

Vineyard Views

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Vine Mealybug – Little Good News

Vine mealybug has been spreading in California vineyards since the early 1990's. First found in Napa County two years ago, vine mealybug (VMB) has now been found in almost thirty Napa vineyards. Most of these infestations originated with contaminated Central Valley nursery stock planted here in 1998-2003. Nurseries have since implemented control measures that should greatly reduce the chances for further introductions like these. However, even without additional introductions, there is still considerable risk of vineyard to vineyard spread within Napa County. Already this year we have found new infestations that are likely due to natural spread from neighboring vineyards. Growers and wineries need to remain vigilant in detection and management efforts to limit further spread of vine mealybug within Napa County.

Detecting vine mealybug in vineyards is difficult. Pheromone traps are an excellent tool to help determine if vine mealybug is present in a general area, but expert training is needed for proper identification of the tiny males that may appear in a trap. Only male mealybugs have wings and can fly. The females (which cause all of the damage) are wingless and move by walking, but they can also be spread by people and equipment, and may be blown to a new site with strong winds. Because male mealybugs can be caught in pheromone traps from possibly as far away as a mile, considerable field work is needed following a trap catch to locate the actual infestation in a vineyard. Mealybugs like to hide under the bark and in protected places, so until their numbers get high and damage becomes evident, they are difficult to detect. It may take months between the time males are detected in a trap and nearby vines are found with female mealybugs.

Thanks to local funding from the Napa Valley Vintners, Napa Valley Grape Growers Association, Napa County Farm Bureau and the Napa County Board of Supervisors, a county-wide trapping and detection program was implemented in 2004 by our Agricultural Commissioner Dave Whitmer. This follows focused trapping programs in 2002 and 2003 that targeted high risk (recently planted) vineyards. In 2004, all of Napa's vineyards are being trapped with a frequency of 7 traps per square mile, and urban areas with 1 trap per square mile – a total of nearly 1,000 traps in all. Additional trapping is being done around known infestations and by individual growers and organized neighborhood groups.

Already in 2004, several new infestations have been found. However, vine mealybug populations peak in the fall, with the greatest number of males being trapped in September and October. Therefore, we may still find additional infestations with the county-wide trapping program this year. By November, we should have a much better indication of where VMB is within the county.

Although we may have already found most of the infested sites within Napa County, there is still considerable risk of vineyard to vineyard spread. Because of the sticky honeydew they produce, mealybugs can easily get stuck to people, picking pans, tractors and other things that travel from vineyard to vineyard. There is some concern that birds could also facilitate spread when they feed in vineyards close to harvest.

While there has been spread within vineyards due to farming practices, most of the vineyard to vineyard spread we have seen so far appears to be due to wind. The sites where we think this has occurred do not share field crews or equipment, but are downwind of infestations that have been present for several years. Wind-blown movement of mealybugs is the most likely explanation. This could occur with mealybugs stuck on detached leaves that blow across property lines, or from individual mealybugs drifting with strong winds. Either way, this type of spread is more likely to occur in the late summer or fall when populations are highest. This is why an insecticide application immediately after harvest (Lorsban is the preferred material) is highly recommended. It will help lower populations on the leaves and greatly reduce the risk for this type of spread.

Some good news is that most growers are treating existing infestations to try to eradicate them, and are managing their equipment and work force to try to minimize spread. They are working closely with the Agricultural Commissioner and are implementing control strategies based on the latest information from University of California researchers. In a few locations, the combination of insecticide applications and some vine removal appear to have been very effective, and we are not finding female mealybugs this year.

However, in other sites with similar treatment regimes, mealybugs are still present. If our treatment protocols are unable to eradicate vine mealybug from more vineyards, it suggests that more and more acreage will need to be treated with multiple insecticides each year in order to manage this pest. This certainly flies in the face of our efforts towards more sustainable farming practices in Napa County.

At the Napa Valley Viticultural Fair on Nov. 16, 2004 (see page 4), we will have a seminar on vine mealybug with the latest information. We will have September and October trap catch information to share, along with an update on how many infested sites there are in Napa County. In addition, Dr. Kent Daane will report on research into mating disruption and biological control, both of which hold some promise for a more sustainable control strategy for vine mealybug.

