OUTLINE OF FIVE LESSONS IN AGRICULTURE.

Clinton County Teachers Institute.

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LESSON 1. GOOD SEED CORN.

1. SELECTING SEED FROM THE FIELD.

   A. Select Early.

      1. To get ears from good stalks.
         (a) Strong, sturdy stalks from hills having two or three stalks. (Illustrate).
         (b) Medium height - Stalks with ears high are liable to blow down, are hard to reach, likely to be late, do not make good bundle with binder. Stalks with ears low do not produce so much. (Illustrate).
         (c) Ears from medium length shanks. Ears on short shanks are likely not to bend over and those on long shanks break off easily in wind and with binder. (Illustrate).
         (d) Ears which hang down. Such ears keep dry and are not likely to mould.

      2. So that seed will dry before frost.

         (a) Why freezing kills seed - breaks little cell walls. Illustrate with glass jar.
         (b) When freeze is likely to come. -Second week in October. October 10 to 12.
         (c) Seed needs two weeks to dry after it is picked before freezing. Gather in September.

   B. Pick into sack sled or cart.

      1. Sack with keg hoop. (Illustrate).
      2. Narrow sled or cart. (Illustrate).

   C. HANG SO THAT NO TWO EARS TOUCH.

      (a) Twine method. (Illustrate).
      (b) Nails in boards. (Illustrate).

   D. HANG UP IN DRY, WELL VENTILATED PLACE.

      1. September gathered seed is from one third to one-half water.
      2. Hang under shelter.
      3. Good places for seed.

(a) Dry attic or spare room.
(b) Dry shed.

4. Bad places to hang seed.

(a) Stable over or near stock.
(b) Closed attic over kitchen.
(c) Out in sunshine. (Also in rain).

E. Problems.

1. How many kernels on an ear of seed corn?
2. If there are 3556 hills per acre and three stalks per hill, how many seed ears are required per acre?
3. If each man in the district saves three times as many ears as he needs, how many will he save?
4. If one man can save 500 ears of seed per day, how long will it take him to save enough seed for 50 acres?
5. If 45 ears can be hung in one square foot of ceiling space, how much space will it require for the seed for 50 acres?

F. Exercise.

1. Have each pupil select and hang up 100 ears at home from which to select 5 or 10 to bring to the township corn show in December.
2. Have each pupil bring to school a good stalk of corn. Give prize ribbons for best, second best and third best.

LESSON 2. GOOD SEED.

1. SELECTING FIVE OR TEN BEST EARS FOR SHOW AND SEED PLOT.

A. How to select them.

1. Select fifty to one hundred best ears from racks.
2. Lay ears out in row with big ends one way and even.
3. Select 100 or 200 finest appearing ears.
4. Lay these finest ears in order as above.
5. Remove two kernels from middle of each ear.
6. Select 75 to 100 having finest kernels.
7. Select 50 ears having most uniform shape and size of ear and kernels.

B. What ears to select.

1. Heavy solid ears. - Such ears yield well and ripen early.
2. Medium sized ears - 12 to 14 ounces when thoroughly dry.
3. Medium length of kernel - about one-half an inch is a good length for Clinton County corn.
4. Kernels close together and plump at tips of kernels. The tip is the richest part of the kernel.
5. Tips and Butts of ears well filled.
6. Medium roughness of dent. This indicates that the corn will ripen well and yield well.
7. Ears of medium length - About nine or nine and one-half inches is a good length for well dried Clinton County Corn.
8. Ears of medium circumference - The circumference at the middle of the ear should usually be about three fourths of the length.
9. Ears of a uniform size and shape. - Will ~~plant and~~ ripen evenly.
10. Kernels of a uniform size and shape - Will plant and ripen evenly.

C. What ears to leave out.

1. Light chaffy or starchy ears.- Such ears do not yield well and lack nourishment. (Illustrate starchiness with honey comb.)
2. Very large ears - Do not ripen.
3. Small ears - do not yield well.
4. Very long kernels - Do not ripen.
5. Short kernels - do not yield well.
6. Kernels shrunken at cob - do not yield well, do not ripen well, do not feed well.
7. Very rough dent - indicates lateness and chaffiness.
8. Very smooth dent - indicates shallow kernels and sometimes deterioration.
9. Very long ears -indicates shallow kernels and sometimes deterioration.
10. Short ears-do not yield well.
11. Ears of unevan size - do not ripen evenly.
12. Ears having kernels of uneven size - do not plant or ripen evenly.

LESSON 2. CONTINUED.

D. Exercise.

1. Have each pupil select 5 or 10 ears from the seed saved in the fall or from his fathers seed to take to the corn show.
2. Have each pupil write a story telling how he selected his seed in the field and later how he selected some for the corn show.

LESSON 3. GOOD SOIL.

1. Requirements of a good soil.
   A. Contains abundance of plant food. Ten elements of plant food are nitrogen, phosporus, potassium, calcium, magnesium, sulphur, iron, oxygen, hydrogen, sodium.
      1. Nitrogen can be gotten by frowing alfalfa, clover, peas, beans etc. (Illustrate with roots shewing nodules) Phosphorus is being added in Illinois. The soil has plenty of other elements of plant food.

