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C13

GRAPE: *Vitis labrusca* L. 'Flame Seedless'

IN-SEASON CONTROL OF VINE MEALYBUG IN 'FLAME SEEDLESS' TABLE GRAPES IN KERN COUNTY, 2008

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Vine Mealybug: *Planococcus ficus* (Signoret)

In 2008, an in-season trial was conducted near Arvin, Kern Co. CA. to evaluate the effects of insecticides on vine mealybug. The trial was conducted in a 2.0 acre portion of a mature 'Flame Seedless' vineyard on sandy loam soil. Vines were planted at a spacing of 12 ft x 5 ft. The trial was organized into a RCBD with four blocks and 16 treatments, including an untreated check (Table 1). Each of the 64 plots was two rows wide by 12 vines long, with the plots organized to include one center row for data collection and half of each adjacent row.

Insecticide treatments were made either as a foliar spray or directly to the soil (Table 1). Foliar sprays were made by using an air blast sprayer on 26 Feb, 29 Apr, 22 May or 17 Jun. Water volume was 150 gpa for applications for Feb and Apr and 200 gpa for the May and June applications. Soil applications were made over a period of one hour by distributing half of the insecticide for each plot into cups placed under the drip emitters. The water was then turned on for 30 minutes, allowing the insecticide to pour out into the soil one drip at a time. This process was then repeated during a second 30-min interval with the other half of the insecticide. Contents of each cup were stirred at 10-min interval to help ensure consistent delivery of the insecticide to the soil. Soil treatments were applied on 21 Apr and 20 May. Trials were evaluated using cluster evaluations on 8 Jul. For each plot we evaluated 10 clusters per vine on each of the 8 vines in the center of each plot. Each cluster was given a rating from 0 to 2 with 0 = no mealybug, 1 = honeydew only, and 2 = mealybug present. Data were analyzed by ANOVA. Means separation was determined using Fisher's Protected LSD (P=0.05) using transformed data (arcsine(x)).

All treatments provided significant reductions in the percentage of clusters with mealybugs or honeydew present compared to the untreated check with the exception of Platinum (Table 1). The lowest percentages occurred in plots treated with Movento in April, with damage statistically equivalent to that of six other treatments. Comparisons among May applications of neonicotinoids resulted in the lowest percentages in plots treated with Admire or Clutch, both of which were statistically equivalent to plots treated with Venom, and statistically improved compared to plots treated with Platinum. There were no significant differences between plots treated with Venom in Feb, Apr or May.

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Table 1. Effects of insecticides treatments on the density of vine mealybug in clusters.

Treatment/ Formulation	Rate Form Prod/Acre	App. Date	Method	Surfactant[1]	Cluster Ratings[2], 8 July Percentage clusters per category 0	1	2	1 + 2
Lorsban 4E	4 pt	26 Feb	Foliar	L	92abcde	4.5abcd	3.3abc	8.0abcde
Applaud 70DF + Applaud 70DF	12 oz 12 oz	29 Apr + 22 May	Foliar + Foliar	L + L	88bcde	6.0abcde	5.8bc	11.8bcde
Applaud 70DF	24 oz	29 Apr	Foliar	L	86de	8.8cde	4.8bc	14.0de
Movento 240SC	8 fl oz	29 April	Foliar	D	98a	1.5a	0.5a	2.3a
Movento 240SC	8 fl oz	22 May	Foliar	n/a	89bcde	6.3bcde	4.3abc	10.8bcde
Movento 240SC	8 fl oz	22 May	Foliar	D	93abcde	5.0abcd	2.5ab	7.5abcd
Movento 240SC	8 fl oz	22 May	Foliar	L	89abcd	4.3abc	6.8c	11.0bcde
Movento 240SC	8 fl oz	17 June	Foliar	D	91abcde	5.5abcde	3.8abc	9.3abcde
Clutch 2.13EC	6 fl oz	22 May	Foliar	L	91abcde	6.5bcde	2.5ab	9.0abcde
Clutch 2.13EC	12 fl oz	20 May	Soil	n/a	93abc	3.8ab	2.8abc	6.8abc
Venom 20SG	6 oz	28 Feb	Soil	n/a	87cde	8.5cde	4.5abc	13.3cde
Venom 20SG	6 oz	21 Apr	Soil	n/a	90bcde	5.5abcde	4.0abc	9.8bcde
Venom 20SG	6 oz	20 May	Soil	n/a	86cde	8.5cde	5.3bc	13.8bcde
Admire Pro 4.6F	14 fl oz	20 May	Soil	n/a	95ab	2.3ab	2.0ab	4.8ab
Platinum 75SG	3.67 oz	21 Apr	Soil	n/a	85ef	9.0de	6.1bc	14.9ef
Untreated Check	n/a	n/a	n/a	n/a	78f	10.0e	12.0d	21.8f

[1]Dyne-Amic (D) and Latron B-1956 (L) was used at a rate of 4 fl oz/100gal v/v.
[2]Cluster Ratings: 0 = no mealybug, 1 = honeydew only, 2 = mealybug present, and 3 = >10 mealybugs present
Means in a column followed by the same letter are not significantly different ($P > 0.05$, Fisher's protected LSD) after arc sine (x) transformation of the data. Untransformed means are shown.