

Section VIII
Mites & Sap-Sucking Pests

**2006 RESULTS FROM GREEN PEACH APHID TRIALS
ON POTATOES IN WASHINGTON**

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This trial was established at ADG research station in Eltopia, WA in order to evaluate the efficacy of various insecticides on green peach aphid populations in potatoes. The variety of potato was russet Burbank with plot sizes of 4 (34" centers) rows by 20 feet and four replications for each treatment.

All treatments were applied using CO2 on a spider sprayer with 24 ft booms. Applications were made with 8003VS nozzles at 40 psi and 20 gallons/acre. Equipment speed was 3.2 mph. Two applications were made for each treatment. The first application was made on July 3 with an aphid population at 1 aphid per 2 plants. The second application was made on August 4 with an aphid population at just under 1 aphid per 2 plants.

Aphid evaluations were made by sampling 2 plants per plot, twice a week during the course of the trial. A 17" X 17" beat sheet was used for each evaluation date and the number of winged and wingless aphid were counted.

Rating Date		7/31/2006		7/31/2006		7/31/2006	
Sample Size		2		2		2	
Sample Size Unit		PLANT		PLANT		PLANT	
Pest Stage		wingless		winged		both	
Trt-Eval Interval		28 DA-A		28 DA-A		28 DA-A	
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Appl Code	7/31/2006	7/31/2006	7/31/2006
1	UNTREATED CHECK				2.25bcd	0.25 a	2.5 a-d
2	FULFILL (chem.)	2.75	OZ/A	BE	1.75b-e	0.75 a	2.5 a-d
3	FULFILL (chem.)	5.5	OZ/A	BE	1.25b-e	0.25 a	1.5 cd
4	BELEAF (ground)	2.82	OZ/A	AD	1.75b-e	0 a	1.75bcd
5	BELEAF (chem.)	2.82	OZ/A	BE	0.25 e	0 a	0.25 d
6	PENNCAP-M (ground)	4	PT/A	AD	2.5 abc	1.5 a	4 ab
7	PENNCAP-M (chem.)	4	PT/A	BE	2.75 ab	1.25 a	4 ab
8	ASSAIL (ground)	1.1	OZ/A	AD	2.75 ab	0 a	2.75 abc
9	ASSAIL (chem.)	1.1	OZ/A	BE	1.5 b-e	1.25 a	2.75 abc
10	ASSAIL (ground)	1.7	OZ/A	AD	0.75 cde	0.5 a	1.25 cd
11	ASSAIL (chem.)	1.7	OZ/A	BE	0.75 cde	0.5 a	1.25 cd

12	ACTARA (ground)	3 OZ/A	AD	0.5 de	0.25 a	0.75 cd
13	BATTALION (ground)	8 FL OZ/A	AD	0.75 cde	0.25 a	1 cd
14	BATTALION (ground)	12 FL OZ/A	AD	4.25 a	0.5 a	4.75 a
15	CLUTCH (ground)	3 OZ/A	AD	1 b-e	0 a	1 cd
16	CLUTCH (ground)	4 OZ/A	AD	0.5 de	0 a	0.5 cd
17	BATTALION (ground)	8 FL OZ/A	AD	0.5 de	0.5 a	1 cd
	CLUTCH (ground)	3 OZ/A	AD			
18	BATTALION (chem.)	12 FL OZ/A	BE	1.75 b-e	0.25 a	2 bcd
19	BATTALION (chem.)	8 FL OZ/A	BE	0.75 cde	0.25 a	1 cd
	CLUTCH (chem.)	3 OZ/A	BE			
20	EXPERIMENTAL (ground)	1% V/V	ADF	1.25 b-e	0.25 a	1.5 cd
21	IMIDACLOPRID (ground)	3.8 FL OZ/A	AD	0.5 de	0.25 a	0.75 cd
	LAMBDA (ground)	2.56 FL OZ/A	AD			
22	IMIDACLOPRID (ground)	3.8 FL OZ/A	AD	1.5 b-e	0.25 a	1.75 bcd
	LAMBDA (ground)	3.2 FL OZ/A	AD			
23	IMIDACLOPRID (ground)	5 FL OZ/A	AD	1 b-e	0.75 a	1.75 bcd
	LAMBDA (ground)	2.56 FL OZ/A	AD			
24	LEVERAGE (ground)	3.75 FL OZ/A	AD	1.5 b-e	1 a	2.5 a-d
25	IMIDACLOPRID (ground)	3.7 FL OZ/A	AD	0.25 e	0.5 a	0.75 cd
27	LAMBDA (ground)	3.2 FL OZ/A	AD	2.75 ab	1.25 a	4 ab

'Means followed by same letter do not significantly differ (P=.10, Duncan's New MRT)

Despite what appeared to be optimal conditions-applications going out just as aphid numbers started to build, aphids did not continue to climb. Efficacy data were collected for 28 days following the applications. The cumulative number of wingless aphids in the untreated check over a 28 day period was only 2.25 per plant.

