



Mark Battany
Viticulture/Soils Farm Advisor

2156 Sierra Way, Suite C
Phone 805-781-5948

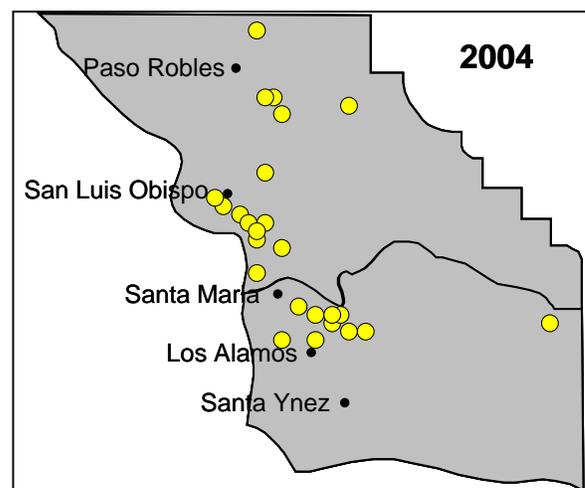
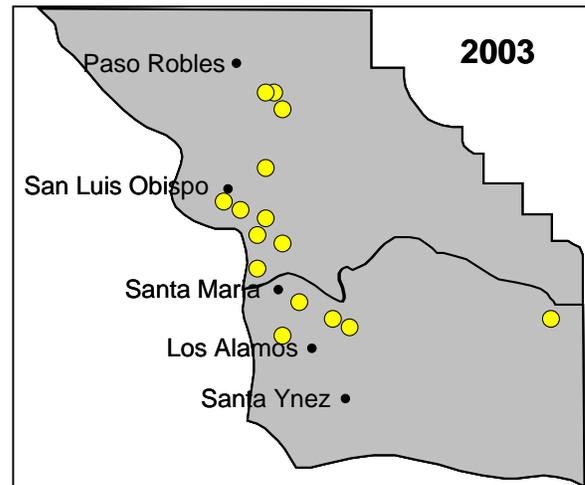
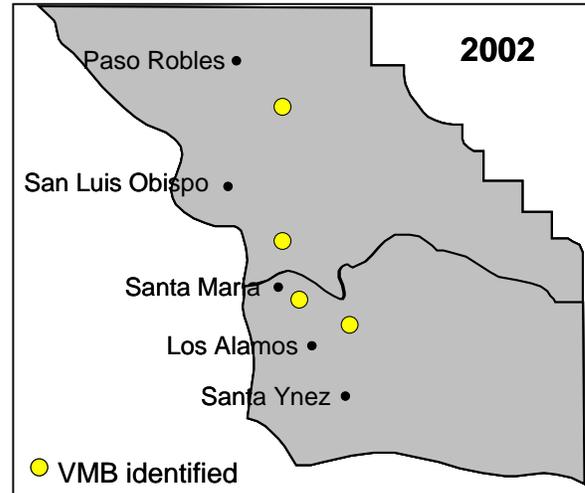
San Luis Obispo, CA 93401
Fax 805-781-4316

Vine Mealybug Update

In 2004 the vine mealybug continued to be found at additional new vineyard sites in San Luis Obispo and Santa Barbara Counties. The majority of the currently known infestations are located in the coastal areas including the Edna Valley, Arroyo Grande Valley, and Santa Maria Valley. The greater Paso Robles area is seeing an increasing number of infestations, while so far no infestations have been identified in the Santa Ynez Valley. The three figures to the right show the approximate locations where the vine mealybug has been found in San Luis Obispo and Santa Barbara Counties from 2002 until 2004.

In 2002, eradication of the pest from the limited number of known infestations appeared to be a sensible and attainable goal; affected growers responded with treatments towards this end, using measures ranging from heavy insecticide applications to completely removing infested vines. However, in 2003 and 2004 a considerable number of new infestations were located, many having been found through the use of the newly available pheromone monitoring traps. By late 2003, it had become obvious from the total number of infestations that eradicating the pest from this area was no longer an achievable option.

