University of California Cooperative Extension Fresno County

Vine Lines

Stephen J. Vasquez, Viticulture Farm Advisor

April/May 2009 Issue

Vine Lines—Now an exclusive E-newsletter

The University of California Cooperative Extension newsletter—*Vine Lines*—has been in distribution since the 1960's. From the beginning, the publication has been free for Fresno County grape growers and allied industry, giving them relevant and timely information on grape production. Its popularity grew and the free newsletter became a favored source of information throughout California's grape growing regions. Although subscriptions have dropped in the past few years, *Vine Lines* remains a relevant publication, with many of the articles being published a second time in trade publications that have regional and state distribution.

In an effort to improve the dissemination of grape production information to growers and allied industry, *Vine Lines* was offered as an e-newsletter in 2006. Since that time approximately 10% of the *Vine Lines* subscribers have requested the e-version. The difficult economy and tight county budget has determined that *Vine Lines* can no longer be a free publication. The final free copy of Vine Lines will be the June 2009 issue. In order to continue receiving the newsletter you must subscribe to the free e-version. To do so, click (or type in) the following link, type in your email and fill out the form.

Vine Lines Subscription page: http://ucanr.org/vinelines-subscription

Once subscribed, you will receive an email informing you that the most recent issue has been posted. Past issues since August 2006 have been archived, which allows you to access and print them from my website.

Although the final free hardcopy of Vine Lines will be in June 2009, a paid subscription is available. Subscriptions will cost $12 and consist of 6 copies of Vine Lines delivered via the US Postal Service. The subscription fee will help cover the cost of paper, printing and preparation for mail distribution. Hard copy subscriptions will start with the August 2009 issue and end with the June 2010 issue. An invoice will be sent to hard copy subscribers thereafter. If you are interested in continuing your hardcopy subscription, please fill out and send the following form.

Paid subscriptions rates are only applicable to the Continental US

For additional questions regarding Vine Lines please contact Terri at 559-456-7285

Name_____ Phone:_____

Address:_____

City:_____ State:_____

Zip Code:_____Check No._____

I would like to receive 6 issues of *Vine Lines* for $12.00/year (beginning in August 2009)- - - - - ☐

Please make check payable to *UC Regents* and send to: **Vine Lines Subscription**
1720 South Maple Avenue
Fresno CA 93702-4516

A Viticulture Blog for the San Joaquin Valley

Recently we created a viticulture blog for the San Joaquin Valley. The term 'blog' is a contraction of 'web log', and is simply a website to which we post timely tips and information on viticulture. Presently our blog can be found by entering http://ucanr.org/blogs/Raisinramblings/ in the address field of your web browser. Although our blog is currently named 'Raisinramblings', in acknowledgement of the importance of raisins to our local viticulture industry, information of use to table and wine grape growers has been, and will continue to be, posted to the site. We may change the name of the blog in the future and welcome any creative suggestions you may have.

Currently there are several postings including explanations on how to use the powdery mildew risk assessment index, and on how to manage the risks of frost and phomopsis. An important feature of the blog is that we may add information at any time, without delay. Thus, as the season progresses, we can add new posts that focus on currently relevant issues. However, we don't anticipate deleting any of the old postings, so readers can scroll through the previous posts and glean information that may be useful now, or in subsequent seasons. When appropriate, links to other sites are made available. Furthermore, readers may comment on articles, a feature that hopefully will provide additional perspectives on each topic. We hope you'll soon visit our blog and send us an email letting us know what you think.

Matthew Fidelibus, Extension Specialist, UC Davis, Department of Viticulture and Enology. Stephen Vasquez, Viticulture Farm Advisor, UCCE, Fresno County.

$5 Million Added To Air Quality Boost For California Agriculture

Dave White, Chief of the USDA's Natural Resources Conservation Service (NRCS), enriched California's air quality resources by $5 million during his first visit to California as head of the national conservation agency. The additional money will bring to $20.9 million the funds NRCS in California is making available to help farmers and ranchers reduce air quality emissions from off-road mobile or stationary agricultural sources. Applications are being taken until **June 26, 2009**.

