Section V
Soil Arthropods

SUGARBEET ROOT MAGGOT AND LEAFMINER CONTROL WITH PLATINUM, 2000

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Experimental plots were established approximately ten miles north of Paul, Idaho. The soil type was Portneuf silt loam and the plots were sprinkler irrigated. Four treatments and one untreated check were replicated four times in a RCB design. Individual plots were three rows (22 inch row spacing) by 15 ft. Sugarbeets were planted on 27 Mar. On 3 Apr (at-planting) the first application of Platinum was made as a 3 inch-4 inch banded S using a CO_2 pressurized backpack sprayer (20 gal H_2O per acre, 30 psi). The spray band was lightly incorporated with a small garden rake. The second application of Platinum was made on 21 Apr (post-emergence) as previously described for the first application. On 19 Jul after most larval feeding had ended, beets were dug from the center row to give 10 beets per plot for rating root maggot damage. The beets were washed and rated for damage using the following rating schemes: Five Point System: 0 = no scars; 1 = 1-4 small scars of pinhead size; 2 = 5-10 small scars to 3 large scars; 3 = more than 3 large scars; 4 = one-half to three-quarters root area blackened by scars; 5 = more than three-quarters of root area damaged, dying beet: Seven Point System: 0 = no damage; 1 = 1-4 small scars of pinhead size; 2 = 5-10 small scars, or up to 3 larger scars; 3 = more than 3 large scars; 4 = 4 large scars to one-quarter root surface covered with scars; 5 = one-quarter to one-half root surface covered with scars; 6 = one-half to three-quarter root area blackened by scars; 7 = more than three-quarter root surface blackened, dying beet. All data were analyzed using ANOVA and Newman-Keuls as well as LSD multiple means comparison. Although leaf miner damage was observed in beets adjacent to our test plots, no damaged was observed within the test plots through 8 Jun. Results of leaf miner control with Platinum are presented for a single date from replicated trials at the Kimberly, Idaho, Research and Extension Center. Unfortunately, these test plots were severely damaged by both frost, poor cultivation and in the conventional beets, Round-up drift. Thus, no other data was collected.

Results of both the five point and seven point rating systems showed no significant difference in root maggot damage between any of the treatments and the untreated check with Newman-Keuls means testing (P=0.05). Using LSD means testing (P=0.05), there was a significant reduction in root maggot damage using the 7 point damage rating system, in the high rate of Platinum applied at planting. Adult peak fly activity was at relatively low density but adult fly activity was observed by both researchers and the farmer/cooperator through mid July.

Data collected on the incidence of leaf miner activity indicates that the at planting application, both high and low rates, reduced leaf miner activity in seedling beets. The post-emergence applications had not been made when this data was collected. We cannot infer control or lack of control with this application method at this time. These trials are scheduled to be repeated during the 2001 season.

		% Sugarbeet root maggot	
Treatment	Rate (lb AI/acre)	Damage rating 5 point	Damage rating 7 point
Untreated Check	---	3.05a	4.25b
Platinum	0.093 lb AI/acre AP	3.03a	4.10ab
Platinum	0.130 lb AI/acre AP	2.90a	3.65a
Platinum	0.093 lb AI/acre PE	3.00a	4.03ab
Platinum	0.130 lb AI/acre PE	2.98a	3.93ab

Means within a column with the same letter are not significantly different (P = 0.05; Studentized-LSD).

AP = at planting; PE = post-emergence.

		% Leafminer infested plants/30 ft of row 26 May 2000	
Treatment	Rate (lb AI/acre)	Round-up ready	Conventional
Untreated Check	---	46.8 b	45.0 b
Platinum	0.093 lb AI/acre AP	12.0 a	0.00 a
Platinum	0.130 lb AI/acre AP	0.00 a	0.00 a
Platinum	0.093 lb AI/acre PE (untreated)	47.9 b	55.5 b
Platinum	0.130 lb AI/acre PE (untreated)	73.0 b	59.5 b

Means within a column with the same letter are not significantly different (P = 0.05; Newman-Keuls).

AP = at planting; PE = post-emergence.