For 2005 and beyond, a more realistic goal given the current conditions will be to prevent all possible spread of the pest to non-infested regions, and to reduce the extent and severity of known infestations in the most sustainable manner possible, both environmentally and economically. There is a great deal of economic incentive to find all



new infestations as soon as possible, and to treat them promptly and thoroughly. The use of the pheromone traps to help locate new infestations needs to become a routine management practice; the economic and management consequences of finding infestations later rather than earlier are tremendous. Vine mealybug pheromone traps will be available for distribution at a series of upcoming tailgate meetings in May; dates and locations are announced on **page 13** of this newsletter.

Syrah Disorder – Overall summary of 2004 research

2004 research attempted primarily to determine if excessive water stress might be responsible for the expression of the Syrah Disorder symptoms. Additional research looked at the effect of crop load, foliar phosphorous nutrition, and the presence of any detectable viruses related to the disorder symptoms.

A first objective of the research was to determine if the disorder symptoms could be correlated to specific levels of water stress. Irrigation treatments at the primary Paso Robles site did not correlate to the red leaf symptoms that began appearing in July; however, this planting was later diagnosed with leaf roll virus. Irrigation treatments at a San Miguel site did see greater red leaf symptoms in the driest treatment. Irrigation treatments at the second Paso Robles site were inconclusive, due to irrigation being terminated early in the season before treatments were applied; however, strong leaf burn symptoms, with little reddening, were noted in this planting in areas of high soil salinity. At a Creston site, little or no red leaf symptoms were seen. At a Santa Ynez site where crop load effects were studied, the Syrah that was notably symptomatic with red leaf by harvest in 2002 and 2003 showed no red leaf at harvest in 2004; the block received double the summer irrigation in 2004 as in previous years. However, this dramatic change in canopy color did not improve crop quality; the fruit continued to suffer from the poor color and high pH as in the past. After harvest, the red leaf symptoms appeared again.

A second objective of this research was to determine if measurable vine stress parameters could be associated with the onset and expression of the disorder symptoms. Measurements of leaf water potential and stomatal conductance, and automated measurements of trunk sap flow were made at the primary Paso Robles site. As no correlation with the red leaf symptoms was seen with the irrigation treatments at this site, it was not possible to determine what level of stress might cause the disorder to appear.

A third objective of this research was to determine if Syrah in California exhibited the same type of unusual drought response as has been recently documented in Europe. Automated measurements of trunk sap flow and manual porometer measurements at the two Paso Robles sites and the Creston site supported the same type of drought response behavior for Syrah in California, which suggests that Syrah has less drought tolerance as compared to other common varieties. Example data of trunk sap flow for Cabernet and Syrah are shown on **page 4**; Cabernet displays a notable reduction in sap flow relative to ETo during the afternoon, an indication of significant stomatal closure, while Syrah maintains more constant sap flow relative to ETo, indicating less stomatal closure and more transpiration of water.

Three additional objectives in 2004 included a determination of the effect of crop load, foliar phosphorous nutrition, and the presence of identifiable viruses on the disorder expression. The crop load effects were tested at a Santa Ynez vineyard; no differences in red leaf symptoms were noted for vines at three levels of crop load. Likewise, no visual differences in symptom expression were noted for vines at four sites that received two foliar P applications in late July. Finally, of the 20 symptomatic plantings tested for viruses, only three were positive for leaf roll virus; other viruses were present in minor amounts and were likely not responsible for the visible symptoms (see Table 1 below).

In summary, the 2004 work supported the unusual drought response mechanism of Syrah. The expression of the Syrah Disorder symptoms were correlated to reduced irrigation amounts at some, but not all, sites, while high salinity conditions did lead to significant canopy scorch at one site. It was not possible to correlate disorder symptoms to specific vine stress measurements at the primary research site, but the presence of leaf roll virus at this site likely affected the results. Reduced crop load and foliar P did not alleviate the symptoms. The presence of identifiable viruses appeared to play a role at a few sites, however most symptomatic vines tested negative for known viruses. Photographs of 2004 Syrah symptoms are on pages 5-10.

