

Section VII  
Foliage & Seed Insects

COLORADO POTATO BEETLE AND GREEN PEACH APHID CONTROL WITH SOIL  
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Experimental plots were established on the UI Research and Extension Center, Kimberly, Idaho. Potatoes were planted on 25 Apr and irrigated by solid set sprinkler. The soil type was Portneuf silt loam. Eight treatments and one untreated check plot were replicated four times in a RCB design. Individual plots were 4 rows (36 inch row spacing) wide by 25 ft long with 5 ft alleyways separating the plots. Green peach aphids were mass reared on greenhouse sweet pepper plants ('California Wonder') for release into individual plots. Aphid releases were made into test plots on 27 Jun and again on 8 Jul. A total of four heavily infested plants were released per plot. On a weekly basis, adults, large larvae (3-4 instar), small larvae (1-2 instar), and egg masses of Colorado potato beetle were counted and percent defoliation estimates were made from whole plant inspections of the center 5 hills of the middle 2 plot rows. Green peach aphid counts were made from non-destructively sampling leaves at random from the top, middle and bottom sections of plants in the center two rows of each plot. The data collected and presented is the total number of aphids per number of leaves sampled. Admire treatments were applied at plant in-furrow over the seed piece on 25 Apr. Temik and Thimet were applied in furrow with the seed piece also at planting. Furadan was applied in a 6 inch banded spray over the plants at 4 inch rosette stage of plant growth on 4 Jun using a CO<sub>2</sub> pressurized backpack sprayer. All foliar treatments were broadcast applied on 29 Jun using the backpack CO<sub>2</sub> sprayer at a rate of 20 gpa (30 psi, with 4, 10X hollow cone nozzles). On 11 Jul a second foliar application of MSR + Asana, Monitor and Alert were made. Data were analyzed using ANOVA and Newman-Keuls multiple means comparison.

It should be noted that beetle populations were unusually high during the entire study period. There was significant reduction of larvae numbers with all treatments except Temik, Thimet alone and Furadan throughout the study period. Defoliation exceeding 30% was observed in the check plots by second week post-application. Green peach aphid was controlled with Monitor and both Admire rates through the first week of Aug. Aphid data were not available late in the season in check plots due to defoliation. Yields were reduced due to heavy CPB feeding after the study period and the materials had lost efficacy.

Treatment/ formulation	Rate (lb AI/acre)	Adults					
		Jun 27	Jul 1	Jul 5	Jul 12	Jul 19	Jul 26
Check	-----	2.00	3.25 ab	1.25 a	1.75 a	5.25 a	52.50 a
Monitor	1.00	3.75	0.50 a	1.50 a	1.00 a	2.50 a	110.50 a
MSR + Asana	1.5 pt/acre + 0.03	3.75	0.25 a	0.25 a	1.25 a	3.00 a	38.75 a
Temik 15G	3.00	3.00	5.25 b	2.75 a	1.25 a	0.00 a	22.75 a
Admire FS	0.3	2.25	1.00 a	0.75 a	0.75 a	3.50 a	3.50 a
Furadan	3.0 qt/acre	9.00	10.75 c	4.00 a	0.00 a	2.50 a	1.25 a
Thimet 20G	3.0	1.50	2.25 ab	0.50 a	0.00 a	1.75 a	27.75 a
Thimet + Alert	3.0 + 0.15	1.50	0.75 a	1.00 a	1.50 a	0.50 a	51.75 a
Admire FS	0.25	5.00	4.50 ab	4.25 a	4.00 b	3.25 a	4.50 a

Treatment/ formulation	Rate (lb AI/acre)	Large Larvae					
		Jun 27	Jul 1	Jul 5	Jul 12	Jul 19	Jul 26
Check	-----	16.25 b	51.75 b	57.25 b	108.00 c	45.50 ab	39.50 a
Monitor	1.00	7.75 ab	0.75 a	0.50 a	0.25 a	1.25 a	1.25 a
MSR + Asana	1.5 pt/acre + 0.03	11.00 ab	0.50 a	1.50 a	1.50 a	3.00 a	3.25 a
Temik 15G	3.00	0.00 a	0.50 a	5.75 a	36.50 ab	89.50 b	45.50 a
Admire FS	0.3	1.50 a	5.00 a	0.75 a	2.75 a	15.50 a	4.00 a
Furadan	3.0 qt/acre	0.00 a	0.75 a	1.00 a	67.75 b	204.00 c	81.25 b
Thimet 20G	3.0	0.00 a	0.25 a	0.50 a	10.75 a	86.00 b	25.50 a
Thimet + Alert	3.0 + 0.15	0.00 a	0.00 a	0.00 a	2.50 a	4.75 a	15.00 a
Admire FS	0.25	0.00 a	0.50 a	1.75 a	0.00 a	15.00 a	9.75 a

