

THE VISITOR

Devoted to the Interests of Agricultural Education in
Minnesota Schools

VOL. XII

May, 1925

No. 9

ORGANIZATION OF ILLUSTRATIVE MATERIAL FOR TEACHING VOCATIONAL AGRICULTURE

One of the most important duties the teacher of vocational agriculture has during the summer months is to get the visual aid material to use during the school year. Natural objects, preserved specimens, models, illustrations, graphs, diagrams, charts, maps, demonstrations, lantern slides, and motion pictures are some of the visual aids he should plan to use.

The use and means of securing or of making many of these have been discussed in past issues of *The Visitor*. Copies of most of these may be obtained by anyone interested in the articles.

(1) October, 1924. A Method of Teaching Dairy Cattle Judging.

(2) April, 1924. The Blackboard as an Eyeopener.

(3) March, 1924. Illustrative Material (The School Plot, Preservation of Plant Material).

(4) February, 1924. Planning the Field Trip.

(5) January, 1924. The Teaching of Breeds and Varieties (Sources of Illustrative Material, Flash Cards).

(6) December, 1923. Demonstration Teams (Dairying).

(7) April, 1923. Pictures Aid in Teaching Agriculture.

(8) March, 1923. How to Make Lantern Slides.

(9) December, 1922. Suggestions for Chart Making.

(10) February, 1922. Sources of Illustrative Material.

(11) January, 1922. Laboratory Instructions in Vocational Agriculture.

(12) November, 1921. A Few Suggestions on Corn Judging.

(13) May, 1921. Display Material in Agricultural Rooms.

(14) February, 1921. An Interesting Demonstration.

Securing Visual Aids

The question of how to secure the material arises in the mind of every teacher who is interested in presenting each problem in the most efficient and effective way. Some of it may be pur-

chased while others must be made or collected by the teacher. There is often great value in preparing your own material. It is not only an education matter it is also much more likely to be used in the class instruction if the teacher has become acquainted with it by collecting and organizing the aids. This is especially true in collecting and classifying insects for use in teaching crop enterprises.

Organization

Not many teachers have their material organized so it can be used to the best advantage. Numerous things are purchased without any special thought as to their place or value in instruction. This can be remedied by first deciding just what visual aids are needed. Then secure and arrange them so they will be available at the time the problem comes to the attention of the class.

This may be shown by taking the enterprise of Corn Production and listing under each job some of the visual aids needed in teaching that job.

Illustrative Material in Corn Production

Job I.

Deciding on the Crop:—

1. Graphs showing corn yields compared with other crops.
2. Table showing dates of killing frosts, monthly rainfall, and summer temperature.
3. Circular graph giving corn production cost and relative value.
4. Graph showing corn prices over a period of ten years.
5. Map showing growing season in different parts of the state.

Job II.

History, Production and Distribution of Corn:—

1. Pictures of corn at various stages of improvement.
2. Bar graph giving production in 10 leading states.
3. Map of the World giving corn exporting and corn importing areas.

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Published monthly by the Division of Agricultural Education, University of Minnesota, University Farm, St. Paul, Minn.

Entered as second class matter at the post-office at St. Paul, Minn., under the act of August 24, 1912.

Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized August 2, 1918.

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4. Show corn production in U. S. on outline map by dots or colors.
5. Yield per acre over period of years for state and United States.
6. Maps showing the spread of the corn belt.

Job III.

Selecting the Land for the Crop:—

1. Collect soil from the field.
2. Test soil and record results.
3. Grow plants in laboratory to show the effects of lack of plant foods, make tests in the fields.
4. Map fields to show location of soil types.
5. Graphs and tables of acreage production locality, county, state, nation and the world.

Job IV.

Choosing the Variety to Grow:—

1. Make a table of variety yields in the State.
2. Study varieties in the laboratory.
3. Record names and addresses of leading corn producers.
4. Names and samples of Minnesota varieties.

Job V.

