Section VI
Biological and Cultural Controls

COLORADO POTATO BEETLE CONTROL WITH BACTERIAL INSECTICIDES, 1988

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Plots were established on a field of "organic" potatoes near Castleford, Idaho. The soil type was Portneuf silt loam and irrigation was by surface flow. An untreated check and 7 treatments were replicated in a randomized complete block design. Individual plots were 4 rows (36 inch spacing) by 25 ft. Treatments were applied in a broadcast spray using a CO_2 pressurized backpack sprayer delivering 20 gal finished spray/acre. Spraying pressure was 30 psi and nozzle type was X-8 (Spraying Systems) hollow cone. A spreader sticker was added to the ABG-6263 spray solutions (Leffingwell Activate 90, 3cc/21 spray solution). The bacterial plots received a second spray 7 days after the initial application because larvae were still present. Larvae and adults were visually counted on the middle 2 rows of each plot as the observer walked between those plot rows. Percent defoliation estimates were made 14 days after the initial application. Data analyses were conducted using ANOVA and Newman-Keuls studentized range test.

No phytotoxicity was observed in the treated plots. Adult beetles were not abundant enough to obtain valid statistical analyses. All treatments provided reductions of larvae which were statistically less than the untreated check plots. There were always a small no. of small larvae present in the bacterial treated plots but corresponding nos. of large larvae never appeared. This would indicate that the bacterial products were killing the larvae before they became half grown. Percent defoliation in the bacterial plots was also reduced to about 75% of that in the untreated plots. Asana, as the commercial standard, provided the best larval reduction and greatest percent reduction in defoliation. Performance of Asana, however, was not significantly better than the bacterial products.

No. CPB larvae/50 row ft*

Treatment and lb (AI)/acre		Pre-treatment		Days after application								
				3		7[1/]		11		14		%
		S[2/]	L[2/]	S	L	S	L	S	L	S	L	Def.
Untreated Check	----	56.0 a	36.3 a	162.8 b	42.8 b	146.8 b	5.5 a	72.0 b	21.8 b	120.0 b	8.0 a	21.3 b
Asana 1.9 E	0.02	37.3 a	20.8 a	0.0 a	0.3 a	0.0 a	0.0 a	0.0 a	0.0 a	0.3 a	0.3 a	0.6 a
ABG-6263	0.5	29.8 a	16.8 a	15.0 a	3.0 a	32.5 a	18.8 a	14.0 a	0.3 a	12.3 a	3.3 a	3.0 a
ABG-6263	1.5	27.3 a	24.0 a	29.3 a	5.8 a	33.3 a	25.0 a	3.5 a	0.0 a	5.0 a	0.8 a	4.8 a
ABG-6263	3.0	60.0 a	24.3 a	22.5 a	0.5 a	9.3 a	7.3 a	2.0 a	0.0 a	2.3 a	0.8 a	2.8 a
M-ONE	3 qt/A	28.8 a	21.0 a	36.8 a	1.5 a	26.3 a	17.0 a	22.0 a	1.0 a	21.3 a	7.5 a	7.5 a
M-ONE	4 qt/A	31.8 a	14.3 a	24.3 a	5.3 a	18.5 a	19.0 a	12.5 a	2.8 a	10.0 a	3.8 a	5.3 a
M-ONE	6 qt/A	43.3 a	29.0 a	48.5 a	6.3 a	41.0 a	14.8 a	13.3 a	1.8 a	15.3 a	2.2 a	8.3 a

1/ Bacterial materials re-applied after sampling on this date.

2/ S = small larvae; L = large larvae.

* Means within a column followed by the same letter are not significantly different at the P = 0.05 level, Newman-Keuls.