Treatment/ formulation	Rate (lb AI/acre)	Small Larvae					
		Jun 27	Jul 1	Jul 5	Jul 12	Jul 19	Jul 26
Check	-----	148.50 b	146.50 b	105.50 b	47.25 a	89.00 ab	30.00 a
Monitor	1.00	252.25 c	1.50 a	14.75 a	0.50 a	15.50 a	29.00 a
MSR + Asana	1.5 pt/acre + 0.03	170.00 b	6.00 a	9.50 a	3.25 a	4.75 a	6.50 a
Temik 15G	3.00	27.25 a	29.25 a	49.75 ab	121.00 ab	122.00 ab	42.00 a
Admire FS	0.3	3.50 a	1.75 a	4.25 a	15.50 a	9.75 a	4.00 a
Furadan	3.0 qt/acre	1.25 a	20.00 a	69.50 ab	169.00 b	187.00 b	17.50 a
Thimet 20G	3.0	0.75 a	0.50 a	14.00 a	57.75 ab	46.50 a	44.50 a
Thimet + Alert	3.0 + 0.15	0.50 a	0.00 a	3.00 a	7.75 a	8.25 a	35.50 a
Admire FS	0.25	8.75 a	23.75 a	30.50 a	3.75 a	7.75 a	8.00 a

Treatment/ formulation	Rate (lb AI/acre)	Egg Masses					
		Jun 27	Jul 1	Jul 5	Jul 12	Jul 19	Jul 26
Check	-----	4.50 ab	1.00 a	0.50 a	0.25 a	1.75 a	0.75 a
Monitor	1.00	13.00 b	1.75 a	0.75 a	1.75 a	0.25 a	0.25 a
MSR + Asana	1.5 pt/acre + 0.03	7.75 ab	4.25 a	0.00 a	1.00 a	1.00 a	0.00 a
Temik 15G	3.00	7.75 ab	8.25 a	3.75 a	2.00 a	0.25 a	0.00 a
Admire FS	0.3	0.50 a	1.75 a	0.50 a	0.00 a	0.50 a	0.00 a
Furadan	3.0 qt/acre	7.00 ab	15.75 b	12.00 b	2.00 a	0.00 a	0.25 a
Thimet 20G	3.0	2.75 a	2.50 a	2.00 a	0.50 a	1.75 a	0.50 a
Thimet + Alert	3.0 + 0.15	1.25 a	0.50 a	1.00 a	2.75 a	1.25 a	2.75 a
Admire FS	0.25	1.75 a	0.75 a	1.25 a	2.00 a	0.50 a	1.75 a

Treatment/ formulation	Rate (lb AI/acre)	% Defoliation					
		Jun 27	Jul 1	Jul 5	Jul 12	Jul 19	Jul 26
Check	-----		8.75 d	46.25 b	68.75 b	62.50 b	91.25 b
Monitor	1.00		2.50 b	3.00 a	0.75 a	0.75 a	29.00 a
MSR + Asana	1.5 pt/acre + 0.03		4.50 c	2.00 a	0.75 a	1.25 a	8.75 a
Temik 15G	3.00		0.25 a	2.50 a	10.00 a	37.50 ab	62.50 b
Admire FS	0.3		0.50 a	0.75 a	2.50 a	1.00 a	7.00 a
Furadan	3.0 qt/acre		0.00 a	2.00 a	11.25 a	56.25 b	87.50 b
Thimet 20G	3.0		0.00 a	0.25 a	3.00 a	21.25 a	32.50 a
Thimet + Alert	3.0 + 0.15		0.00 a	0.00 a	0.25 a	1.50 a	11.00 a
Admire FS	0.25		0.00 a	0.75 a	0.00 a	0.00 a	1.56 a

Treatment/ formulation	Rate (lb AI/acre)	No. GPA per 20 leaves					
		Jul 5	Jul 11	Jul 15	Jul 18	Aug 1	Aug 5
Check	-----	14.25a	24.75 b		22.00 ab		
Monitor	1.00	16.50 a	23.00 b	2.00 a	1.00 a	1.25 a	0.25 a
MSR + Asana	1.5 pt/acre + 0.03	24.25 a	34.00 b	52.25 a	16.00 ab	8.25 a	0.50 a
Temik 15G	3.00	26.50 a	31.00 b		26.75 ab		
Admire FS	0.3	1.75 a	11.25 ab		4.00 a	2.75 a	0.00 a
Furadan	3.0 qt/acre	19.50 a	34.00 b		34.75 b		
Thimet 20G	3.0	22.75 a	9.75 ab		27.75 ab		
Thimet + Alert	3.0 + 0.15	8.00 a	12.50 ab	33.50 a	14.25 ab	25.50 a	0.00 a
Admire FS	0.25	2.50 a	1.50 a		3.50 a	0.25 a	0.00 a

Treatment/ formulation	Rate (lb AI/acre)	Yield weights (lb per 25 row ft)					
		Large #1	Small #1	Large #2	Small #2	Culls	Total
Check	-----	0.000 a	5.88 a	0.00 a	0.18 a	13.03 a	19.07 a
Temik	3.0	0.18 a	9.70 a	0.23 a	0.48 a	16.25 a	26.83 a
Admire	0.3	2.75 b	22.72 b	0.50 a	2.98 a	14.23 a	43.17 b
Thimet	3.0	0.18 a	10.90 a	0.00 a	1.68 a	16.08 a	28.83 a

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Treatment/ formulation	Rate (lb AI/acre)	Large #1	Small #1	Large #2	Small #2	Culls	Total
Check	-----	0.000 a	5.88 a	0.00 a	0.18 a	13.03 a	19.07 a
Temik	3.0	0.18 a	9.70 a	0.23 a	0.48 a	16.25 a	26.83 a
Admire	0.3	2.75 b	22.72 b	0.50 a	2.98 a	14.23 a	43.17 b
Thimet	3.0	0.18 a	10.90 a	0.00 a	1.68 a	16.08 a	28.83 a