A

APPLE: *Malus domestica* Borkhausen, 'Fuji'

WOOLLY APPLE APHID CONTROL WITH UNREGISTERED PESTICIDES, 2008

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Woolly apple aphid (WAA): *Eriosoma lanigerum* (Hausmann)

The purpose of this experiment was to find new materials to replace organophosphate and organochlorine insecticides for control of WAA. The experiment was conducted in an experimental orchard near Orondo, WA. The trees were 15-yr-old 'Fuji' with 'Royal Gala' pollenizers. Plots consisted of three trees in a single row surrounded by unsprayed buffer trees. Treatments were replicated four times in a RCB design. All treatments were applied with an airblast sprayer calibrated to deliver 100 gpa. All treatments were applied on 6 Aug; one treatment had a second application on 22 Aug. WAA populations were assessed by counting the number of visible aerial colonies in a 1.5-min search per plot. Counts were made prior to treatment, and at about weekly intervals post-treatment through late October. The experimental design was a RCB design with nine treatments and four replicates. Data were analyzed with ANOVA and treatment means were separated using the Waller-Duncan *k*-ratio *t*-test.

Population densities were moderate to high prior to treatment (5 Aug), with about 50 colonies/1.5 min in the various plots (Table 1). Densities in the check peaked in mid-Sept, and declined slowly though late Oct. All treatments except NAI-0101+NAI-2302 (2 apps) had significantly lower colony counts during the peak in mid-Sept, but otherwise were usually not different than the untreated check. Only this treatment, and the low rate of NAI-0101+oil, were not different from the check in the seasonal sums of colony counts (Table 1). All other treatments, including the two BeLeaf treatments, provided some suppression of woolly apple aphids on a seasonal basis. Counts in the diazinon treatment were consistently lower than the check.

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Table 1.

Treatment	Rate/acre	WAA colonies/1.5 min search 5-Aug	11-Aug[a]	18-Aug[a]	26-Aug[a]	2-Sep[a]	11-Sep
NAI-2302 15EC[b]	27 fl oz	37a	40abc	54b	43ab	135abc	186bc
NAI-0101 20SC[b]	0.8 fl oz	35a	49ab	64ab	61ab	111abc	139cd
NAI-0101 20SC[b]	1.59 fl oz	36a	58ab	96a	72ab	151abc	165c
NAI-0101 20SC[b]	3.19 fl oz	53a	50abc	69ab	58b	93c	114cd
NAI-0101 20SC[b]	3.19 fl oz	58a	23c	23c	50ab	268ab	317ab
NAI-2302 15EC[b]	24 fl oz						
BeLeaf 50SG[b]	5 oz	48a	35bc	55ab	69ab	150abc	176c
BeLeaf 50SG[c]	5 oz	34a	29bc	59ab	62ab	117bc	147c
Diazinon 50W	4 lb	37a	5d	1d	4c	3d	6d
Check		42a	75a	98a	94a	277a	324a

Treatment	Rate/acre	WAA colonies/1.5 min search 17-Sep	22-Sep	30-Sep	15-Oct	29-Oct	Post-trt sum
NAI-2302 15EC[b]	27 fl oz	121ab	79ab	74abc	28ab	18ab	743b
NAI-0101 20SC[b]	0.8 fl oz	179a	143a	123ab	76ab	60ab	1,005ab
NAI-0101 20SC[b]	1.59 fl oz	177a	82ab	87abc	59ab	41ab	987b
NAI-0101 20SC[b]	3.19 fl oz	107b	87ab	86abc	73ab	53ab	790b
NAI-0101 20SC[b]	3.19 fl oz	132ab	86ab	84abc	67ab	42ab	1,091ab
NAI-2302 15EC[b]	24 fl oz						
BeLeaf 50SG[b]	5 oz	140ab	68ab	70abc	70ab	40ab	870b
BeLeaf 50SG[c]	5 oz	101b	64ab	58bc	22ab	27ab	685b
Diazinon 50W	4 lb	19c	1b	2c	2b	0b	43c
Check		179a	180a	175a	115a	91a	1,606a

Means within columns not followed by the same letter are significantly different, Waller-Duncan *k*-ratio *t*-test, *k*-ratio=100.

Treatments applied 6 August; Treatment 5 had a second application on 22 August.

[a]Data transformed log(x+0.5).

[b]Treatment included an adjuvant (Saf-T-Side oil, 0.25% v/v).

[c]Treatment included an adjuvant (Silwet, 0.025%).