



University of California Cooperative Extension
FROM THE VINE



Kern County • 1031 S. Mt. Vernon Avenue • Bakersfield, CA 93307 • 661-868-6223

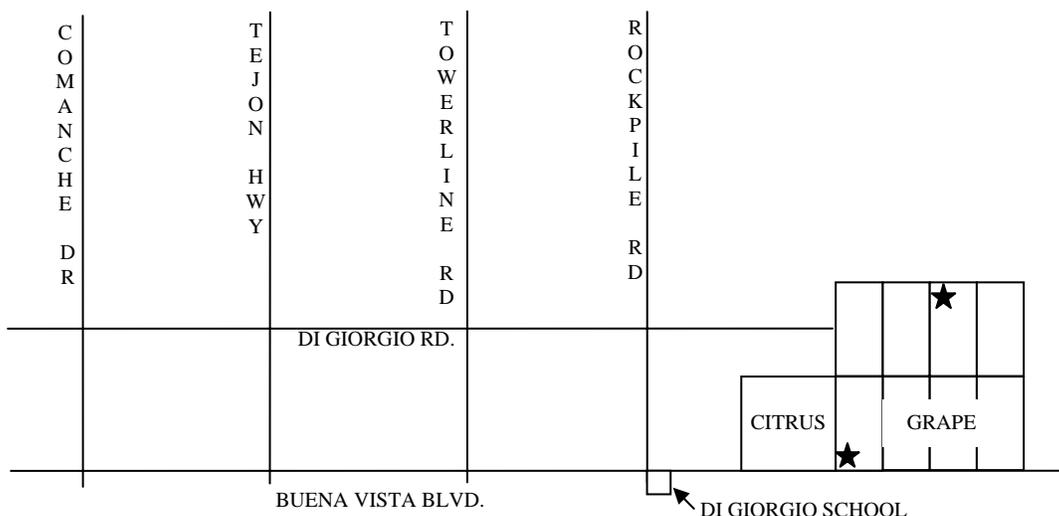
Table Grape Biologically Integrated Farming Systems (BIFS) Field Day
Tuesday, July 1, 2008 • 8:45 a.m. – 11:00 a.m.
(Sign-in & coffee at 8:45 a.m., program begins at 9:00 a.m.)

University of California Cooperative Extension, UC Sustainable Agriculture Program and the UC Statewide Integrated Pest Management began a project entitled Biologically Integrated Farming Systems (BIFS) for Table Grapes with grape growers in Kern, Tulare, and Fresno Counties in 2006. This is an on-farm project to develop pest management information in table grapes; a crop where cosmetic appeal is high and pest tolerance is low. The objectives of the BIFS project are to document pests, yield and management costs in vineyards managed using practices that reduce risk to people and the environment. Join us for an update at one of several BIFS field sites and participate in a lively discussion regarding management strategies of various vineyard pests. Topics will include:

- **BIFS update**
- **Up to the minute results of 2008 Kern County vine mealybug insecticide trials**
- **Status of alternative management options for vine mealybug – mating disruption, biocontrol, cultural practices**
- **Control tactics for black widow spider**

Directions to field meeting:

1. Take CA-99 south to CA-58 E toward Tehachapi/Mojave. Go east on CA-58 for 11.5 miles.
2. Take the Comanche Dr./Arvin exit, turn right and head south for 7.0 miles.
3. Turn left on Buena Vista Blvd. Go 4.0 miles east (plot is 1.0 mile east of Di Giorgio Elementary School).
4. Follow the signs to the field plot.



For more information, contact:

- Walt Bentley at (559) 288-1517, walt@uckac.edu • David Haviland at (661) 868-6215, dhaviland@ucdavis.edu •
- Jennifer Hashim-Buckey (661) 868-6223, jmhashim@ucdavis.edu •

Late Season Approaches to Reduce Vine Mealybug Near Harvest in Table Grapes

David Haviland and Jennifer Hashim-Buckey, UCCE Kern County

Vine mealybug is one of the most prolific pests of table grapes. Its exponential growth rate and affinity for feeding within clusters close to harvest make its management of highest priority for grape growers dealing with infested vineyards.

Traditionally, vine mealybug is managed with a combination of post-harvest and/or delayed-dormant Lorsban treatments in combination with in-season treatments of the growth regulator buprofezin (Applaud), and neonicotinoids such as Admire or Venom. However, in many cases these treatment programs do not suffice and additional contact insecticides are needed close to harvest to keep the clusters free of mealybugs.

Over the past few years, methomyl (Lannate) has been the product of choice for late-season insecticide treatments aimed at keeping clusters free of mealybugs. This has been due to its contact mode of action and ability to use the product close to harvest when PHIs for other products preclude their use†.

