



University of California Cooperative Extension

## Grape Notes

May 2002

Division of Agriculture & Natural Resources

County of San Luis Obispo

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### Estimates of ET with atmometers

The most advanced irrigation scheduling methods incorporate local measurements of evapotranspiration; multiplying the weekly value of reference evapotranspiration (ET<sub>o</sub>) by an appropriate crop coefficient (k<sub>c</sub>) gives a good estimation of the potential water consumption of a vineyard. The key to using this method successfully is to have easy access to locally accurate ET<sub>o</sub> data. Some growers have access to daily data through area weather stations operated by CIMIS (Dept. of Water Resources), private groups, or from their own station. However, a considerable number do not have a source of local ET<sub>o</sub> information, due perhaps to distance from public weather stations, the need to use a computer to access the data, or simply due to cost factors. The atmometer may be a very worthwhile tool for those growers that fall into this category.

A manually read atmometer is a very simple and inexpensive device that can provide a good estimate of ET<sub>o</sub> on a weekly basis. It functions sort of like a rain gauge in reverse; as water evaporates from a porous ceramic surface on top of the device, the water level in its storage tank goes down. This drop in tank level is equated to the ET<sub>o</sub> that occurred since the previous reading. The primary maintenance that the device needs is to refill the tank with distilled water; one filling should last for about a month and a half in the summer. A manually read atmometer is probably not appropriate for measuring daily ET<sub>o</sub>, as it is difficult to make out such small changes in the sight glass. However, for typical irrigation scheduling needs, the weekly data from the manually read device is quite adequate. One major limitation of the atmometer is that because it is filled with water, it can be damaged by freezing temperatures.

Some questions remain as to how atmometer readings from a device placed in a vineyard correlate to traditional weather stations located on a patch of well-watered grass. I will be doing some comparison measurements this season to help determine if there are any adjustments necessary between the atmometer readings in vineyards and adjacent weather stations.

If you are currently relying on guesswork to determine how much to irrigate your vines, an atmometer may be a very good first step towards fine-tuning your practices based on the actual climatic conditions that your vineyard experiences. I would like to assist any growers who are interested in using these tools; I can provide guidance with the installation, operation, and use of the data collected.

At the moment I am only aware of one commercial manufacturer, the ETgauge Company in Loveland, CO. If you would like more information about this device or other water management tools, call me at 781-5948 or email [mcbattany@ucdavis.edu](mailto:mcbattany@ucdavis.edu).



## **CDFA Pierce's Disease Symposium**

The California Department of Food and Agriculture hosted a Pierce's Disease Symposium last December, allowing those involved in research the chance to present their work. The research symposium summaries and proceedings are now available for free over the Internet, at the following address:

<http://www.cdfa.ca.gov/phpps/pdcp/gwReports.htm>

## **Testing for Pierce's Disease**

As part of a statewide effort to determine the extent and nature of Pierce's Disease in California winegrape areas, UC Davis will allow me to submit vine samples that are suspected of having the disease. If you see vines in your vineyard that you think may have PD, please let me know so that I may have samples tested at no cost to you. If you need to brush up on the typical PD symptoms, consider the UC publication below.

## **University of California Pierce's Disease Publication**

UC plant pathologists believe that the bacterium that causes Pierce's disease in grapes, *Xylella fastidiosa*, is probably in every county in the state of California where grapes are grown. Find out what you can do to combat this major threat to the grape industry. This new UC publication covers the symptoms of Pierce's disease and offers strategies for management. Included is a description of Pierce's disease incidence in the various grape-growing regions of California, descriptions of the four major insect vectors that spread the disease causing bacterium *Xylella fastidiosa*, and the role that alternative host plants play as a reservoir of the bacteria. Also included is information on the pattern of spread in vineyards by the different vectors, how to monitor the vectors, and a description of management strategies you can use in your vineyard. Illustrated with 4 tables and 21 color photographs.

For ordering information, call (800) 994-8849.

