

Control of Northern Corn Rootworm Adults on Corn  
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In years past there have been occasional reports of infestations of the adult of the northern corn rootworm, Diabrotica longicornis, destroying the silks of corn. In 1946, 1947, and 1948 widespread infestations occurred in the bottom land corn fields of western Kentucky. During this period, many growers sprayed or dusted (mainly dusted) their corn fields with DDT, principally by airplane, to kill the beetle. Excellent control of the beetles was reported, but a survey of some 40 treated and untreated fields in 1947 indicated that much of the plant sterility observed was due to genetic factors rather than to insect damage.

During August, 1955, heavy infestations of the adults of the northern corn rootworm appeared in some of the bottom lands of Ballard county. Specifically, the injury was to the emerging silk and damage varied according to the degree of silking, in a particular field, when the beetle attacked. In some fields the silks were totally destroyed as they emerged, making pollination almost impossible. Pollination apparently progressed normally or nearly so where the silks had been given a chance to attain 2-3 days' growth before the onslaught of the infesting beetles hit them. Nearby soybean fields were also attacked, but feeding preference was definitely directed to the emerging corn silk.

In order to study the influence of the beetles on pollination, plastic mesh bags were tied to ears in various stages of silk development, and beetles were either added (about 25) or excluded altogether. Observations made while these tests were in progress showed that, while held in captivity, the beetles evidently did not feed on the silks, even though they remained active for as long as 3 weeks while caged in this manner. There was no significant difference between treatments in the yield of corn under the conditions described above.

In a test to study chemical control of the beetles, a field of about 230 acres of Stull 400 W, which was beginning to silk, was treated with DDT and dieldrin. A high-clearance sprayer, applying 6 gallons of spray mixture per acre at 100 pounds per square inch and directing one nozzle to each side of the ear, was used. Knockdown was immediate, and these beetles evidently all died. About one bushel of corn was harvested at random from these plots; a summary of the results follows:

<u>Material (Emul. Conc.)</u>	<u>Av. Wt per ear (lb)</u>		<u>Percentage Wt Increase over Check</u>
Check, No treatment	0.416		-----
DDT, 2lb/A	0.590	-----	41.8
Dieldrin, 0.3 lb/A	0.590	-----	41.8
Dieldrin, 0.25 lb/A	0.600	-----	44.2

These preliminary data indicate that gains may be obtained by such treatment of corn; dieldrin, 0.25 pound per acre would be the cheapest material to apply. Further work planned includes a comparison of ground and aerial application methods and a study of timing of sprays in reference to silking.

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