit his garden.

All gardens will be scored July 4. The five scoring highest will receive cash prizes of 50 cents each.

All gardens will be scored again September 1.

Each pupil must write a story before September 15 telling how he grew his garden.

Prize-winners will be determined by the following score card:

Attendance	100
Score, July 4	100
Financial report	100
Story	100
Score, September 1	100
	500

Prizes will be awarded as follows: First, \$2.50; second, \$2; third, \$1.50; fourth, \$1; fifth, 75 cents; sixth, 50 cents; seventh, 25 cents; eighth, 10 cents; ninth, 5 cents; tenth, 2 cents.

Prize-winners will be determined by the following score card:

Attendance	100
Score, July 4	100
Financial report	100
Story	100
Score, September 1	100
	500

Rules for the chicken contest follow: Contest is open to all from the seventh grade up.

The agricultural department will furnish each pupil with six one-day old chicks at 50 cents.

Record of all feeds bought and fed shall be kept. Blanks will be furnished for this purpose.

A story shall be written by each pupil on how he raised his chickens.

Prizes will be given to those having the highest scores. The score card contains:

Number of chickens raised....	100
Reports and financial statement	100
Story	100
Exhibit of pen of two.....	100
	400

Six prizes of \$2.50, \$2, \$1.50, \$1, 75 cents and 50 cents will be awarded.

These entry blanks are signed by all in the chicken contest:

I desire to enter the chicken contest and shall do my part to make it a success.

Signed.....
(Pupil's name)

The agricultural department will advise and help pupil in every way possible. All report blanks will be furnished to the pupil.

Signed.....
(Instructor's name)

TEACHERS TALK OF AGRICULTURAL WORK

The Visitor publishes this month summaries of as many of the papers presented at the spring meeting of the Minnesota Agricultural Instructors' Association, March 30 to April 1, as it has been able to get.

J. B. Dandeno, inspector of rural school agriculture in the Province of Ontario, Canada, spoke briefly to the agricultural instructors at the session Saturday. He outlined the development of secondary agricultural education in that province.

Mr. Dandeno said that in its earliest stage agricultural instruction was a combination of extension and teaching service. The enthusiasm of the instructors for the extension side of the work, leading as it did to easier and better-paying positions as agricultural agents, caused perfunctory work in the class room. In consequence, secondary agricultural education gradually disappeared. At present an effort is being made to reinstate the work. However, he said, this is not being done through graduates of agricultural colleges. It is by utilizing men who are preparing as science teachers and who have carried a certain amount of agriculture in their college course. Through this means, school men are trying to get a corps of agricultural teachers whose primary interest is in instructing pupils and thus to restore the courses to good standing in the secondary schools.

Mr. Dandeno spent the first week of April visiting Minnesota high schools which offer agricultural courses.

Instructor Must Direct Club

A. J. Olson, Waseca, outlined the methods schools may use to improve community spirit. He said there are three factors that must help establish the new relationship—the agricultural instructor, the superintendent of schools and the means and time for these men to get in contact with the rural community by trips among the farmers. The agricultural instructor must be able to meet people, he said, must be tactful, practical and well informed on his subject. The superintendent must be in sympathy with the work and must give active support to the agricultural instructor. Selection between these two men will be fatal. Facilities must be suitable for rapid traveling. It is poor economy to pay a good salary for time spent with a slow horse.

With these facilities, Mr. Olson thinks, the agricultural instructor should participate in nearly all activities of the community. He should be a leader in the farm clubs, although he must not let it appear that he assumes to manage their work. His leadership must be indirect. Through the commercial club of the city, he showed that good relations between town and city may be established. Both the agricultural instructor and the superintendent should utilize it in arousing interest in school affairs and in matters of common interest to town and country.

As other means through which good work can be done, cow-testing associations, breeders' associations, short courses, boys' and girls' club contests, and social gatherings were pointed out.

Material Plentiful, He Says

Harry Olin told about illustrative material for class work. He showed how an agricultural instructor may get material from a county exhibit at the State Fair. Collecting it, he said, gives the teacher an acquaintance with the farmers in his community.