In late May of 2008 we conducted an insecticide trial to evaluate the effectiveness of 1 lb of Lannate, as well as an alternative program of a tank mix of 2.5 oz of Assail 30SG and 12 oz of Applaud 70DF, on vine mealybug. The trial was located in a bearing, two-year old vineyard that was grafted over to ‘Summer Royal’ in 2006. A total of 0.4 acres was divided into 12 plots that were each 2 rows by 10 vines long, and that were each assigned in a randomized complete block design to one of the two treatments or an untreated check. Treatments were applied at 200 GPA on 20 May using an air-blast sprayer. Plots were evaluated prior to treatment, 3 days after treatment (DAT), 8 DAT and 17 DAT by doing timed searches on six or eight vines in the center of each plot. Searches were performed by stripping bark and counting all motile forms of vine mealybug that could be found within 3 minutes.

Results showed that Lannate and the Assail/Aplaud tank mix both caused significant reductions in the number of vine mealybugs per 3-minute search on all post-treatment evaluation dates. Comparisons of the two treatments to each other revealed no significant differences, with both knock-down and residual activity very similar.

There are, however, some additional considerations that growers and PCAs should make when interpreting this data for their own use. On one hand, efficacy of these treatments is likely overestimated because 1) bark stripping the trunk during our pre-counts caused increased exposure of the mealybugs to the pesticides than would occur normally, and 2) vines were young and therefore had relatively small amounts of bark compared to mature vines. On the other hand, efficacy of these treatment programs is likely underestimated because 1) at our treatment timing most mealybugs were still under the bark and not as exposed as they would be when mealybugs get up on the leaves and enter the clusters, and 2) timed searches underestimate high mealybug populations. This means that vines with low populations might have every mealybug counted during the 3 minutes, whereas only a portion of the mealybugs can be counted in 3 minutes on a heavily infested vine.

In conclusion, both the Lannate and the Assail/Aplaud treatments provided good knock-down of vine mealybug close to harvest. However, these treatments were far from perfect, and should only be utilized as a last resort. This is especially true due to the cost of the Assail/Aplaud tank mix, as well as the ongoing regulatory scrutiny of Lannate residues that has the potential to cause table grapes to be removed from the label.

Table 1. Effects of insecticide treatments on vine mealybug density

Treatment	Rate form. prod. per ac	Mealybugs per 3-minute times search			
		Pre-counts	3 DAT	8 DAT	17 DAT
Lannate SP ¹	1 lb	124.7 a	53.1 a	4.1 a	41.5 a
Assail 30 SG+ Applaud 70DF ¹	2.5 oz + 12 oz	146.9 a	62.0 a	3.2 a	52.3 a
Untreated Check		156.3 a	93.6 a	39.5 b	108.9 b
<i>F</i>		1.37	1.60	9.12	8.31
<i>P</i>		0.3245	0.2776	0.0152	0.0187

¹ Latron B-1956 used as a surfactant at 0.0156% v/v

Means in a column followed by the same letter are not significantly different ($P > 0.05$, Fisher's protected LSD) after square root ($x + 0.5$) transformation of the data. Untransformed means are shown.

† Applications of methomyl made after August 15 have a 21 day restricted entry interval. This interval may be terminated after 10 days if leaf samples tested show 0.1 micrograms per square centimeter or less of dislodgeable foliar residue. Call local Agricultural Commissioner's office for more information.

Disclaimer: Discussion of research findings necessitates using trade names. This does not constitute product endorsement, nor does it suggest products not listed would not be suitable for use. Some research results included involve use of chemicals which are currently registered for use, or may involve use which would be considered out of label. These results are reported but are not a recommendation from the University of California for use. Consult the label and use it as the basis of all recommendations.

The University of California prohibits discrimination or harassment on the basis of race, color, national origin, religion, sex, gender identity, pregnancy (including childbirth, and medical conditions related to pregnancy or childbirth), physical or mental disability, medical condition (cancer-related or genetic characteristics), ancestry, marital status, age, sexual orientation, citizenship, or status as a covered veteran (covered veterans are special disabled veterans, recently separated veterans, Vietnam era veterans, or any other veterans who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized) of any person employed by or seeking employment with the University. The University of California is an affirmative action/equal opportunity employer. The University undertakes affirmative action to assure equal employment opportunity for minorities and women, for persons with disabilities, and for covered veterans. University policy is intended to be consistent with the provisions of applicable State and Federal laws. Inquiries regarding the University's equal employment opportunity policies may be directed to the Affirmative Action/Staff Personnel Services Director, University of California, Agriculture and Natural Resources, 300 Lakeside Drive, 6th Floor, Oakland, CA 94612-3550, (510) 987-0096.