Some of the subjects that have been proposed for research in 2005 include:

- Continue water-stress evaluation on expression of Syrah disorder symptoms, at sites without known viruses;
- Evaluate the role of soil salinity on the disorder expression;
- Determine if the presence of fungal pathogens is correlated with symptoms;
- Survey visual symptoms, juice chemistry, and viral status of symptomatic and non-symptomatic Syrah plantings;
- Continue cooperation with staff pathologists in detailed viral surveys.

Table 1. 2004 Syrah Virus Testing

Sampled vines had red leaf / leaf roll type symptoms.
Testing by PCR, commercial lab 16-panel

Location	Virus			
	GLRaV-2	GVA	GRSPaV	GFKV
Paso Robles 1	NEG	NEG	POS	NEG
Paso Robles 2	NEG	NEG	POS	NEG
Paso Robles 3	NEG	NEG	POS	NEG
Paso Robles 4	NEG	NEG	NEG	NEG
Paso Robles 5	NEG	NEG	POS	NEG
Paso Robles 6	NEG	NEG	NEG	NEG
Paso Robles 7	NEG	NEG	POS	NEG
Paso Robles 8	NEG	NEG	NEG	NEG
Paso Robles 9	NEG	NEG	NEG	NEG
Paso Robles 10	NEG	NEG	POS	NEG
Santa Ynez 1	NEG	NEG	NEG	NEG
Santa Ynez 2	POS	NEG	NEG	POS
Santa Ynez 3	POS	POS	NEG	POS
Santa Ynez 4	NEG	NEG	NEG	NEG
Santa Ynez 5	POS	NEG	POS	NEG
Santa Ynez 6	NEG	NEG	POS	NEG
Edna Valley 1	NEG	NEG	POS	NEG
Edna Valley 2	NEG	NEG	POS	NEG
Edna Valley 3	NEG	NEG	NEG	NEG
Edna Valley 4	NEG	NEG	NEG	NEG

GRLaV-2	Grapevine leaf roll 2
GVA	Grapevine virus A
GRSPaV	Ruspestris stem pitting
GFKV	Fleck virus