## **Pruning for Control of Pierce's Disease**

Dr. Alexander Purcell (UC Berkeley) and Ed Weber (UCCE Napa County) have conducted trials to determine if pruning of severely infected vines would be a viable alternative to pulling and replanting. Vines of two to eight year old of Cabernet Sauvignon, Merlot, Pinot Noir, Chardonnay and Cabernet Franc in the Napa Valley were studied.

In the first year of the study, severe pruning just above the graft union in the winter of 1998-99 appeared quite successful in producing disease-free new growth in the following 1999 season. However, by the 2000 season a high percentage of the vines again showed severe PD symptoms.

The authors concluded that severe pruning will not eliminate PD from a vine at a cost that is more profitable than pulling and replanting, nor is it a reliable method to remove the amount of inoculum bacteria to prevent vine-to-vine spread of PD. The only current method to reduce the amount of inoculum bacteria to prevent vine-to-vine spread of PD is to remove suspect vines as soon as possible.

## **San Luis Obispo County Viticultural Survey**

The recent 2001 Viticultural Survey of Santa Barbara County was a tremendous work undertaken by Allan Hancock College viticulture & enology students, Dr. Merilark Padgett-Johnson, and the CCWGA. This group is now planning to do a similar survey for all of San Luis Obispo County. Your cooperation in this survey would be greatly appreciated, and for participating you'll also receive a complimentary copy of the finished publication.

## Pesticide Safety Manual in Spanish

The popular UC publication “Pesticide Safety: A Reference Manual for Private Applicators” is now available in a Spanish edition, “La Seguridad En El Manejo de Pesticidas.”

As described in the UC ANR catalog: “From the experts at the Statewide IPM Project comes this new Spanish language version of our popular illustrated manual for private pesticide applicators. California farm owners, managers, and employees will find this manual useful as a study guide for the California Department of pesticide Regulation's Private Applicator Certificate examination. Includes instructions on how to read pesticide labels, how to mix and apply pesticides, and how to handle pesticide emergencies.”

For ordering information, call (800) 994-8849.



## Crown Gall

The early and sudden freeze that occurred several years ago continues to linger on in some vineyards in the form of crown gall. Galls form on the roots, trunk, and arms of grape vines; they are typically found on the lower trunk. Galls first appear as small, white, coarse lumps protruding through the bark. By late summer the galls turn brown, eventually becoming dry and corky in the fall. Galls can grow very rapidly, and can completely girdle a young vine in a single season. The reduced vigor of infected vines increases their vulnerability to environmental stresses.

Crown galls are tumorous growths, caused by soil-borne *Agrobacterium* bacteria. The bacteria are systemically present in many vines, but seldom cause the disease unless the vine is injured; a fresh wound (less than 24 hours old) is necessary for gall formation to begin in a vine. Such wounds can be made during pruning, cultivating, transplanting, budding or grafting. The extensive wounds caused by severe freezing are particularly susceptible. Because of the systemic nature of the bacteria, they can be transferred from vine to vine on pruning tools; if an area is particularly susceptible to crown gall, additional care in sterilizing tools may be worthwhile.

Chemical sprays will not control the crown gall bacteria in the soil. Because eliminating the crown gall bacteria from infected plants is not feasible, the only real long-term solution to deal with severely infected plants is to remove and destroy them. However, the crown gall bacteria can survive in infected soil for at least two years; if vines are replanted at these same sites, they will likely become infected with the bacteria as well. The crown gall bacteria are not native to our soils; they have been brought in with our vine crops. Without the vines, the bacteria in the soil will eventually die out. On the positive side, crown gall in many tree crops has been controlled effectively by using competing bacteria, and there is some development work going on in this area for grapes as well.

Cold injury is the most important causal factor of crown gall in the Central Coast, particularly around Paso Robles. Management practices that minimize the risk of cold injury are the only practical way to manage the disease in these areas. These practices include careful site selection for cold-sensitive cultivars, and cultural practices that permit good cane maturity before the onset of cold weather.

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UC Cooperative Extension  
San Luis Obispo &  
Santa Barbara Counties



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