"These funds should help California producers comply with local and state regulations," said White who is in California to chair the national Agricultural Air Quality Task Force meeting in Fresno. "We believe agriculture can be on the leading edge of setting a cleaner, greener example for protecting the air we all breathe. We're doing what we can to help in that pursuit—technically and financially."

The funds will share the costs of practices that have been shown to reduce ozone precursors [oxides of Nitrogen (NOx) and Volatile Organic Compounds (VOC)] and particulate matter [respirable (PM10) and fine (PM2.5)] emissions from agricultural sources. Applications will be ranked and funded based on the amount of emission reductions achieved in the proposed plan.

Funded practices include the NRCS' combustions system air emissions management practice to improve high polluting engines with newer, reduced-emission technologies. Stationary, portable and heavy-duty off-road mobile systems will be included. Other covered air quality practices will include conservation tillage, dust control on farm roads, precision pest control, and manure injection. For the complete list of practices and for information on how payments will be calculated see www.ca.nrcs.usda.gov/programs/eqip/2009/index.html or visit with your local NRCS conservationists.

The primary goal of this new portion of the Environmental Quality Incentives Program (EQIP) is to help farmers and ranchers attain the standards set by the National Ambient Air Quality Standards (NAAQS). Producers in the 36 California counties that are currently not in compliance with one or more of these standards are eligible for the new air quality portion of the EQIP program.

The eligible southern San Joaquin Valley counties are: Fresno, Kern, Kings, Madera, Merced and Tulare. Interested applicants in eligible counties should contact their local NRCS service center.

For additional information, contact Anita Brown (530) 792-5644 or Alan Forkey (530) 792-5653 or Ted Strauss (559) 252-2191.

Expanded Drought Assistance Program Now Open to Farmers/Ranchers in More Counties

USDA's Natural Resources Conservation Service (NRCS) State Conservationist, Ed Burton, is expanding a previously announced drought assistance program to $3 million. Four additional counties have been added to the program and all eligible counties will now have until **May 22, 2009** to apply.

Farmers and ranchers in designated counties with extreme or severe drought conditions, or continuous moderate drought over a multi-year period may apply for assistance from USDA's Natural Resources Conservation Service in California until May 22, 2009. During the special sign up, NRCS will take applications for $3 million now available for practices designed to protect soil and air quality in areas of fallowed fields, keep orchard trees alive, and protect natural resources on ranch and pasture land. Due to the extraordinary conditions NRCS will pay a higher-than-normal 75 percent cost share rate.

"Our Chief, Dave White, is aware and sympathetic to our producers who are dealing with the results of record low levels of water storage combined with low snow melt, and restricted water deliveries, and has provided the funding for this special initiative," says Ed Burton, State Conservationist for NRCS in California. "Deliveries from both state and federal water have been adjusted up some, but are still just 10 to 30 percent of normal. Some local irrigation districts in northern California have also had to reduce water delivery to agricultural producers to zero. A half-million acres of crop land has been idled due to lack of adequate water to bring up a crop."

In addition to counties around the state, the $3 million is being made available in the following southern San Joaquin Valley counties: Fresno, Kern, Kings, Madera, Merced, and Tulare.

Practices being offered through the program include establishing vegetative cover, soil surface roughening, incorporation of soil-stabilizing organic matter, silt fencing adjacent to highways, irrigation water management, pruning to keep trees alive, livestock watering facilities, maintaining standing stubble and more. More information on the drought, conservation practices that may mitigate drought-related problems and payment rates for the current drought initiative are available at www.ca.nrcs.usda.gov/features/cadrought.html or by contacting your local NRCS office, listed in the government section of the phone book under U.S. Department of Agriculture.

For additional information, growers can contact Anita Brown 530-792-5644 or Luana Kiger 530-792-5661

Vine Mealybug: Researching A New Management Strategy

Walt Bentley

Vine mealybug, Planococcus ficus, continues to spread throughout California's table, raisin and wine grape growing areas. It has become the primary arthropod pest both through direct damage and transmission of leafroll virus. This report summarizes the insecticide control studies performed during the past two years. Studies were performed with cooperating farmers or at the Kearney Agricultural Center. Each study was replicated and analyzed statistically.