Seed Corn Selection and Storage:—

1. Secure pictures and drawings of ears and corn plants.
2. Have types of ears and of plants in the laboratory.
3. Make field selection of seed corn.
4. Have types of hangers used in seed corn storing.
5. Visit farms to see places used for storage of seed corn.
6. Make a chart or outline giving advantages of seed corn selection, and characteristics of good storage places.

Job VI.

Preparing the Seed Bed and Planting:—

1. Get illustrations and descriptions of machinery from implement houses.
2. Study implements at dealers, on farms, and in classroom.
3. Operating machinery in the field.
4. Plant seed at various depths and observe results.

Job VII.

Testing and Preparing of Seed Corn for Planting:—

1. Test seed corn by modified rag-doll method.
2. Have samples of graded and ungraded corn.
3. Test drop of planters at implement dealers.

Job VIII.

Cultivating the Growing Crop:—

1. Get illustrations showing the structure of the corn plant.
2. Grow corn plants to observe the root system.
3. Get catalogues of various types of cultivators.
4. Study cultivators on farms and at implement dealers.
5. Assemble and operate cultivators.
6. Prepare and store corn machinery.

Job IX.

Controlling the Enemies of Corn:—

1. Collect, classify, and mount corn insects.
2. Make or secure charts with life cycle of insects.
3. Collect corn showing insect injury.
4. Secure illustrations of corn insects and the damage they do.
5. Get corn affected by diseases.
6. Germinate corn to study root rot.
7. Find illustrations showing corn affected by diseases.
8. Study insects and diseases in the field.
9. Prepare an outline and chart of control measures.

Job X.

Controlling Weeds:—

1. Collect and mount weeds.
2. Collect and mount weed seeds.
3. Secure pictures of weed seeds enlarged.
4. Prepare a chart showing losses by weeds, and prevention.

Job XI.

Harvesting the Corn:—

1. Obtain catalogues and description of harvesting machinery.
2. Husk corn in the field by hand.
3. Operate corn harvesting machinery.

Job XII.*Marketing and Storing the Seed Corn.*

1. Graph showing the variations in price each month.
2. Graph showing decrease in weight due to loss of moisture.
3. Samples of grades of corn with prices.
4. Drawings and blue-prints of corn cribs.
5. Outline of the essentials of a good crib.
6. Study types of cribs on the farms.
7. Graph of average amount of corn marketed each month.
8. Graph giving distribution of corn exports.
9. Comparative freight rates over a period of years to markets.

Job XIII.*Judging Corn and Corn Exhibits:—*

1. Score card for judging corn.
2. Single and ten ear samples for judging.
3. Outline of the procedure in promoting a corn show.
4. Preparing posters and other publicity.
5. Judging contest and shows in the classroom.

Job XIV.*Composition and Uses of Corn:—*

1. Samples of corn by-products.
2. Drawings of corn kernel showing composition.
3. Table giving composition of entire plants.
4. Soaked kernels to study the composition and structure.
5. Circular graph of chief uses of corn.

Job XV.*Corn Improvement:—*

1. Illustrations to show the process of pollination.
2. Samples and pictures of mixed corn.
3. Pictures showing effect of corn improvement.

Job XVI.*Records and Accounts of Corn:—*

1. Form for keeping records and accounts.
2. Bulletins explaining cost accounting.

General.

1. Slides with lecture notes covering in general the field of corn production.

Under Job IX. **Controlling the Enemies of Corn** we have: 1. Collect, classify and mount corn insects.

Insects

Each year enormous losses are caused in corn by insect pests. The study of their control can be made more interesting and practical if some time is given to collecting and preserving specimens which are of importance in the community. Each teacher should collect, classify, and display the insects found in the neighborhood which cause losses, not only to corn, but to the orchardist, the gardener, and others. Each boy should be able to recognize the more destructive insects. He should know their life cycle, their habits, and the main control measures.

Collecting Insects

Many insects can be found on the plants where they do the damage. Others may be found at night around electric or other lights. In the daytime look under boards and stones, on flowers, near decaying material, on sides of trees, or in any rubbish. Some insects come out in the middle of the day, some early in the morning or at twilight, while some are to be seen only on cloudy days or at night.

