

Section VI
Soil Arthropods

SUGARBEET ROOT MAGGOT CONTROL, 1997

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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. Ten treatments and an untreated check were replicated four times in a RCB design. Individual plots were six rows (22 inch row spacing) by 30 ft. On 1 Apr all plots were planted at which time, band applications of Temik, Counter 15 G and Counter 20 CR were made. Temik, Counter 15 G and Counter CR were applied as a 4 inch band over the row and chain incorporated. On 12 Apr the grower replanted due to extensive damage to emerging seedlings by frost. On 6 May, post-emergence applications of Counter 15 G, Counter 20 G, Thimet 20 G and Temik 15 G were made in a band as previously described. On 22 May a 7 d early-fly emergence application of Furadan was made as a 3 inch-4 inch banded S (early fly emergence) using a CO₂ pressurized backpack sprayer (20 gal H₂O per acre, 30 psi). On 25 Jul, after most larval feeding had ended, five adjacent beets were dug from the middle of rows two and five 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.

Stand counts indicated reduced plant stand in the untreated check plots and within the Counter 20 CR post-emergence treatment. Some reduction in stand was observed with the Counter 20 CR at-plant, Temik 15 G at-plant, and Temik at-plant + post-emergence treatments. The Furadan 4 F, Counter 15 G post-emergence, Counter 20 CR + Thimet 20 G split and Temik post-emergence treatments all showed significantly less stand loss than the untreated check. Significant reduction in maggot damage was observed using both the five point and seven point rating systems. Results of the five point system showed at-planting band applications of Temik and Temik post-emergence, and the split application of Temik, Counter CR, at-plant and post-

emergence, Counter 15 G, Counter CR + Thimet and Temik + Counter provided the greatest reduction in maggot damage. The Counter CR and Temik split application showed the greatest reduction of damage from the untreated check. At-planting applications of both Counter formulations and the AP application of Temik provided no reduction in root maggot damage from the untreated check. Results of the seven point rating system showed similar results to the 5 point rating system with the differences being no significant control from the untreated check with Counter CR post-emergence and the Temik + Temik split application.

Treatment/ formulations	Rate (lb AI/acre)	Application Method	Stand Counts per 50 row ft 7 Jul	Damage Rating 5-Point	Damage Rating 7-Point
Check	-----	-----	58.17 a	3.45 c	4.75 d
Furadan 4 F	2.00	PE	74.75 c	2.85 ab	3.83 abc
Counter 15 G	1.2 oz AI/1000 ft	AP	68.58 abc	3.18 bc	4.55 cd
Counter 20 Cr	1.2 oz AI/1000ft	AP	63.33 ab	3.10 abc	4.50 cd
Counter 15 G	1.2 oz AI/1000ft	PE	71.17 bc	2.85 ab	3.53 ab
Counter 20 CR	1.2 oz AI/1000ft	PE	57.58 a	2.95 ab	4.00 abcd
Counter 20 CR +	1.2 oz AI/1000ft +	AP	70.92 bc	2.95 ab	3.78 abc
Thimet 20 G	1.0 oz AI/1000 ft	PE			
Temik 15 G	2.10	AP	63.08 ab	3.10 abc	4.28 bcd
Temik 15 G	2.10	PE	73.50 bc	2.95 ab	3.75 abc
Temik 15 G +	2.10 +	AP	62.33 ab	3.05 ab	4.15 abcd
Temik 15 G	2.10	PE			
Counter 20 CR +	1.2 oz AI/1000 ft +	AP	63.92 abc	2.80 a	3.30 a
Temik 15 G	2.10	PE			

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

AP = At plant; PE = Post emergence.