For more information regarding vine mealybug, contact my office or visit my website: <http://cenapa.ucdavis.edu/>.

Berry Shrivel – Studies Ongoing

Berry Shrivel is the name currently being used for a cluster disorder that appears just before harvest. Berries on affected clusters are flabby (eventually looking like deflated basketballs), the juice is watery and sour with no apparent sugar, and there is often an off-flavor. Berries also may have less color than healthy fruit. On a given vine, usually only a few clusters will show symptoms. Often, a single shoot will have one healthy cluster and one cluster with Berry Shrivel. Vines otherwise appear healthy and normal. We see this problem most commonly in Cabernet Sauvignon, but it also appears in Sauvignon blanc and other varieties.

Berry Shrivel usually gets noticed once winemakers or sugar samplers are in the vineyard tasting fruit. Once detected, vintners will often make a pass through the vineyard just ahead of the harvest crew to drop this fruit due to its low sugar content and off-flavored juice. Otherwise, these clusters will likely be picked along with the rest of the crop. However, affected clusters can be difficult to identify. The color reduction is usually subtle and hard to observe within the vine’s canopy, and the amount of obvious shrivel can vary considerably among clusters. Often, the flabby feel of the clusters is the best characteristic for a crew to look for. Tasting the fruit is the final arbiter.

This disorder is distinct from bunch stem necrosis (BSN), another problem that appears close to harvest. In BSN, the cluster stem (rachis) dries and the berries dry to raisins. This may occur to the whole cluster, or just to portions of it (often the tip). BSN leads to crop loss, but the fruit is less of a concern with respect to wine quality. Affected portions often wither away before harvest, while whole clusters are obviously dry and pickers usually leave them on the vine.

Waterberry is a term that accurately describes the nature of Berry Shrivel fruit, but waterberry is a synonym for BSN. In the San Joaquin Valley, BSN is usually called waterberry. In BSN/Waterberry, the rachis dries and turns brown. With Berry Shrivel, the rachis remains green and apparently functional. The table below compares some of the clusters characteristics of Berry Shrivel and BSN/Waterberry. To see images of these disorders, visit my website: <http://cenapa.ucdavis.edu/>.

<u>Berry Shrivel</u>	<u>Bunch Stem Necrosis / Waterberry</u>
<ul style="list-style-type: none"> • Rachis remains green; appears normal • Berries are flabby, but still have juice • Berries juicy; tastes watery and sour 	<ul style="list-style-type: none"> • Rachis is brown, dry, necrotic • Berries turn to raisins • Little juice; tastes pruney, overripe

The cause of these disorders is not currently known. Efforts are currently underway to study Berry Shrivel in more detail. **Please contact me if you find Berry Shrivel in your vineyard!** We are looking for more cases of this disorder to provide us with fruit samples. Dr. Mark Matthews and Dr. Doug Adams from UC Davis have ongoing studies funded by the American Vineyard Foundation (AVF) to try to determine the cause of Berry Shrivel using fruit from UCD’s Oakville Experimental Vineyard, from vines identified by Jason Benz. Your fruit could help in this effort. In addition, Rhonda Smith and I are hoping to document how common this problem is in Napa and Sonoma counties.

Napa Valley Viticultural Fair

When: **Tuesday, November 16, 2004** **9:00 a.m. – 5:00 p.m.**
Where: Napa Valley Exposition, Napa

Mark your calendars now for the eighth Napa Valley Viticultural Fair at the Napa Valley Exposition. This year's event will feature over 100 vendors and agencies providing products and services to winegrape growers. Included will be vineyard equipment dealers, trellis suppliers, compost and fertilizer products, grapevine nurseries, and more. This is a great opportunity to get new ideas, interact with colleagues and visit with friends. Lunch will be available on site with proceeds supporting Napa County 4-H clubs and programs. Admission is only \$5. Two educational seminars will be presented:

Viticultural Fair Seminars

Free with fair admission of \$5. Continuing education credits have been applied for.

