

Section III

Root-Feeding Maggots, Soil Arthropods and Other Problems

SUGARBEET ROOT MAGGOT CONTROL, 1990

R. L. Stoltz

1330 Filer Avenue East, Twin Falls, ID 83301

Sugarbeets were planted in two fields near Rupert, Idaho. The soil type was Portneuf silt loam. Location 1 (irrigation by wheel lines) was planted 25 April using WS 88 seed and location 2 (irrigation by furrow irrigation) was planted 20 April using PM9 seed. Eleven treatments and an untreated check were replicated six times in a randomized complete block design. Individual plots were 6 rows (22 inch row spacing) by 30 ft. Alleys were cut between plots to give 25 ft of row/plot. Aldicarb was applied in either a modified in furrow treatment (MIF) or a banded furrow treatment in front of the press wheel. Tenax, Lorsban, and Counter were applied in a 4-5 inch band behind the press wheel and chain incorporated. Furadan was applied 25 May at early fly emergence in a 3-4 inch band sprayed over the top of the beet row using 50 gal water/acre (30 psi, hollow cone single nozzle). Temik was applied post emergence in a 4-5 inch band over the row and chain incorporated on 4 June. On 5 July five adjacent beets were dug from the middle of rows 2 and 5 to give 10 beets per plot for rating for root maggot damage. The beets were washed and rated using the following rating scheme: 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 = 1/2 to 3/4 root area blackened by scars; 5 = more than 3/4 of root area damaged.

Root maggot damage is reported in the table as the sum for 10 beets/plot. Yield data were taken by digging and weighing the untared beets from the middle two rows of each plot. Location 1 was harvested 25 September and location 2 was harvested 13 September. Data were analyzed using ANOVA and Newman-Keuls.

Germination was poor and drawn out at location 2 due to seed disease problems, consequently phytotoxicity was not determined. At location 1 emergence was uniform and no phytotoxicity was observed. In most cases the treatments provided control that produced damage ratings significantly lower than the untreated check. Yield data for location 2 (furrow irrigation) were unreliable due to emergence and irrigation problems. There were no significant differences in yields at location 1 (sprinkler irrigation).

Treatment	lb (AI)/acre	Application Method	Damage Rating ¹ Sum/10 beets	
			Sprinkler Irrigation Location 1	Surface Irrigation Location 2
Check			15.0 d	25.0 de
Tenax 20G	5 oz/1000 ft	P ²	7.3 c	14.0 ab
Tenax 20G	6 oz/1000 ft	P	3.5 abc	14.0 ab
Tenax 20G	7 oz/1000 ft	P	5.3 abc	10.7 a
Lorsban 15G	9.5 oz/1000 ft	P	3.3 ab	10.3 a
Counter 15G	8.5 oz/1000 ft	P	2.6 a	10.0 a
Temik 15G	2.0 lb	MIF	6.2 abc	27.0 e
Temik 15G	2.0 lb	Band IF	7.2 bc	26.3 de
Temik 15G	2.0 lb	MIF	5.8 abc	24.0 de
	+ 1.0 lb	PE		
Temik 15G	1.5 lb	PE	5.3 abc	17.0 bc
Furadan 4F	1.0 lb	EFS	6.2 abc	21.5 dc
Furadan 4F	2.0 lb	EFS	6.5 abc	14.0 ab

¹ Values in columns followed by the same letter are not significantly different ($P = 0.05$, Newman-Keuls).

² P = at planting 4-5 inch band behind press wheel.

MIF = narrow band directed at back of disc openers into seed furrow.

Band IF = 1-2 inch band directed under front of press wheel.

PE = 4-5 inch band chain incorporated post emergence.

EFS = early fly spray; 3-4 inch band over top of row.