

Section VII
Foliage and Seed Feeding Insects

**EVALUATION OF ALIGN EC, ALIGN WP, AND HAZA WDG (Azadirachtin) AS
FOLIAR SPRAYS FOR COLORADO POTATO BEETLES IN IDAHO - 1995**

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Russet Burbank potatoes were planted on 4-5 April 1995 at the University of Idaho Research and Extension Center at Caldwell, Idaho. Eight treatments including 3 Azadirachtin formulations plus oil (.5%), Neemex, Oil (alone) and untreated check were replicated 4 times in a randomized complete block design. Individual replicates were 4 rows (36 inch spacing) wide by 25 feet long. As Colorado potato beetle populations developed in June, treatments were applied weekly as foliar sprays using a CO₂ backpack sprayer with X-10 hollow cone nozzles at 30 psi and 50 gallons of spray per acre.

Evaluation:

Colorado Potato Beetle control was evaluated by counting adult beetles, large larvae, small larvae, and egg masses in the two center rows (50 feet total) of each 4 row replicate. Weekly counts were made 3 to 4 days after each weekly application from 17 June through 26 July. Damage estimates (percent defoliation) were made three times: at 23 days, 30 days, and, 42 days after the first application.

Potato yield for each treatment was determined by weighing the yield of potatoes in 50 feet of row in each replicate at harvest and summing the totals of four replicates for treatment totals. Data were analyzed using ANOVA and Least Significant Difference (LSD Student's test at P=.05).

List of treatments:

- | | | | |
|---------------------------|-------------|---------------------------------|--------------|
| 1. Align WP | 5 g ai/A + | Sunspray Ultrafine Oil .5 % v/v | every 7 days |
| 2. HAZA WDG | 5 g ai/A + | " | " |
| 3. Align WP | 10 g ai/A | " | " |
| 4. HAZA WDG | 10 g ai/A | " | " |
| 5. Align EC | 5 g ai/A | " | " |
| 6. Sunspray Ultrafine Oil | alone | " | " |
| 7. Neemex | .125 pt / A | | " |
| 8. Untreated Check | | | |

Results and conclusions:

1. Adult beetles: There were no significant differences among the treatments for the first 18 days; however, Align (10g) and HAZA (5 & 10g) had fewer adults than oil alone or UTC. Beginning at 24 day counts, Align WP (10g) had significantly fewer adults than all other treatments. At 39 days, all Align and HAZA treatments were still significantly lower than oil alone or UTC.

2. Small larvae: By 3 day counts, Align and HAZA treatments had fewer small larvae than oil alone or UTC with HAZA (10g) showing significantly better control. By 24 days all Align and HAZA treatments were significantly more effective than oil, Neemex, or UTC.

3. Large larvae: All treatments were significantly more effective than UTC at 3, 10, and 18 days. Align WP (10g) and HAZA (5g) were significantly more effective for 24 through 39 days.

4. Egg masses: Align WP (10g) and HAZA (10g) treatments had significantly fewer egg masses for the duration of the test.

5. Percent defoliation. Align WP (10g) and HAZA (10g) had significantly lower leaf damage than other treatments.

6. Yield: Yield differences were not statistically significant; however, all Align and HAZA treatments had higher yields.

Table 1. Colorado Potato Beetle control with Align WP, Align EC and HAZA WDG. Caldwell, Idaho 1995.

Treatment	Rate grams ai/A	Mean number of small larvae per 50 row ft						
		15 June Precounts	20 June (3 days)	27 June (10 days)	5 July (18 days)	11 July (24 days)	17 July (30 days)	26 July (39 days)
Align WP+ oil	5	8.5	10.0 ab	16.3 ab	5.3 a	4.0 ab	0.0 a	0.0 a
HAZA WDG + oil	5	9.0	12.3 ab	17.3 ab	.5 a	0.0 a	0.0 a	0.0 a
Align WP+ oil	10	9.0	14.8 ab	16.8 ab	1.5 a	1.3 a	0.0 a	0.0 a
HAZA WDG + oil	10	9.5	7.3 a	9.3 a	1.3 a	5.0 ab	0.0 a	0.0 a
Align EC + oil	5	11.5	17.5 ab	17.5 ab	1.5 a	4.3 ab	0.0 a	0.0 a
Sunspray Oil (alone)	.5%	10.8	22.0 b	21.3 ab	14.8 b	10.0 b	14.3 b	24.5 b
Neemex	.125 pt	8.5	16.8 ab	18.5 ab	6.0 a	17.5 c	0.0 a	6.8 a
Untreated Check	-	11.8	36.8 c	25.8 b	25.0 c	28.3 d	12.3 b	44.8 c

Treatment	Rate grams ai/A	Frequency (days)	Percent Defoliation	
			10 July	29 July
Align WP + oil	5	7	3.8 a	40.0 ab
HAZA WDG + oil	5	7	5.0 a	41.3 ab
Align WP + oil	10	7	2.5 a	30.0 a
HAZA WDG + oil	10	7	2.5 a	30.0 a
Align EC	5	7	8.8 a	55.0 b
Sunspray oil (alone)	.5%	7	32.5 b	95.8 c
Neemex	.125 pt	7	10.0 a	87.5 c
Untreated Check	-	-	37.5 b	97/0 c

Means within a column followed by the same letter are not significantly different. Least Significant Difference Test ($p = .05$)