Figure 1. Trunk sap flow and ETo; Cabernet 2003, three weeks before harvest

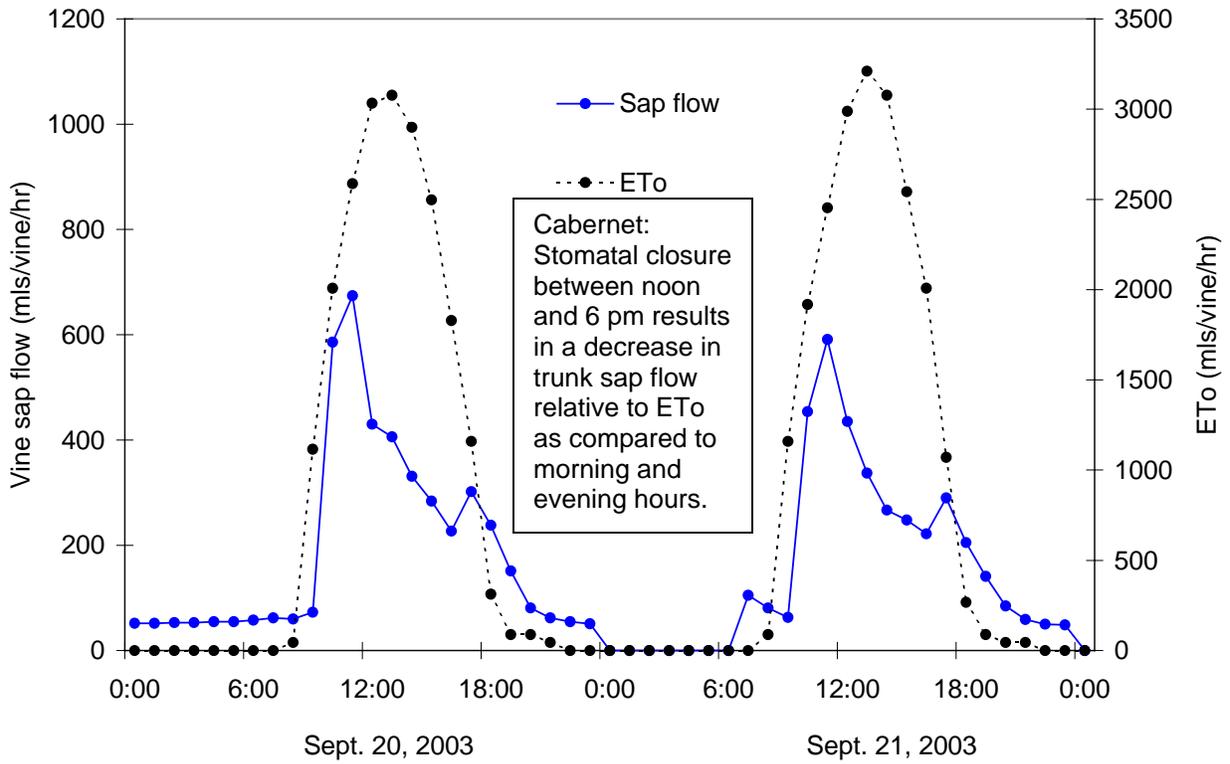
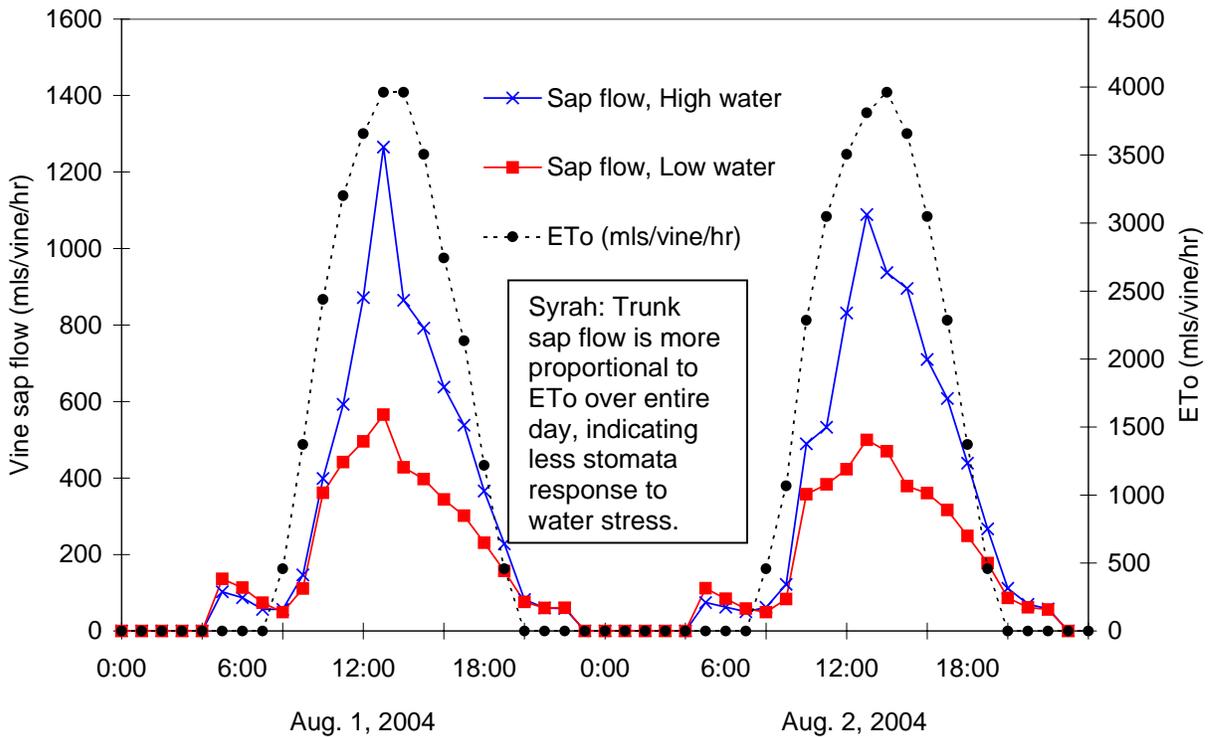


Figure 2. Trunk sap flow and ETo; Syrah 2004, two weeks before harvest





Variety of Syrah Disorder leaf symptoms:

A sample of the different leaf symptoms seen in July 2004. Photographs A and D are the most typical; B and C are less common. In photograph C, there is a deep necrosis between the leaf veins. This variety of leaf symptoms may indicate that there is more than one cause contributing to the Syrah problems that we are observing.