Movement to Leaves

As we try to manage this key pest, knowledge on behavior becomes important to identify weak links in its life cycle. One such behavioral weakness has been the stage of distribution on the vine. Over the past 3 years, through leaf sampling, we have only found immature stages during the first two weeks of leaf infestation. For example, Figure 1 shows the time movement to leaves was identified from a vineyard untreated for 3 years at the Kearney Agricultural Center. Monitoring using pheromone traps began 4/11 and continued weekly through July. Mealybug counts made on 50 leaves (1 per vine) was done to track insect movement and development. This information shows that only the immature stages are found early in the season. It is critical that sprays, particularly insect growth regulators (such as Applaud) are timed to this movement. If leaf infestation is managed, cluster infestation is managed. As can be seen, first significant movement to leaves was found in May and, in 2008, a May timing would be ideal for management of vine mealybug utilizing an insect growth regulator. The 2008 findings indicate movement to leaves later than in previous years.

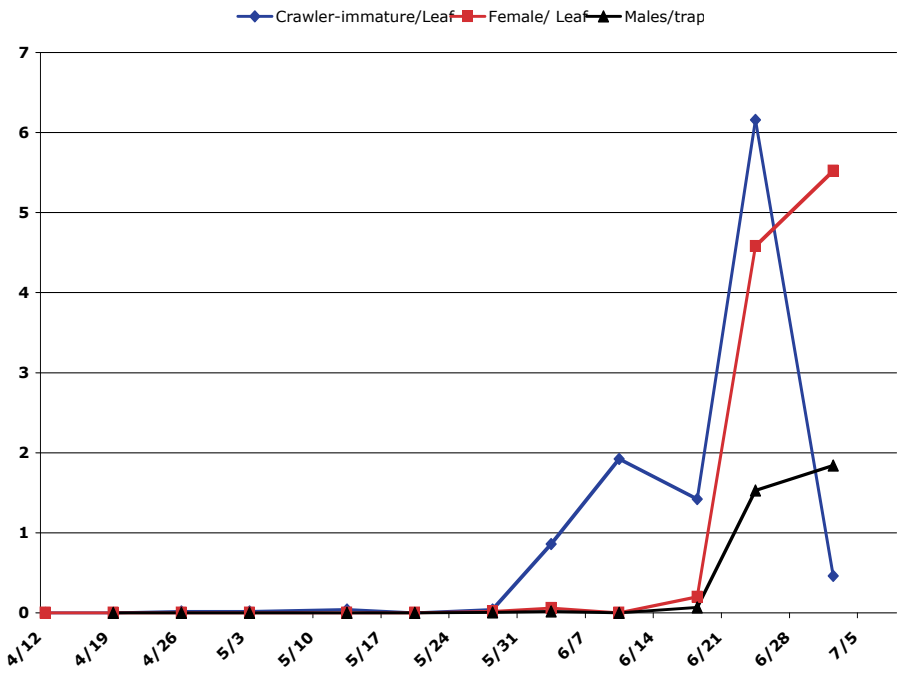

Figure 1. Seasonal movement of vine mealybug to leaves and pheromone trap captures, Kearney Ag Center, 2008.

Insecticide Trials

A systemic insecticide trial was initiated on June 7, 2008 to test the efficacy of 3 insecticides in controlling the vine mealybug in grapes. The Thompson seedless test vineyard was located in Del Rey, CA. The vineyard is under drip irrigation and soils are sandy. There are 454 vines per acre. Treatments were randomized and organized into five replications. Each treatment consisted of one complete vine. Large Styrofoam cups, attached to a wooden dowel, under each dripper (2 drippers per vine) were used to apply the insecticide. The dowel was hammered deep into the soil to ensure stable placement of the cup. A precise amount of chemical was measured, premixed with water and poured into each cup, corresponding to the dose per vine. On June 7, 2008, Admire was applied at the rate of 14 oz/acre, Platinum at 3.67 oz/acre, and Venom at 6 oz/acre. The control was not treated. When the irrigation began, water filled and overflowed from the cups, which were left for the duration of the watering time (ca 6 hours). Treatments were evaluated by using leaf sampling and two harvest/cluster evaluations where both the number of clusters infested the severity of the infestation was rated (a 0-3 scale, 0 being clean, 3 being total loss).