"The agricultural instructor," he continued, "may buy the seed for growing exhibit material at the expense of the county or of the community and distribute it among the boys of his school and the farmers of his community for planting. In return they should allow him to have what is needed for exhibition purposes. Many of the boys and farmers like to get these new varieties for exhibition at the county fair. Through this, the instructor may build up the county fair. Varieties that are not taken by persons in the county may be grown on the school plot.

"In the case of corn, the different types and varieties may be secured by going to the best corn growers in the county and selecting it. After the fair the best type ears of the different varieties may be saved.

"Wild and tame grasses, including clovers, alfalfa, and forage crops, such as kafir corn, sorghum, millets, cow peas, soy beans, vetch, are required in the exhibit. This material may be cured by collecting while green and curing above the floor, in a dry, dark, warm, well-ventilated room. After curing, the material should be tied in about three-inch bundles for exhibiting. The original color in each case is hard to retain. Curing is really an art."

Would Keep Diseased Samples

In the case of potatoes, Mr. Olin suggested selecting after the fair a few of the best type potatoes of the eight varieties mentioned by the Minnesota Potato Growers Association, and preserving them in glass jars in a solution of

4 cubic centimeters of 40 per cent formaldehyde to 100 cubic centimeters of water. Diseased potatoes may be preserved in the same way and all used in the winter for short course and normal students.

About fifteen varieties of grains are required in the county exhibit, but these are easy to get, according to Mr. Olin's plan. There must be two bundles of each variety two inches in diameter at the middle band, and threshed samples of two quarts must be shown for each variety. In curing the bundle grain the process is about the same as for grasses. The grain needs to be cured in the light, though not in direct sunlight. It is best to cut the grain a bit green and place it under cover soon. When thoroughly cured, one may make up a small core with the leaves on the stems and then place a layer of stems with the leaves removed on the outside. This will save work and make the bundles shine. When the fair is over these bundles, with the grasses and forage, may be nailed on the walls or placed in cases away from mice and rats.

Here is a list of supplies Mr. Olin said should be stored: Grafting wax, scions, roots, different kinds of grafts, small top-worked trees, seedling trees of orchard and forest, fruit trees properly pruned and some not pruned, different kinds of spray mixtures, preserved in glass jars. Plants, showing insect injury, plant diseases, etc., may be pressed and mounted on heavy card board. Insects, butterflies and moths may be killed in potassium cyanide bottles and mounted on pins in boxes or beneath glass in boxes of cotton. Worms and small animals may be preserved in a solution of 10 parts of 40 per cent formaldehyde, 100 parts of 95 per cent alcohol and 100 parts distilled or boiled water.

Wall May Be Map Ground

The Minnesota bird and insect chart should be on the walls, he says. Pictures of types and breeds of farm animals and charts of different kinds may be hung on the walls or placed on a standard in the room. Blue prints of farm buildings of all kinds should be tacked on the walls. Lantern slides or charts may be owned by the school or rented from many sources, such as the state college, United States Department of Agriculture, International Harvester Company and the cement companies. Corn products in glass bottles may be obtained from the Corn Products Company of Chicago, and wheat products will be furnished by milling companies in Minneapolis. Agricultural lime and fertilizers in glass bottles are supplied by Swift and Company.

"Some winter-flowering bulbs may be started in the room," Mr. Olin says. "The following may be made one year and a sample saved for the next few years: Clay and cement drain tile, concrete fence post, hay cover weight, side walk block, clay and cement building block, hog trough, hitching post, lawn roller, etc. The cement manufacturing exhibit is good in teaching cement work.

"Rope knots and splices," he continues, "mounted on a large cardboard make a neat exhibit. A sample of belt lacing for belts of different sizes should be kept, and soldering in its different stages may well be shown. Have the animal husbandry class make up a balanced ration for a dairy cow, showing what she really needs each day and also what the farmer feeds her. Place the milk she gives in a day in bottles. Have a cold-frame and hotbed at school where you can grow all the tomato, cabbage, cauliflower, egg plant, and celery plants that the children in the whole school need for their home gardens.

"Work with the manual training department and have them make for your department a model road drag, seed drying and testing trays and racks.

Machinery Part of Collection

"Have a place where you can have the different makes of gasoline engines together with a shaft, pulleys, pump jack, washing machine, cream separators, feed grinder and cord-wood saw. Every school should have a seed-corn grader. If the school has room, one may get all types of farm machinery from dealers.

