5-1-1951

Steps in Corn Borer Control

Gerald B. Spawn

EXTENSION LEAFLET 135

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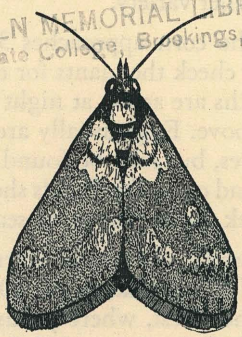
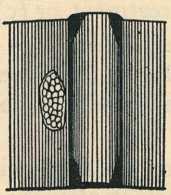
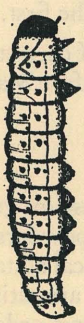


MOTHS LAY EGGS



LARVAE HATCH FROM EGGS

MOTHS EMERGE FROM PUPA



LARVAE CHANGE TO PUPAE

Life Cycle of European Corn Borer

AGRICULTURAL EXTENSION SERVICE
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Steps In
Corn Borer Control

By Gerald B. Spawn*

The European Corn Borer is an important factor in South Dakota corn production. Here are some pertinent suggestions, which, if followed, will help reduce crop losses due to the borer:

(1) At mid-season, plant those fields of corn which you don't intend to spray. Check the number of "days to maturity" of the corn variety you have chosen. You may decide to use an earlier variety.

(2) When the corn approaches 35 inches in height, leaves extended, check the plants for egg masses, if moths are present. Moths are active at night when temperatures are 65° F., or above. Eggs usually are laid on the undersides of the leaves, but may be found occasionally on the upper surfaces and on stalks. Fields should be examined at least twice a week during the moth season.

(3) In the eastern and southeastern part of South Dakota, a count of 50 egg masses per 100 plants will justify treatment. Farther west, where yields are lower, the egg count (which indicates expected infestation) must be higher to make chemical treatment pay.

(4) Decide whether you will give: (a) no chemical treatment, (b) one treatment, or (c) two treatments.

If you plan to treat a field only once, the spray or dust should be applied 10 or 12 days after the first hatch of eggs or when 75 percent of the plants show "shot-hole" evidence of feeding.

If you plan to treat the field twice, the first application should be made one week after the first hatch. The second application should be made 7 to 10 days after the first.

(5) Many corn borer larvae will be killed if corn stalks are plowed under, thoroughly, in the spring before May 10 to 15.

What Chemicals?

DDT emulsion concentrates suitable for use on growing corn are recommended. DDT wettable powders are satisfactory for use in sprayers having mechanical agitators in the tank. As dusts, either DDT or Ryania are satisfactory. Chemicals should be purchased, or at least ordered, well in advance of the time when they will be needed in order to insure their availability when you want them. Order early—supplies may be short later in the season.

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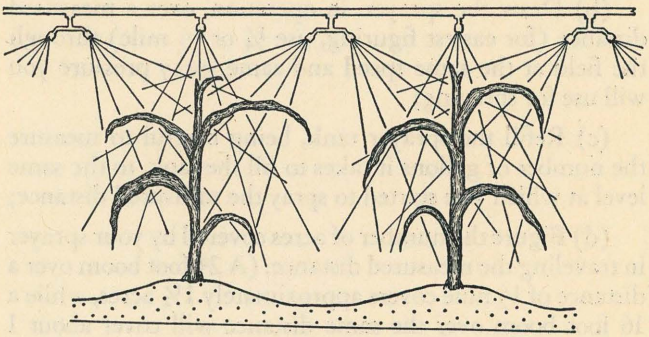
*Prepared by Dr. Spawn, Associate Entomologist, SDSC Experiment Station, for distribution by SDSC Extension Service.

Equipment

Ground sprayers, equipped with an adjustable-height boom providing two to four nozzles per row and 40 to 150 pounds of pressure, are most effective. Weed sprayers **can** be converted for use in corn borer control. Spray is directed into whorl and axils of leaves for control of first generation control. A good nozzle arrangement is shown in the following diagram.



Proper Nozzle Arrangement

Row crop dusters, with two or more nozzles per row about 5 inches above the plants, are satisfactory. Dust should be directed into whorl and leaf axils.

Applications by aircraft are a little less efficient than those made by ground machines but they are recommended where ground applications are impractical because of muddy fields, time, height of corn, etc.

Application Rate

The recommended dosage of DDT is 1½ pounds of technical DDT per acre, per application. The amount of stock material needed will depend on the percentage of DDT in the concentrate.

Example: 25% DDT emulsion concentrate contains slightly more than two pounds of technical DDT per gallon (one-half pound per quart); therefore, use three quarts of concentrate per acre in the amount of water that will be delivered per acre by your sprayer. Finished spray application rate should be between 20 and 50 gallons per acre. The higher figure gives better results.

Calibrating the Sprayer

It is very important to know just how much spray your machine will deliver **per acre** so you can get the proper amount of DDT into that amount of water. This information should be obtained under field conditions, just as the spray is to be applied.

The amount of water delivered per acre will depend upon: (1) the speed at which the sprayer is drawn, (2) the pressure under which the spray is applied, and (3) the size of the openings in the spray nozzles.

To determine the output of your sprayer at "set" speed and pressure:

(a) Fill the sprayer tank with water, a known number of gallons;

(b) Draw the sprayer, in operation, over a measured distance (for easiest figuring, use ¼ or ½ mile) through the field at the same speed and same spray pressure you will use for spraying;

(c) Refill the sprayer tank, being careful to measure the number of gallons it takes to fill the tank, to the same level at which you started to spray the measured distance;

(d) Figure the number of acres covered by your sprayer in traveling the measured distance. (A 24-foot boom over a distance of ½ mile covers approximately 1½ acres, while a 16 foot boom over the same distance will cover about 1 acre.)

(e) Divide the number of gallons of water delivered, by the number of acres (or fraction thereof) covered by your sprayer in traveling the measured distance. This answer will be the **gallons per acre** delivered by your sprayer. The proper amount of DDT concentrate then should be added to this amount of water.

There are modifications of the above procedure which will give the same answer.

Keeping Currently Informed

Keep in touch with your County Extension Agent for latest information on the corn borer situation and for control recommendations. The South Dakota State College Experiment Station furnishes the County Agents, the press and radio any new corn borer information just as soon as possible after the information is obtained and evaluated.

Time of Spraying Is Important

Spraying will do no good if delayed until after corn borers enter the stalks. Application too soon will not achieve maximum kill. (See 4, page 2.)

Agricultural Extension Service, George I. Gilbertson, director, S. D. State College and U. S. Department of Agriculture, cooperating. Acts of Congress, May 8 and June 30, 1914.