Virus-like Syrah symptoms:

Many plantings of Syrah show these leaf-roll like symptoms in the fall. Generally viruses are not identified when samples are submitted for laboratory testing. This suggests that there may be a strain of virus common to our local Syrah for which we do not have the necessary identification primers yet.



Salt effects:

The Syrah/5c rootstock where these two photographs were taken has a high salt content in both the soil and irrigation water (primarily sodium and bicarbonate). These leaf burn symptoms, which first began to appear at the end of August, are due primarily to the high salinity. Some other Syrah vineyards that initially show red-leaf symptoms will often have additional burning symptoms like these in addition to the red leaf.



Irrigation effects:

In above photograph, the green shoots on the left are from Syrah on 110R rootstock that received high irrigation amounts, while the red shoots on the right are from vines that received low irrigation amounts. This photograph was taken in September at harvest. The photograph on the right was taken in October; by this time the entire planting had these leaf-roll like symptoms.



Irrigation effects:
The picture on the right was taken after the 2003 harvest. In 2004 the Syrah/5c received double the normal summer irrigation, and the canopy remained fully green until harvest. After harvest, the canopy started to turn red again. Fruit quality (especially color) did not improve in 2004.

2003 Harvest



2004 Harvest



Note: This block received double irrigation in 2004 because interplants (in tubes below) and extra emitters were placed between the existing Syrah vines in spring.



Herbicide damage:

The above Syrah/101-14 rootstock likely received a double-rate of herbicide by mistake. On the left, the cambium tissue has been completely killed off. On the right, these types of deep wounds were seen all the way up the trunk on many vines in the block. Below are similar deep wounds that have been seen in other Syrah plantings in a variety of areas; it is not known if Syrah is more sensitive to herbicide damage as compared to other varieties.



USDA Farm Service Agency Designates Central Coast Counties as Disaster Areas due to 2004 heat

San Luis Obispo County was designated as a primary disaster area due to heat and subsequent fruit drop that occurred from April 23, 2004 through August 25, 2004. Also eligible because they are contiguous are Kern, Kings, Monterey and **Santa Barbara** Counties.

These counties were designated on **Feb. 24, 2005**, making all qualified farm operators eligible for low-interest emergency (EM) loans from the Farm Service Agency (FSA), provided eligibility requirements are met. Farmers in eligible counties have **eight months** from the date of the declaration to apply for loans to help cover part of their actual losses. FSA will consider each loan application on its own merits, taking into account the extent of losses, security available and repayment ability. FSA has a variety of programs available, in addition to the emergency loan program, to help eligible farmers recover from adversity.

Contact the local office of the FSA for more information:

USDA FSA Service Center Office <http://disaster.fsa.usda.gov>
65 South Main St., Ste. 106
Templeton, CA 93465-8703
(805) 434-0396
(805) 434-0284 fax

Western SARE Farmer/Rancher Grant Program

With a Farmer/Rancher Grant, one or more agricultural producers develop a proposal to conduct research and/or on-farm demonstrations and educational outreach in an area of sustainable agriculture. The goal is to achieve results that can be communicated to producers and professionals - information that can improve income, the environment, communities and quality of life for all citizens.

Individual farmers may apply for up to \$10,000 and a group of three or more farmers may apply for up to \$20,000. Producers use their grants to conduct on-site experiments that can be shared with other producers. Projects may also focus on marketing and organic production.