The average number of mealybugs (all immature) per leaf found on June 27 was 21.05, 1.75, 3.1, and 17.25 for the Untreated, Admire, Platinum, and Venom treated vines (Figure 2.). Figure 3 presents results cluster infestation on, July 10, and August 15, 2008.

The July 10 evaluation showed Admire (1 cluster infested and 1 rating) and Platinum (0 clusters infested and 0 rating) to be significantly better

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Vine Mealybug

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(P< 0.05, Fishers Protected LSD) than the Untreated Check (4.25 clusters infested and 1.88 rating) and Venom (2.5 clusters infested and 1.67 rating). There was no statistical difference between the Control and Venom treatments.

A final harvest cluster evaluation was done on August 15. The average number of infested clusters was 5, 1.8, 0.4, and 4.6 for the Untreated, Admire, Platinum and Venom, respectively. Average ratings of treatments were; Untreated, 2.24; Admire, 1.14; Platinum, 1; Venom, 2.17. Again, for both the number infested and the severity of infestation, both the Admire and Platinum resulted in both significantly (P<0.05, Fishers Protected LSD) fewer infested clusters and clusters that were less severely infested clusters than the Untreated and the Venom treatment. There was not statistical difference between the untreated Check and the Venom treatment.

In 2007, my lab was trying to find the relative efficacy of Applaud (buprofezin) and Movento (spirotetramat). The treatments included Movento applied at May 11 or on June 25 at the rate of 8 ounces per acre and treatments of Applaud applied on May 11 or June 25 and both May 11 and June 25. Each Applaud application was at 12 ounces per acre. There was also an untreated Check. Cluster infestation was evaluated in July and August by sampling 10 clusters from the middle two vines of four vine treatments. The July Movento readings resulted in no cluster infestation while the untreated resulted in 10 clusters infested. The Applaud treatment of May 11 averaged 2.75 clusters infested per 10 while the June 25 treatment averaged 6.25 cluster infested per 10. The treatment with Applaud made on May 11 and June 25 averaged 0.75 clusters infested per 10. The two applications of Applaud resulted in no statistical difference in infestation (P>0.05 FPLSD) than either of the single Movento treatments. Both single treatments of Applaud where significantly different from the untreated Check and also different from the other three treatments.

A month later, on August 21, another reading was taken. The results were very similar. The untreated Check had 10 out of 10 cluster severely infested. The Movento applied on June 25 had the lowest infestation with .25 clusters per 10 infested. The double treatment of Applaud and the earlier Movento treatment each averaged 1.5 clusters out of 10 infested. The single Applaud treatment on May 11 averaged 5.5 clusters infested per 10 sampled and the single Applaud treatment on June 25 resulted in 8.25 clusters infested per 10 sampled. Each of the treatments was statistically different from the untreated (P<0.05, FPLSD). The three least infested treatments (double Applaud, and each of the Movento treatments) were not statistically different (P>0.05, FPLSD) from each other but different from the two single Applaud treatments.

A trial was conducted at the Kearney Ag Center in 2008 to further study Movento applied with and without surfactants in controlling vine mealybug. Two other products used in this study were Assail at 2 ounces per acre and Clutch applied at 6 ounces per acre. The Assail application was 1 ounce over the label rate for grapes while the Clutch application is registered at the rate applied. Movento was applied at 8 ounces. Surfactants included Dyne-amic (.1% v/v), Penetrator (.1% v/v), and Break -Thru (.2% v/v).