"In poultry work bring a few fowls in the class and cut them open down the under side to show the digestive system, vital and egg-laying organs and how the egg is produced. Break several eggs in a dish to show the different parts. Demonstrate the development of the young chick by placing four eggs in an incubator each day until the first eggs start to hatch, then stop the machine and break last ones first and note the development. Secure some boxes used for shipping eggs by mail. Preserve some eggs in water glass. Go to the poultry show to study breeds. Make up a display of the different poultry feeds and place in hoppers ready for use."

W. F. Lusk, University Farm, St. Paul, outlined the subject of "The Home Project as a Substitute for the School Plot." He said:

"The home project, under Minnesota conditions, may be defined as the application of the instruction in the school to home problems for the purpose of vitalizing instruction, amplifying knowledge and influencing parents to increase their productive efficiency and their interest in the school.

Home Plot Helps Parents, Too

"The school plot has two distinct phases in its relation to the agricultural work in Minnesota. It has been considered primarily an aid to the extension work of the agricultural instructor and for this purpose has been used in demonstrating new crops, methods of cultivation, weed eradication and similar things. It has also been used for production of pure seed and for seed improvement. In the latter phase the home project may be definitely substituted.

"It is certainly true that a project carefully carried out by a boy on the home farm will much more effectively demonstrate improved methods for the parents than will the same thing done by the instructor on the school plot. It is possible to carry out pure-seed production as a home project. This will facilitate the distribution of pure seed in the community and if the project includes marketing the crop by the boy, it will insure distribution to others than the parents of the boys engaged in this project.

"Seed improvement as illustrated by pedigree breeding of seed corn may be carried out as a home project. The pure seed production and seed improvement offer some difficulties over those encountered on the school plot, since the control and supervision by the instructor cannot be as close.

"The second phase of the school-plot work—the use of the school plot to further class room instruction—is a phase for which the home project cannot be substituted, since the purposes are essentially different. In this respect the school plot should be regarded as a laboratory to be used in illustrating and exemplifying the daily instruction of the class room.

"School Work Must Come First
"To thoroughly teach ear-to-row test of seed corn, selection of seed corn, hill selection of seed potatoes, the cultural methods and practices of growing corn, wheat, soybeans, etc., the school plot can be taken. This is work connected with the immediate progress of instruction. The project work follows the class room mastery of the subject. The pupil is not ready for the project until he has completed the study of the things which he applies in his project, hence the home project would grow out of the class room and school plot instruction rather than serving as a substitute for the latter.

"The school plot has a definite correlation with the summer project. One of the objections commonly offered by agricultural instructors in Minnesota high schools to requiring the home project as a part of the agricultural work, is the fact that a considerable number of pupils in their classes are town residents and have no land available for project work. Portions of the school plot might be profitably assigned to such boys for project work. The work started in the spring by the class in connection with the class room work may very properly be assigned to boys living in town to be cared for during the summer as project work."

BOOKS RECEIVED

Volumes of Interest to Teachers of Agriculture and Manual Training

The Visitor acknowledges the receipt of the following publications of interest to instructors in agriculture and manual training:

Shop Problems, Series 2; A. B. Liepert. A series of sixteen drawings on tracing paper ready for blue-printing. Manual Arts Press, Peoria, Ill.; 25 cents.

Principles of Agronomy; F. S. Harris and George Stewart. Deals with the plant, the soil and with each of the common field crops. MacMillan Company, \$1.40.

Dairy Laboratory Manual and Note Book; E. L. Anthony. Lippincott.

SHORT COURSE HAS NINETEEN STUDENTS

The short course held at Alexandria recently enrolled ten boys and nine girls, all from farms. A short course club known as the "Wide Awake Short Course Club," was organized to promote social life, mutual good will and co-operation among the pupils. Beside on social occasions, the club meets every other week and discusses its work and farm problems. Under the auspices of the club the short course students gave a play at the Union Lake schoolhouse. The club was very helpful in keeping up enthusiasm to the last day of the course and in unifying the class.

F. M. Jockey is superintendent of the Alexandria school; K. A. Norsen is agricultural instructor.