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June 1949

Nebraska
COOPERATIVE EXTENSION WORK
IN AGRICULTURE AND HOME ECONOMICS
U. of N. Agr. College & U. S. Dept. of Agr. Cooperating
H. G. Gould, Associate Director, Lincoln

E. C. 1555

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ROOM

EUROPEAN CORN BORER CONTROL

Most satisfactory control of the corn borer has been obtained through use of DDT suspensions and emulsions in dilute water sprays properly applied. Satisfactory control has been obtained with low gallonage sprays, concentrated suspensions, and dusts. Low gallonage suspensions and emulsions in airplane sprays are also practical. Concentrated sprays of DDT in oil are not recommended.

Dust applications with DDT by aircraft have been found least efficient but their use is indicated where applications from the ground are impractical.

The recommendations given should be followed as closely as local conditions permit.

FIELD CORN

Both first and second generations of the European corn borer infest field corn. The first generation is considered most critical. It occurs usually when corn is in the whorl stage.

In general, treatment of second generation borers is not necessary but may be profitable under certain conditions.

Materials: DDT and Ryania are the two materials which have given most satisfactory results. Of these DDT is more available and less expensive.

Application Rates and Dosages: The dosages and application rates for use in spray applications are as follows:

Insecticide	Wetting Agent (Pounds per 100 gallons)	Dosage per acre (Pounds technical)	Rate mixed spray per acre (Gallons)	Equipment
DDT wettable powders and concentrated emulsions	-	1 to 1-1/2	2 to 4	Aircraft
DDT concentrated emulsions	-	1 to 1-1/2	5 to 10	Ground
DDT wettable powders	1/3	1 to 1-1/2	Not less than 15	Ground
Ryania 100%	1/3	6	Not less than 15	Ground

A wetting agent, such as "Ultrawet F" in prescribed amounts should be added to all suspensions sprays. This will assure the highest degree of control. One third of one pound per 100 gallons of water will insure penetration of the insecticide into the areas where the borers feed.

Equipment: Ground sprayers equipped with a boom and providing three nozzles per row, with pressure ranging from 40 to 150 pounds per square inch will give the most satisfactory control. The nozzles should produce a solid cone spray pattern. The two outside nozzles should be directed toward the plant and downward, with the middle nozzle slightly above the outside pair and directed downward. All three nozzles should be adjusted to provide a maximum concentration of spray in the three critical areas in which the borers feed, i.e., the whorl, leaf axils and developing ears.

Standard row-crop sprayers can be modified for corn borer control. The same nozzle types and adjustments should be used as described above. It may be necessary to delay morning applications until plants are less turgid to prevent plant breakage when using machines of low clearance.

Airplanes with spray boom attachments provided with multiple nozzles, arranged to give as even a distribution as possible across the swath should be used.

Dusts

Materials: DDT and Ryania are satisfactory for dust treatments.

Application Rates and Dosages: The dosages and application rates for using dusts are as follows:

Insecticide	Dosage per acre (Pounds technical)	Rate of mixed dust per acre (Pounds)	For use with:
DDT, 5%	1-1/2 to 2	30 - 40	Ground machine
DDT, 10%	1-1/2 to 2	15 - 20	Aircraft
Ryania, 40%	16	40	Aircraft and ground machine

Equipment: Ground dusters such as the standard row crop dusters, are suitable for use in corn borer control. Provision must be made for 2 or more nozzles per row. Two nozzles per row will provide satisfactory delivery when the duster is equipped with 1-1/2 or 2 inch distributor tubes.

Nozzle arrangements should provide 2 or more nozzles 5 inches above the plants when applying dust to corn in the whorl stage.

Airplanes with conventional venturi-type distributors may be utilized to apply insecticide dusts when more satisfactory or lower-cost methods are not available. The swath width may vary with different equipment but should be no wider than wing span width or rotor length. Flight height should be 4 to 6 ft. (at the wheels) above the corn. For the best results treatments should not be undertaken during wind movements in excess of 4 miles per hour.

Number and Timing of Treatments: One or two treatments are recommended, depending on expected intensity of infestation and degree of control desired. For the two-treatment schedule, the first applications should start one week after first hatch in those fields in which as many as 50 or more egg masses per 100 plants have been found, and corn is not less than 35 inches high. If eggs continue to be present at the rate of 50 or more masses per 100 plants and conditions remain favorable for borer development, the second application should be made 7 to 10 days after the first. For

those who wish to make only one treatment the application should be made 10 to 12 days after first hatch, in fields as described above.

SWEET CORN

Adjustment of ground equipment for applying sprays or dusts to market sweet corn should be the same as described above for field corn. In addition, when dusts are used in the early tassel stage, direct one nozzle downward at the tassel and the other in an angle at the earshoots. Direct both nozzles in an angle at the ears when applying to sweet corn in the early silking stages.

Sprays

Application rates and dosages for sweet corn are as follows:

Insecticide	Type	Wetting agent (Pounds per 100 gallons)	Dosage per acre (Pounds technical)	Rate mixed spray per acre (Gallons)	Equipment
DDT (wettable powders and emulsions)	Dilute	1/3 1/	1	75 to 100	Ground
Ryania 100%	Dilute	1/3	6	75 to 100	Ground

1/ For use with wettable powders only.

Dusts

Application rates and dosages and equipment are as follows:

Insecticide	Dosage per acre (Pounds technical)	Rate of mixed dust per acre (Pounds)	For use with:
DDT, 5%	1-1/2 to 2	30 - 40	Ground machine
Ryania. 40%	16	40	Ground machine

Timing and Number of Treatments: Insecticide applications should be started when the egg-laying has reached 40 egg masses per 100 plants and some of the eggs are in the black-head stage or have already hatched. Four applications at 5 day intervals are usually required to provide adequate control in early market sweet corn. In some instances when the hatching period is shortened due to extremely favorable weather, one or more of the later applications may be omitted. The interval between applications should be extended to 6-8 days when low temperatures (below 60° F. early evening temperatures) occur during the hatching period.

Prepared by Department of Entomology, University of Nebraska, College of Agriculture.