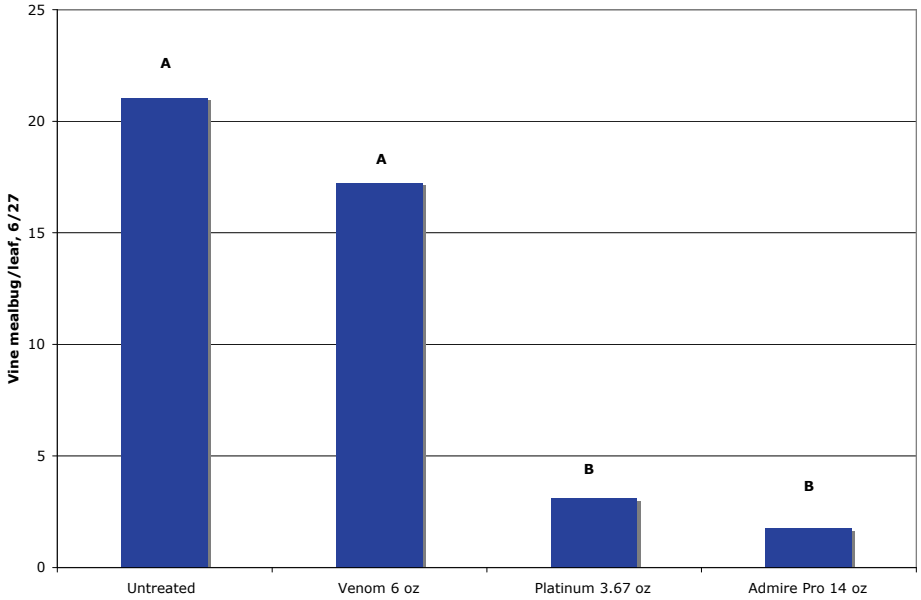

Figure 2. Abundance of vine mealybug on leaves based on insecticide treament, Del Rey, CA, 2008.

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Vine Mealybug

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The June 30 treatment was made after veraison. Cluster samplings September 12 (10 clusters per plot). On August 25 an additional count of leafhoppers was done to determine effect of treatments. Although Clutch and Assail had the lowest leafhopper counts the populations was never greater than 2 leafhoppers per leaf and no statistical difference was seen between any treatments and the untreated check.

The efficacy of Movento, alone or with all adjuvants, was excellent. However, as expected, the application with no adjuvant performed more poorly than with the addition of an adjuvant. Clusters were rated on a 0-3 scale with 0 being clean and 3 being unmarketable and completely infested. The sampling on September 12 showed the following average ratings: untreated Check, 2.4; Movento alone, .3; Movento + Dyne-Amic, .1; Movento + Penetrator, .1; Movento + Break-Thru, .2; Clutch, 1.2; Assail, .1.

No berry scarring was noted with any of the adjuvants. The number of infested clusters per 10 sampled was 9.5, 2.75, 0.5, 0.75, 1.5, 5.75, and 1 for the Untreated, Movento, Movento + Dyne-Amic, Movento + Penetrator, Movento + Break-Thru, Clutch, and Assail, respectively. The results are presented in Figure 5. Each of the Movento treatments and the unregistered 2 ounce rate of Assail was significantly better than the Untreated and Clutch treatments. Although the number of infested clusters was not significantly different between the Clutch and untreated Check, the severity of that infestation was significantly less in the Clutch treatments.

Summary

There are a number of very effective insecticides available for management of vine mealybug. Those focused on in these studies are considered reduced risk with short reentry intervals and greater worker safety. When properly timed and used at correct rates, they are as effective as products such as chlorpyrifos and methomyl. The two systemic insecticides, applied through drip irrigation systems, Admire Pro and Platinum, are equally effective while trials have shown Venom to be ineffective. Each of these products are neonicitenoid compounds and care must be taken to avoid insecticide resistance through over use. Previous studies have shown that Admire applied in late April or May performed best. Preliminary results indicate the same timing would also effective when using Platinum.

Fortunately, two other classes of insecticide have also given excellent results. These include the insect growth regulator, Applaud, and the newly registered tetramic acid compound, Movento. Based on work done in 2007, Applaud would require 2 applications of 12 ounces each to be equal to a single application of 8 ounces of Movento. Additionally, Applaud applications must be timed to the immature stage of vine mealybug when moving to leaves. Studies in 2008 indicate this movement occurs in late April or early May. When Applaud is applied to more mature stages, after June, it is less effective. These two insecticides can be rotated with each other and resistance should not develop because they posses different modes of action. Also, if on a drip irrigation system, either Admire or Platinum, but not both, could be utilized in a rotation with both Applaud and Movento.

