Mexican Bean Beetle[1] Control with Systemic Insecticides on Dry Beans in Western Nebraska[2]

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Each year, some yield loss in dry beans, *Phasolus vulgaris* L., grown in W Nebraska can be attributed to injury from the Mexican bean beetle, *Epilachna varivestis* Mulsant, because infestations are not controlled early enough.

Turnipseed (1967) used systemic insecticides for control of various insects on soybeans, and at the rates tested, some of the chemicals gave full-season control of the Mexican bean beetle. Bowling (1968) reported that seed treatments on soybeans with systemic insecticides controlled some insects and did not affect stand. Reported here are results of tests to control adults emerging from hibernation and larvae hatching from eggs laid by those adults.

METHODS AND MATERIALS.—Field tests were conducted in 1970 (Experiment 1) and 1971 (Experiment 2) at the Scotts Bluff Station, University of Nebraska at Mitchell. Both experiments were conducted similarly, except as noted. In Experiment 1, the chemicals were G formulations of disulfoton, carbofuran, phorate, aldicarb, Dasanit (*O,O*-Diethyl O-[p-(methylsulfinyl) phenyl], phosphorothioate), and a combination of disulfoton and Dasanit. These were applied at the rate of 0.1250 g AI/m of row. Phorate was not tested in Experiment 2, but liquid formulations of disulfoton and carbofuran were tested and were applied singly and in combination with eptam, a herbicide used in dry-bean production. The rates in Experiment 2 were 0.0625 g AI/m of row.

All chemicals were applied as a planting-time treatment. G formulations were sidedressed with the granules placed more over the seed than to the side. Liquids were applied in a 15.24 cm band and incorporated to a depth of 7.62 cm.

Experiments were a complete randomized-block design with 4 replications and 4 row plots, 9.15 m long. Variety of dry beans used was 'Great Northern 59'. Yields were determined at harvest time (ca. 14 weeks postplanting) by harvesting 3 m of row from each of the 2 center rows of each plot.

RESULTS AND DISCUSSION.—Results of both experiments were similar. All chemicals, formulations, and rates gave significant control 6, 8, and 10 weeks posttreatment. The lower rates in Experiment 2 were as effective as the higher rates in Experiment 1. Liquid formulations of disulfoton and carbofuran were not affected by mixing them with eptam. The effect of the insecticides on eptam could not be determined. Yields in the treated plots were significantly higher.

The adults emerging from hibernation were controlled and infestations prevented. Very few egg masses were observed in the treated plots, indicating that the adults after feeding did not survive long enough to oviposit. Larvae hatching from the egg masses died shortly after they began to feed. Throughout the test period, adults migrated into the treated plots. However, within ca. 3 h they died, indicating control for at least a period of 10 weeks.

[1] Coleoptera: Coccinellidae.

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Woolly Apple Aphid[1] Infests Malling and Malling-Merton Rootstocks in Propagation Beds in North Carolina[2]

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'Northern Spy' has been used extensively as a parent in breeding projects, to obtain apple rootstocks resistant to the woolly apple aphid, *Eriosoma lanigerum* (Hausmann). Numerous apple rootstocks resulting from these breeding projects have been propagated commercially (Preston 1955). The rootstocks are identified as Malling (M) and Malling-Merton (MM) series. In North Carolina, research and grower interest have centered primarily around the semidwarf trees produced from these rootstocks, with the rootstock resistance to woolly aphids being of secondary importance. Knight et al. (1962) reviewed the subject of host resistance to woolly apple aphid and reported that Northern Spy has maintained an outstanding level of resistance wherever it has been tested. However, Self (1966) reported that in S Australia a propagation bed of MM rootstocks became infested with woolly apple aphid. Giliomee et al. (1968) reported a woolly apple aphid infestation in propagation beds of Northern Spy, Merton, and MM rootstocks in South Africa. Under controlled conditions Giliomee et al. (1968) showed that in 1 geographical area a mutant strain of the aphid evolved which had overcome the factor for resistance in Northern Spy and related rootstocks.

Propagation beds of M and MM rootstocks in W North Carolina were observed to be infested with woolly apple aphids. Reported here are data collected to determine the relative aphid infestations of propagation beds at 2 distinct regions of North Carolina.

METHODS.—Propagation beds of rootstocks were examined at the Mountain Horticultural Crops Res. Stn., Fletcher, NC, and at the University Research Farm, Method, NC. Fletcher is located in the major apple-producing area of W North Carolina and Method is located ca. 260 miles E of Fletcher. The propagation bed at Fletcher

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