Equipment Needed

A net for catching some insects, a killing bottle, pins for mounting, labels, and boxes in which to keep them constitute the necessary equipment. The method of making these and instructions on their use are in any of the references given at the close of this article.

Classification

In classifying insects special attention must be given to having them at hand when they are needed. **First** have a box or place for the insects affecting each crop to be studied. **Then** put each insect under the crop to which it is most harmful. Insects which are very destructive to several crops may well be placed under each of these crops. **Now** classify the insects according to the part of the plant they affect. In corn it may be (1) the growing ear, (2) the roots, (3) the plant or (4) the stored grain. It may also be necessary with some plants to divide the insect into biting, sucking, and those causing diseases. **Next** indicate which stage of the life cycle is the one which causes the greatest damage.

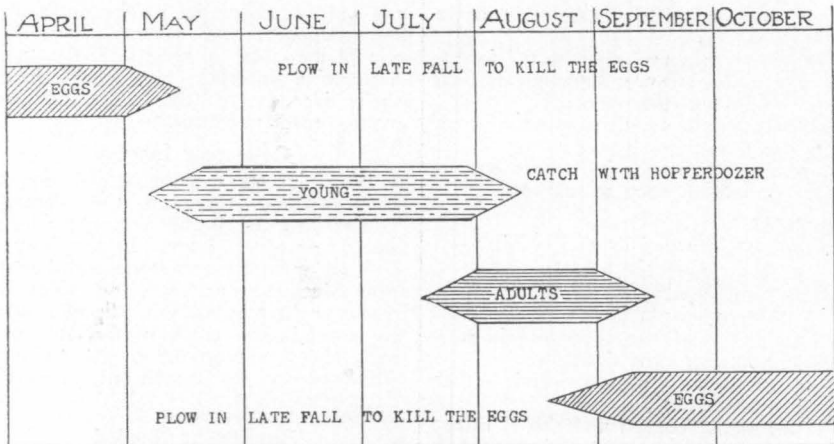
Methods of mounting insects with kinds and sources of material for keeping collections may be found in the references. Most scientific school supply houses make special equipment for

this purpose for those who prefer to buy it.

Control Measures

It is not enough just to show the insects at the different stages of the life cycle and to be able to identify them. Charts and diagrams should be prepared to show the time and stage when the insect causes the damage, with the best

The above suggestions cover only a very small part of the insect collecting and other work which the teacher of agriculture must do in the summer. Every enterprise to be taught during the coming year must be considered and visual material prepared before the opening of school in the fall.



Life-Cycle (*Melanoplus-Atlantis*) Grasshopper

Young grasshoppers are caught in the open fields with the Hopperdozer and Hoppercatcher and poison bran mash is used in fence rows and other places. Practice clean cultivation and keeping fence rows clean.

known practical way to decrease this damage.

This can be illustrated by the very simple life cycle of a grasshopper. An example of the more complex life cycle of the white grub worm can be seen by referring to Circular No. 60, Iowa Agricultural Experiment Station, Entomological Section, Ames, Iowa.

In the outline of illustrative material under each job it is well to have a note made of the visual aid material which you have and where it is located. If you cannot secure it all in one year do the best you can in one or two of the chief enterprises of your community. Start your collection now and have the boys assist in the classification after school opens in the fall.

References

1. Sanderson and Peairs—School Entomology, pp. 163-174.
2. Washburn—Injurious Insects and Useful Birds, pp. 25-29.
3. Farmers' Bulletin 606—Collection and Preservation of Insects and Other Material for use in the study of Agriculture, U. S. Department of Agriculture.
4. Bulletin No. 2—Benefits to be Derived from Observing, Collecting and Studying Insects, Tennessee State Board of Entomology.
5. Special Bulletin No. 8—Some Insect Enemies of Corn, University Farm, St. Paul.
6. Special Bulletin No. 29—Garden and Small Fruit Insects, University Farm, St. Paul.

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