Movento has the benefit of systemic activity. It is applied as a spray to leaves and, when taken into the phloem is transported throughout the plant, eventually reaching the xylem tissue. Mealybugs are phloem feeders and the initial movement into the phloem appears to benefit activity. Preliminary results show that applica-

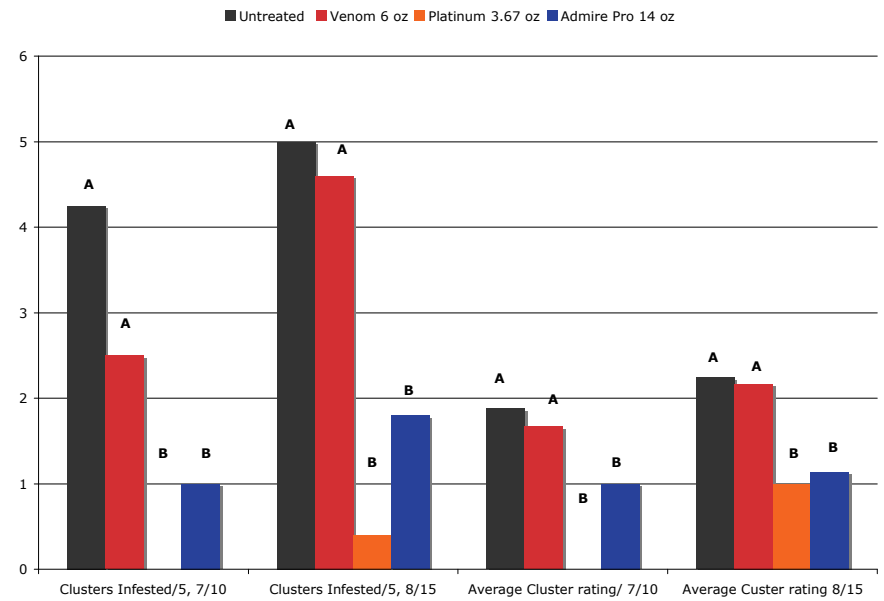

Figure 3. Influence insecticide application on vine mealybug cluster infestation and severity, Del Rey, CA, 2008.

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Vine Mealybug

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tion in June provides greater residual control than one applied in May.

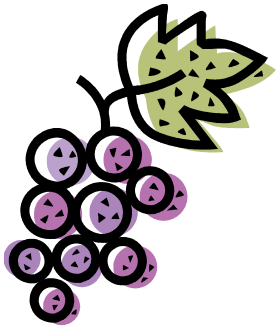
Two other neonicitenoids sprays were evaluated in 2008. Assail was applied above the label rate, at 2 ounces per acre instead of 1 ounce per acre. At this currently unregistered rate, it provide effective quick kill of vine mealybug. Clutch, also gave quick kill but did not give residual control.

I believe we have insecticides that can effectively manage mealybugs in grapes but care must be taken in their use. Proper timing is critical and rotation will be necessary, just as with fungicides for powdery mildew. If resistance to these insecticides develops, grape growers will no longer be able to manage vine mealybug.

For more information on pest management guidelines visit the UC IPM website at:

http://www.ipm.ucdavis.edu.

Walt Bentley is a UC IPM Entomology Advisor at UC Kearney Agricultural Center.



