CORN (FIELD); Zea mays L. 'Pioneer 3906'

Black cutworm (BCW); Agrotis ipsilon (Hufnagel)

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BLACK CUTWORM CONTROL BY RESCUE SPRAYS, 1990:

Performance of liquid insecticides as rescue treatments against BCW was evaluated with artificial infestations at the Rosemount Experiment Station, Rosemount, Minn. Plots measured 4 rows (30-inch spacing) × 50 ft, were established in corn planted on 12 Jun. Treatments were arranged in a randomized complete block design with 4 replications. When corn reached about 2-leaf stage, a central portion of each plot (2 rows × 20 ft) was enclosed by an aluminum barrier buried 3-4 inches into the soil that projected 4 to 5 inches above soil level. Each plot was infested with a mixture of 40 third and fourth instar BCW larvae at dusk on 25 Jun. Before spraying, stand was counted in each plot and any plants with BCW feeding were marked with a painted stake to exclude them from the study. Liquid insecticides were then broadcast on 26 Jun a.m. using a CO₂-powered backpack sprayer calibrated to deliver 20 gal/acre through 8002 nozzles at 19-inch spacing. During application, air temperature averaged 77°F with winds still to 3 mph. After spring, plots were examined every 2-3 days for leaf feeding and cutting. Cut plants were marked with a plastic stake to avoid misses or recounts as undamaged plant on later visits. On 9 Jul (13 DAT), each plot was censused with the number of injured plants and cut plants recorded.

No phytotoxicity was observed with any of the treatments. All rescue insecticides significantly reduced both the proportion of injured and cut plants. Karate and Lorsban were among best performing insecticides with minimum feeding and cut plants.

KARATE AND LORSBAN WERE AMONG BEST PERFORMING INSECTICIDES (ROOT RATING <2.0). UNLIKE PREVIOUS TRIALS, INSECTICIDES

WATERED CUTWORM CONTROL IN SOUTH WEST MINNESOTA, 1990:

A soil insecticide performance trial was established at Southwest Agricultural Experiment Station, Lamberton in spring 1990. Soil type in this continuous corn field was Vef loam. Each treatment plot measured 2 rows (76 cm spacing) × 12.2 m long. Treatments were arranged in a randomized complete block design with 4 replications. All insecticides were calibrated in the laboratory to be accurately delivered at a tractor speed of 6.5 k/h (4 mph). Insecticides were applied at planting on 11 May using a modified Noble applicator with interchangeable bottles. Since corn rootworm adult densities were low the previous fall in this region, approx. 3 m of the corn row were artificially infested at a rate of 500 eggs/30.5 cm of row on 5 Jun using the method of Sutter and Branson (1980). On 9 Aug 5 roots were dug from the infested area of each plot and rated for root injury on a modified 1-6 Iowa rating scale (subdivided into half increments for higher sensitivity). Data were subjected to an ANOVA and treatment means separated by DMRT.

Root injury in untreated plots exceeded the economic damage threshold (3.0 on 1-6 Iowa scale). All insecticides except Lorsban (applied in-furrow) at the low rate (0.6 oz (AI)/1000 row ft) provided adequate root protection (root rating <3.0) as compared to untreated check. Brace, Furadan, Counter 15 G, Holdem, Fortress, Thimet and Counter 20 CR were among the best performing insecticides (root rating <2.0). Unlike previous trials, insecticides