   B. Contain plenty of humus - or partially decayed vegetable matter. Peat has over supply of humus. Pure sand has no humus. Clay hillsides which wash badly usually lack humus. Humus is what makes soil black.

   C. Moist but not water soaked. Drain wet places. Irrigate dry places.

   D. Sweet - Litmus paper test. Take large handful of moist dirt (If it is not moist, dampen it with rain water). Break it open and put piece of litmus paper between halves. Press firmly together again and leave for ten minutes. It paper turns pink it shows that the soil is acid.
      1. Lime will make sour soil sweet.

2. Reasons for plowing and cultivating.
   1. To let air into the soil.
   2. To hold moisture.
   3. To kill weeds.
   4. To warm the soil.
      (Illustrate with sugar).

3. Problem - One hundred bushels of corn contains 100 pounds of nitrogen, 17 pounds of phosphorus, and 19 pounds of potassium. The market value of nitrogen is about 15 cents per pound, of phosphorus about 3 cents per pound and of potassium about 6cents per pound. If a man sells a crop of corn yielding 60 bushels per acre, what is the value per acre of the plant food sold from the farm.

Exercise.
   1. Have each pupil bring sample of soil to school. Test it with litmus paper to learn if it is sour.
   2. Show by means of sugar the manner in which manure and trash will keep water from rising in soil and how cultivation prevents loss of water by evaporation.

LESSON 4. WEEDS.

A. what is a weed? - A plant out of place.

B. Why do weeds thrive.
   1. Because there is nothing else to occupy the land.
      (a) Weeds in a pasture.
   2. Because conditions are not suitable for the desirable crop.
      (a) Weeds in alfalfa. - Lime.
      (b) Weeds in a lawn.
      (c) Sheep sorrel in meadows and pastures.

C. Three Classes of Weeds and their Treatment.
   1. Annuals.- Mustard, foxtail, corn, oats.
   2. Biennials - Thistle, burdock, redclover, sweet clover.
      (a) Sow clean grass seed.
      (b) Start as many seeds as possible.
      (c) Keep from going to seed.
   3. Perennials - Quack grass, Canada Thistle, alfalfa, timothy, blue grass.
      (a) Sow clean grass seed.
      (b) Keep them from forming green leaves above ground.
      (1) Constant cultivation.
      (2) Cover with tar paper.
      (3) Sow thick growing crop like sorghum or millet.

D. Exercise. - Have each pupil bring to school a bad weed. Have him or her write a little story telling why it is a bad weed, where it was found growing, and give a description of it. If the teachers and pupils cannot agree on what a weed is send it to the County Agricultural Adviser who will find out what it is and tell how it can best be gotten rid of.

LESSON 5. INSECTS OF CORN.

The method of combatting insects depends on their life histories or habits. When one knows how an insect lives he can usually tell how to get rid of it. The life histories of a few of the common insects which injure corn are as follows-

A. Corn root worm.
   1. Description.
      (a) Color - White with brown spot on head.
      (b) Size - ¼ to ½ inch long - as large around as an ordinary pin.

   2. Where found - just under back of root.

   3. Damage done - Eat off or weaken roots.

   4. Habits.
      (a) Green beetle (adult) lays eggs in cornfield in fall.
      (b) Eggs hatch into little worms (larvae) in June.
      (c) Worms (Larvae) eat nothing but corn roots.
      (d) Worms change to beetles during summer.

   5. Remedy.
      Rotation of Crops.

B. Cut Worm.
   1. Description.
      (a) Color - Brown and yellow stripes lengthwise.
      (b) Size - ¾ to ½ inches long.
      (c) Shape - Usually found curled up like a link of sausage.

   2. Where found - Just under loose dirt around hill of small corn.

   3. Damage done - Eat off stalks at or near surface of ground. Also injures tomato plants and other young garden crops.

   4. Habits.
      (a) Brown colored moth lays eggs in grass land during summer.
      (b) Eggs hatch into small worms in early fall.
      (c) Worms live in trash and top of ground over winter.
      (d) Worms come out as soon as ground warms up in spring and eat grass, corn etc.
      (e) Worms change to moths early in summer, or late spring.

   5. Remedies.
      (a) Fall plowing of sod.
      (b) Early working of fall plowed sod in spring.
      (c) Late planting.
      (d) Rotation of Crops.

C. Wire Worm.

1. Description.
   (a) Color - yellowish brown.
   (b) Size $\frac{3}{4}$ to $\frac{1}{2}$ inch long - as large around as an ordinary shoe string.

2. Where found - In ground under the hill of corn just after planting time.

3. Damage done - Eat kernels before they grow, eat young stalks, eat roots.

4. Habits.
   (a) Click beetle lays eggs in grass land in summer.
   (b) Eggs hatch into wire worms.
   (c) Wire worms live two years or more.
   (d) Worms change to click beetles.
   (e) Click beetles live more than one year.

5. Remedies.
   (a) Rotation of crops.
   (b) Fall plowing.
   (c) Thorough drainage.