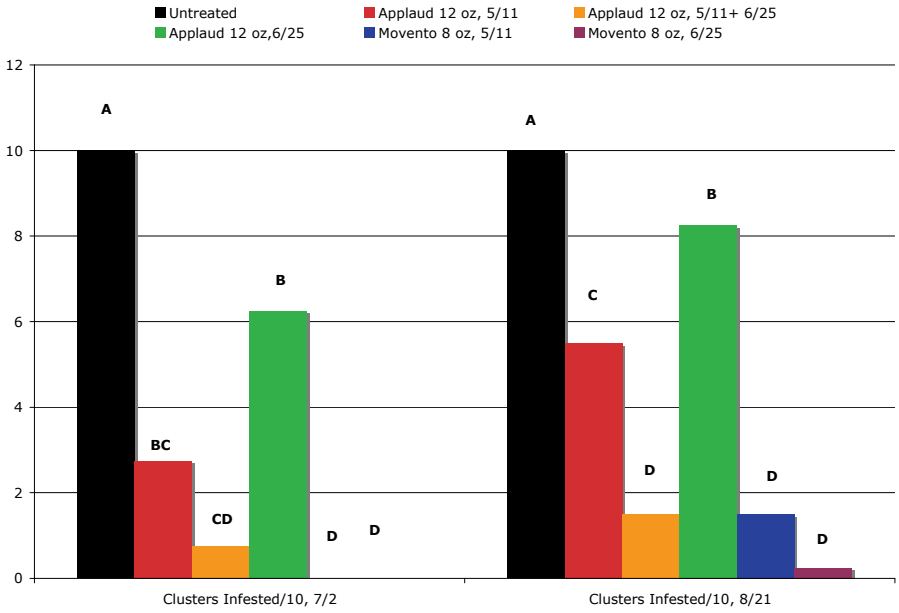


Figure 4. Efficacy of two insecticides on vine mealybug cluster infestation, Fowler, CA, 2007.

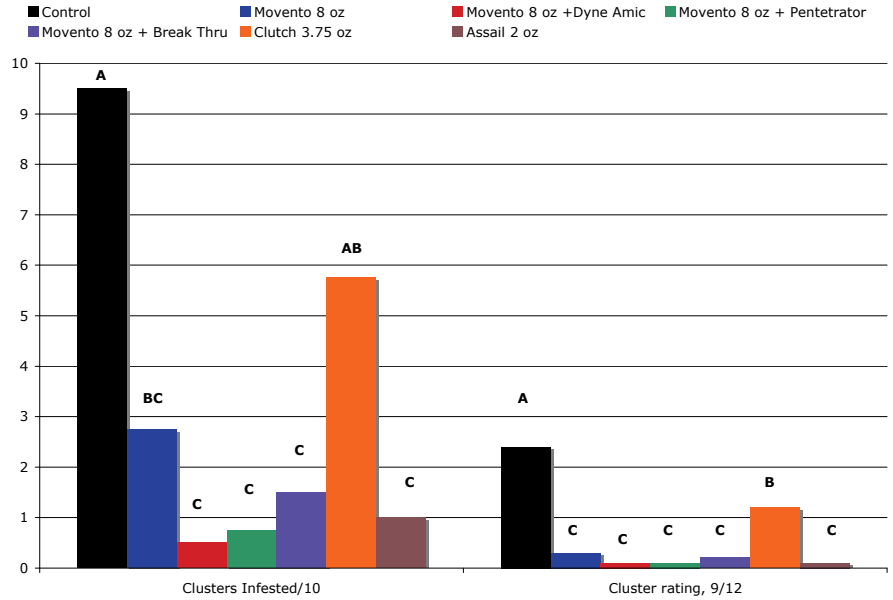


Figure 5. Efficacy of various insecticides on vine mealybug cluster infestation and severity, Kearney Ag Center, 2008.

$10.9 Million To Help Agriculture Reduce Air Quality Emissions

USDA Now Taking Applications for Practices to Reduce Ozone and Particulate Matter

Farmers and ranchers interested in reducing air quality emissions from off-road mobile or stationary agricultural sources are invited to apply between **April 30 and June 26, 2009**, for funds made available under a new air quality provision of the 2008 federal Farm Bill.

"The primary goal of this new portion of the Environmental Quality Incentives Program (EQIP) is to help farmers and ranchers attain the standards set by the National Ambient Air Quality Standards (NAAQS). Producers in the 36 California counties that are currently not in compliance with one or more of these standards can apply for this program to improve California's air quality," said Lincoln "Ed" Burton, California State Conservationist for USDA's Natural Resources Conservation Service (NRCS). Burton added that producers in all California counties will continue to be encouraged to do air quality conservation, working through the Agency's technical assistance and regular EQIP allocation. NRCS and agricultural producers in California have spent over $73 million on air quality projects funded through EQIP since 1998.

Statewide there are 36 counties eligible to use the new funds to help achieve compliance with the ambient air quality standards for 8-hour ozone and PM10 and PM2.5 (particulate matter smaller than 10 and 2.5 microns, respectively). The eligible southern San Joaquin Valley counties are: Fresno, Kern, Kings, Merced, Madera and Tulare.