Rating Date		8/24/2006	8/24/2006	8/24/2006
Sample Size			2	2
Sample Size Unit		PLANT	PLANT	PLANT
Pest Stage		wingless	winged	both
Trt-Eval Interval		20 DA-D	20 DA-D	20 DA-D
Trt Treatment	Other	Other	Appl	
No. Name	Rate	Rate Unit	Code	
1	UNTREATED CHECK			187.75 a-d
2	FULFILL	2.75 OZ/A	BE	6.5 e
3	FULFILL	5.5 OZ/A	BE	4 e
4	BELEAF	2.82 OZ/A	AD	1 e
5	BELEAF	2.82 OZ/A	BE	3 e
6	PENNCAP-M	4 PT/A	AD	288.75 ab
7	PENNCAP-M	4 PT/A	BE	157.5 b-e
8	ASSAIL	1.1 OZ/A	AD	58 de
9	ASSAIL	1.1 OZ/A	BE	59.5 de
10	ASSAIL	1.7 OZ/A	AD	141.25 b-e
11	ASSAIL	1.7 OZ/A	BE	7.5 de
12	ACTARA	3 OZ/A	AD	2.25 e

13 BATTALION	8 FL OZ/A	AD	179.5 b-e	2.5 a	182 a-e
14 BATTALION	12 FL OZ/A	AD	346.75 a	2 a	348.75 a
15 CLUTCH	3 OZ/A	AD	3.25 e	0 a	3.25 e
16 CLUTCH	4 OZ/A	AD	28.75 de	0 a	28.75 de
17 BATTALION	8 FL OZ/A	AD	23 de	0.75 a	23.75 de
CLUTCH	3 OZ/A	AD			
18 BATTALION	12 FL OZ/A	BE	268.5 abc	5.5 a	274 abc
19 BATTALION	8 FL OZ/A	BE	2 e	0.75 a	2.75 e
CLUTCH	3 OZ/A	BE			
20 BUG OIL	1% V/V	ADF	104.75 cde	1.5 a	106.25 cde
21 IMIDACLOPRID	3.8 FL OZ/A	AD	29.25 de	7.5 a	36.75 de
LAMBDA	2.56 FL OZ/A	AD			
22 IMIDACLOPRID	3.8 FL OZ/A	AD	18.75 de	5.75 a	24.5 de
LAMBDA	3.2 FL OZ/A	AD			
23 IMIDACLOPRID	5 FL OZ/A	AD	7.75 de	2 a	9.75 de
LAMBDA	2.56 FL OZ/A	AD			
24 LEVERAGE	3.75 FL OZ/A	AD	9.75 de	1.5 a	11.25 de
25 IMIDACLOPRID	3.7 FL OZ/A	AD	9.5 de	3 a	12.5 de
27 LAMBDA	3.2 FL OZ/A	AD	37.75 de	1.75 a	39.5 de

'Means followed by same letter do not significantly differ (P=.10, Duncan's New MRT)

The cumulative number of wingless aphids over the 20 day period, represented by the second set of applications, in the untreated check was 187 per 2 plants-this is among the highest aphid populations we have ever encountered. The Fulfill treatments, at 2.75 and 5.5 ounces per acre applied by chemigation provided excellent control of aphids. The Beleaf treatments, 2.82 ounces per acre applied by ground and by chemigation provided almost perfect control of aphids. Pennacap-M had either substantially more or an equivalent number of aphids as the untreated check. Pennacap-M applied by ground had 289 aphids per plant and Pennacap-M applied at the same rate by chemigation had 157 aphids. Assail applied by ground at the low rate (not recommended for aphids) did not provide commercially acceptable levels of control. Assail applied at the high (aphid) rate by ground did not provide adequate control of aphids. Only Assail applied at the high rate by chemigation provided acceptable levels of control. Actara applied at the full (aphid) rate provided an excellent level of control. Battalion at the low rate had a cumulative number of wingless aphid that was virtually identical to the untreated check. Battalion at the high rate was nearly twice the level of aphids as the untreated check. The level of aphids in the Battalion at the high rate applied by chemigation were among the highest aphid numbers we have ever seen at 348 aphids per two plants. Clutch at the low rate provided an extremely high level of aphid control. Clutch at a slightly higher rate had a higher, but not significantly different, number of aphids than the lower rate. Battalion plus Clutch at 3 ounces had a very similar number of aphids as did Clutch alone at 4 ounces. Battalion plus Clutch at 3 ounces was also applied by chemigation; this treatment provided among the best control of any treatment in the trial. Bug Oil had a cumulative count of 104 aphids per two plants. Imidacloprid applied alone at 3.75 ounces by ground was effective at controlling green peach aphid. There was a very obvious dose response for the combination of imidacloprid and lambda cyhalothrin, with the higher the rate of lambda, the lower the number of aphids. It appears that increasing the rate of lambda in combination with imidacloprid improves efficacy, however the differences were not statistically different.