Farmer/Rancher Grant funds may be used for the following purposes:

- Cost of sampling, sample analysis and market surveys
- Materials and supplies needed for the project
- Outreach expenses such as holding a field day
- Travel needed for the project
- Hired labor for things that you can't do yourself
- Your labor for project activities beyond your normal farming duties

For more information, contact the Western SARE office at the University of Utah at (435) 797-2257, or see the website at:

<http://wsare.usu.edu/>

Conversion to electronic newsletter and meeting announcements

In order to serve you more promptly and to reduce our mailing costs, my Cooperative Extension program is converting from printed mailings to electronic document delivery. This will improve my ability to get important information to you in a timely manner, while helping my program operate within a tighter budget.

In order for you to receive my free Grape Notes newsletters and local meeting announcements electronically, you must sign up online, at the following website:

<http://cesanluisobispo.ucdavis.edu/newsletterfiles/newsletter363.htm>

You will be notified automatically by email whenever a new newsletter or meeting announcement is available, and will be able to access the document online. This will also allow me to improve the quality of the information in the future by including color graphics and photographs.

Please note that if you do not have access to the Internet for any reason, I will make printed copies of all mailings available to you; please contact me if you desire this service. Keep in mind that there is a significant delay with printing and mailing times.

If you have any questions regarding this free service, please contact me at 781-5948 or mcbattany@ucdavis.edu.



University of California Cooperative Extension

Tailgate Meeting Announcement

Division of Agriculture & Natural Resources

County of San Luis Obispo

2156 Sierra Way, Suite C
Phone 805-781-5940

San Luis Obispo, CA 93401
Fax 805-781-4316

Trapping for the vine mealybug

What: Brief (30 min.) tailgate meetings will explain how to use the pheromone traps for locating new infestations of the vine mealybug. The local vine mealybug situation and current treatment recommendations will also be discussed. Free traps and pheromone lures will be available at each meeting.

When: See the dates and locations listed below; there is no need to register, just show up at the hour listed at the most convenient location & time for you.

May 3, 2005 – San Luis Obispo County

9:00 am – Eastside Paso Robles: J. Lohr Vineyard,
Directions: North from Paso Airport on Airport Rd. to Tower Rd., east on Tower Rd. ¼ mile.

11:00 am – Westside Paso Robles: Halter Ranch Vineyards, 8910 Adelaida Rd.
Directions: West from Paso Robles on Nacimiento Lake Dr. to Adelaida Rd., meet at vineyard office.

1:00 pm – Arroyo Grande Valley: Talley Vineyards, 3031 Lopez Dr.
Directions: South from San Luis Obispo on Orcutt Road, left on Lopez Dr ¼ mile, meet in parking lot east of winery.

May 4, 2005 - Santa Barbara County

9:00 am – Santa Maria: Sierra Madre Vineyard, 2570 Prell Rd.
Directions: East on Betteravia to Telephone, South on Telephone to Prell (at stop sign), turn left; meet at office parking lot.

11:00 am – Los Olivos/Santa Ynez: Bridlewood Winery, 3555 Roblar Avenue
Directions: From Hwy 101, exit South on Hwy 154; turn east on Roblar Avenue

1:00 pm – Lompoc: Huber Vineyard, 4892 Hapgood Rd.
Directions: East of Lompoc on Hwy 246 to Hapgood Rd., just south of Melville Vineyards



Note: Trade names may be used to simplify the information presented. No endorsement is intended nor is criticism implied of similar products not mentioned.
The University of California prohibits discrimination against or harassment of any person employed by or seeking employment with the University on the basis of race, color, national origin, religion, sex, physical or mental disability, medical condition (cancer-related or genetic characteristics), ancestry, marital status, age, sexual orientation, citizenship, or status as a covered veteran (special disabled veteran, Vietnam-era veteran or any other veteran who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized). University Policy is intended to be consistent with the provisions of applicable State and Federal laws. Inquiries regarding the University's nondiscrimination policies may be directed to the Affirmative Action Director, University of California, Agriculture and Natural Resources, 1111 Franklin Street, 6th Floor, Oakland, CA 94612-3560 (510) 987-0096. US Department of Agriculture, University of California, and County of San Luis Obispo cooperating.