NRCS has worked with academic, conservation, regulatory and industry groups to identify agricultural practices that will reduce ozone precursors [oxides of Nitrogen (NOx) and Volatile Organic Compounds (VOC)] and particulate matter [respirable (PM10) and fine (PM2.5)] emissions from agricultural sources. Applications will be ranked according to the amount of emission reductions achieved in the proposed plan.

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For the complete list of practices and for information on how payments will be calculated see: www.ca.nrcs.usda.gov/programs/eqip/2009/index.html or visit with your local NRCS conservationists.

Interested applicants in eligible counties should contact their local NRCS service center. A list of offices is available at: http://offices.sc.egov.usda.gov/locator/app?state=CA

For additional information, growers can contact Anita Brown 530-792-5644 or Alan Forkey 530-792-5653 or Ted Strauss 559-252-2191.

International Table Grape Symposium to be held in California

The 6th International Table Grape Symposium Organizing Committee has been hard at work making arrangements for our upcoming meeting in California in 2010. The symposium will be held at the University of California, Davis in Davis, California from Thursday, June 24 through Saturday, June 26, 2010. A technical tour will follow the meeting from Monday, June 28 through Wednesday, June 30, 2010.

At this time we would like to invite you to view our website where you will find important information regarding the upcoming meeting, including Key Dates, Program details, the Call for Abstracts, Poster Format Instructions, Registration and Hotel details (will be available early 2010), Location, opportunities for sponsorship and other information. In addition, we encourage you to view and complete the Statement of Interest Survey as soon as possible so we can make arrangements to accommodate all potential participants. Please check the website frequently, as we will continue to update the information as the planning process continues. Periodically, we will email the entire group when major updates (ie registration) occur.

The website can be found at: http://groups.ucanr.org/GoGrapes2010

For questions about the symposium, please contact Jennifer Hashim-Buckey or Stephen Vasquez at:

Conference email: 6thinttablegrapesymposium@gmail.com.

Calendar of Events

Local Meetings and Events

UC Grape Day
August 11, 2009
7:00 a.m.—12:00 pm
Kearney Agricultural Center
9240 S. Riverbend Ave.
Parlier, CA 93648
Contact: Matthew Fidelibus at (559) 646-6500

Soil Microorganisms and Vineyard Health
May 20, 2009
10:00 AM-12:00PM
$10 includes lunch
Fresno County Farm Bureau Office
1274 W. Hedges Avenue - Fresno, CA
Contact: Jon Holmquist at (559) 661-5539

U.C. Davis University Extension Meetings

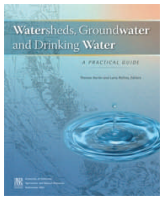
(800) 752-0881

Winegrape Irrigation: Principles, Practices and Consequences
June 24,2009
9:00 a.m. — 4:00 p.m.
Sensory Theater, Robert Mondavi Institute for Wine and Food
Davis, CA
Instructor: Terry Prichard
Section: 091VIT213

Winegrapes: Identification and Use
August 10-11, 2009
8:30 a.m.— 4:00 p.m.
Plum, DANR Building, 1 Hopkins Rd.
Davis, CA
Instructor: Andrew Walker
Section: 091VIT216

Introduction to Wine Analysis: Small Scale
September 12, 2009
8:00 a.m. — 6:00 p.m.
1127 North, Robert Mondavi Institute for Wine and Food
Davis, CA
Instructor: Michael Ramsey
Section: 09VIT223

Publications from the University of California



Watersheds, Groundwater and Drinking Water: A Practical Guide
ANR Publication 3497
Price - $40.00 + tax and shipping

This handy guide is a "must-have" for environmental scientists, water technicians, educators, and students. Water shed and groundwater hydrology fundamentals are discussed.

Songbird, Bat, and Owl Nest Boxes
ANR Publication 21636
Price - $15.00 + tax and shipping

This guide explains the benefits of the biodiversity and aesthetics of songbirds, bats and owls. Methods on how to integrate nest boxes within a vineyard are discussed.

Order Form

Publication	Qty.	Price	Subtotal
Watersheds Guide		$ 40.00	
Songbird, Owl Boxes		$ 15.00	

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$100+	$15

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Vine Lines

Produced by U. C. Cooperative Extension Farm Advisor Stephen J. Vasquez. Contact me for further article information, or to be added to the mailing list.

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