10:00-11:00 am

GMO Grapevines: Benefits and Risks

Andy Walker, UC Davis Viticulture and Enology

Grapevines have been genetically modified for thousands of years yielding the varieties and rootstocks in use today. Modern biological technology promises significant improvements in the near future. GMO grapevines could resist diseases and insect pests, have improved fruit quality, and eliminate the need for pesticides. However, their use also raises significant concerns about consumer acceptance and environmental consequences. At this seminar, we will discuss the outlook for GMO grapevines and where they are used today.

1:30-2:30 pm

Vine Mealybug in Napa County: How Bad Is It?

Ed Weber, UC Cooperative Extension, Napa County

Kent Daane, UC Cooperative Extension, UC Berkeley

Dave Whitmer, Napa County Agricultural Commissioner

Hear the latest about vine mealybug distribution and spread in Napa County, as well as research looking into effective control measures. Current efforts in Napa County have aimed for eradication through insecticide applications. Are they working? What about more sustainable approaches such as mating disruption? Find out at this important seminar.

Measles Symptoms Prevalent This Year

Measles, also known as Black Measles or Esca, is a disease we still do not fully understand. Recent AVF-funded research by Dr. Doug Gubler at UC Davis suggests that it may be caused by one or more of the fungi associated with young vine decline. It is believed that these fungi enter vines through pruning wounds, grow slowly and eventually produce toxins that are responsible for measles symptoms. These symptoms include a striking pattern of leaf chlorosis and burning - a symptom that is often confused with Pierce's disease. In addition, grape berries may develop purplish spots (measles), and often the clusters completely wither away. Images are available at the UC IPM website: <http://www.ipm.ucdavis.edu/>. Symptoms are sporadic, often appearing only on some shoots within a vine, and only on scattered vines within a block. Some shoots may have both leaf and fruit symptoms, while other shoots might have only one or the other. There is also considerable year to year variation. A symptomatic vine may appear normal the following year, but again show symptoms at a later date. 2004 is turning out to be a good year for expression of measles symptoms. I am seeing disease vines in many blocks that I look at. There are currently no recommendations for treatment or prevention of measles. Dr. Gubler's research may help us develop control strategies in the near future.

Post-Harvest Vineyard Care

Irrigation after harvest should be a standard practice in most vineyards if water is available. As long as vines have functional leaves, they will continue to photosynthesize and produce carbohydrates. Fall water stress will lead to early leaf fall and reduced carbohydrate storage. Carbohydrates produced in the fall will support fall root growth, with excess being stored in the roots, trunks and canes. Stored carbohydrates are responsible for the vine's winter cold hardiness, and are utilized in spring for early growth until the new canopy is large enough to become self-sustaining.

Apply water at rates to maintain the existing canopy, but do not stimulate new vegetative growth. New growth will utilize carbohydrates and is unlikely to become sufficiently hardy to survive low temperatures during winter.

Nitrogen may be applied with the first post-harvest irrigation if needed. Studies have shown that nitrogen is taken up in the fall and will be utilized next spring. Be careful to use a low rate in order to avoid stimulating new growth or causing nitrogen to leach from the vineyard with winter rains. Lime, gypsum, potassium and phosphorous may also be applied in the fall in anticipation of winter rains to move them into the soil profile.

New Online Guide to Healthy Lawns Available from UC IPM

The University of California's Statewide IPM Program has added the UC Guide to Healthy Lawns to its website (www.ipm.ucdavis.edu). Developed for home gardeners and turf managers, this site shows you how to establish a vigorous lawn and maintain it with an environmentally friendly lawn care program.

Recommended Reading:

The Winemaker's Dance - Exploring Terroir in the Napa Valley

Jonathan Swinchatt and David G. Howell

UC Press. \$34.95. <http://www.ucpress.edu>

This is an engaging book that describes the geology and soils of Napa Valley and how they may influence wine quality and style. It includes numerous interviews with local growers and winemakers, as well as a wide array of remarkable graphics and images. While written for a general wine audience, it is especially relevant to those of us living here. Available through UC Press and at local book stores.

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