



SONOMA COUNTY VITICULTURE NEWSLETTER



January 2004

Rhonda Smith, Viticulture Farm Advisor

The UC Cooperative Extension office has moved!

OUR NEW ADDRESS: UC Cooperative Extension
133 Aviation Blvd., Suite 109
Santa Rosa, CA 95403

DIRECTIONS: Take the Airport Blvd exit off Hwy 101. Head west. At first light, turn left (south) onto Aviation. The building is at the end of the road.

Save the date -

Sonoma County Grape Day – Tuesday, February 24, 2004

Sonoma County Grape Day is presented annually by UC Cooperative Extension and sponsored by the Sonoma County Grape Growers Association. Speakers will present research updates and experiences involving vine mealybug monitoring and control; winery waste sanitation and composting plus related water quality regulatory concerns; powdery mildew control; epidemiology and control of Cladosporium spp. on Pinot Noir; and agricultural waste discharge requirements. It will be held at the Luther Burbank Center in Santa Rosa.

Pre-registration is required and the form will be in the mail soon. The program will take place from 9 am until 1pm, followed by lunch. For more information contact my office at 565-2621.

Courses in Viticulture and Enology offered by University Extension, Davis

For information regarding these courses and others, go online at <http://universityextension.ucdavis.edu> or phone (800) 752-0881.

Managing the Small Vineyard I	February 7
Health and Safety for Winery Operations	February 17
Introduction to Wine Analysis	February 21
Varietal Winegrape Production Short Course	March 2

Protecting Grapevine Pruning Wounds from Infections

More than one type of fungus can infect pruning wounds in grapevines. *Eutypa lata* is the one that we hear about the most, and it causes the disease Eutypa dieback. It appears to be the fungus that causes most vine wound infections; however research conducted by Dr. Doug Gubler, Extension Plant Pathologist at UC Davis, indicates that *E. lata*, *E. leptoplaca* and at least four other genera in the same family are all true pathogens of grapevines that can infect pruning wounds. They are probably saprophytic as well - meaning they are capable of living on dead wood. They all make some contribution to the overall vineyard decline that naturally occurs as vines age.

Eutypa dieback causes significant yield loss because it kills spurs. Subsequently, fewer clusters are produced on diseased vines. Production on shoots from healthy spurs, or from shoots produced from latent buds, does not compensate for lost clusters. The disease can reduce the length of time a vineyard can be considered economically viable.

The large number of acres that were replanted or newly developed in the last decade will increasingly show symptoms of Eutypa dieback as well as other pruning wound diseases that have yet to be named. Disease caused by *E. lata* can cause symptoms in as few as three years from the date of infection; however, most growers begin to notice significant incidence in 7 to 10 year old vines. Depending on vineyard location, variety and control efforts, nearly every vine in a 20-year-old vineyard can have one or more infected spurs.

Spores of *E. lata* are discharged from infected plants during rain events and dispersed by wind onto pruning wounds. These spores (ascospores) can colonize xylem tissue eventually killing the cambium and phloem as well. Cankers develop as the fungus grows through the xylem toward the main trunk. Research is being conducted to determine the effect of environmental conditions on ascospore discharge. Spore traps in Sonoma County have shown that ascospores are released in April if rainfall occurs.

In addition to grape, *E. lata* has several other plant hosts in the North Coast. Perithecia, the fungal fruiting bodies that produce ascospores of *E. lata*, have been found on almond, apricot, big leaf maple, ceanothus, cherry, crabapple, grapevine, manzanita, pear, willow and more recently, oak. In the early 1970's perithecia were found in the Sebastopol area on California wild lilac. *E. lata* perithecia can be found on willow in all of California's grape growing regions. For about the last 15 years, cherry has been thought to be a primary source of inoculum for Eutypa dieback in the Central Valley. Perithecia of *E. leptoplaca* have been found in Napa and Sonoma Counties on ash, big leaf maple and willow. Fungal isolates collected from all of these sources were pathogenic to grapevines.

What this means is that there are multiple inoculum sources for starting new infections in vineyards. Coupled with a large number of rain events that can trigger spore release from these alternate plant hosts, Eutypa dieback is extremely common in North Coast vineyards. In older infected vineyards, *E. lata* ascospores are dispersed from cankers on diseased vines, thus a vineyard itself can be a primary source for new infections and disease.

Protecting Pruning Wounds with Fungicides

For several years the Gubler lab has conducted trials that evaluate the efficacy of fungicides and other materials that may be able to protect pruning wounds from infection. Benomyl (Benlate®), which is no longer registered for use on vines, had consistently proven to be very effective at preventing Eutypa colonies from infecting wounds; however that protection was temporary. Rainfall would wash off the material and even under dry weather conditions, protection lasted only about 14 days. Because pruning

wounds remain susceptible to infection for more than two weeks, a grower would have to reapply the fungicide to extend the protection period and as we all know, this didn't happen. Topsin® M WSB works just as well as Benlate® – they are both good materials however they do not offer winter-long protection.

Nectec Paste is a fungicide formulated as paste that can be quickly “wiped” onto pruning wounds with a specialized applicator. It is not registered in the US yet work conducted in California in the late 1990's indicated that it could provide six months of wound protection. There is hope that a “biopaste” will be registered in California. The active ingredient in the paste is boric acid. In field trials conducted in Napa and San Joaquin Counties, 5% boric acid in a paste formulation had greater percent disease control than in a liquid formulation. Evaluation of boron concentrations in shoots that emerge from treated spurs is ongoing.

Paste alone, for example, Doc Farwell and similar products, was not effective at controlling *Eutypa*. Previous work found that latex paint brushed onto wounds inhibited wound healing. In addition, it cracked during the same season it was applied. The “biopaste” that was evaluated has neither of these drawbacks.

Reducing the Risk of Infection by using Cultural Practices

Sanitation practices may help to reduce the in-vineyard sources of ascospores. It is advisable to remove large pieces of multi-year-old wood that has been pruned off during top-working or when establishing replacement cordons.

Late pruning has been a recommended preventative strategy for 20 years and still is. Infections of pruning wounds by *Eutypa* are more likely to occur earlier in the pruning season than later. Several researchers have documented that higher infection levels occur in late fall and early winter than in late winter and spring. In addition, it's a numbers game: the number of ascospore releases and the amount of spores in the air in spring are *usually* going to be less than in December given our rainfall patterns.

In double-pruning field trials being conducted in Napa County in Chardonnay and Merlot, vines were long-pruned to 6-8 node canes monthly from October through February. Wounds were inoculated with ascospores the day they were pruned and no fungicides were applied. In March all vines were pruned to 2-bud spurs. *E. lata* was reisolated from 8% to 60% of the long canes that were pruned off in March depending on which month they were first inoculated. On both varieties, the fewest infections occurred in wood that had been pruned and inoculated in February.

E. lata was never reisolated more than 4 centimeters away from the tip of the cane. As a result, pruning to at least a 6-node spur early in the winter and then re-pruning to a 2-bud spur several weeks later prior to budbreak ought to provide sufficient distance between the leading edge of the infection and the final cut.

Researchers have found that grapevine wound susceptibility to infection by *E. lata* is variable depending on environmental conditions that affect both the vine and the presence of the pathogen. But in general, susceptibility is significantly affected by time of pruning – the later the vines are pruned, the less likely they are to become infected with this pathogen. This may be related to the fact that the wounds are bleeding and that warmer temperatures promote callus development.

The bottom line is to prune vines as late as possible and take measures to protect all pruning wounds to a degree that is proportional to the risk of infection.

The product names given herein are supplied with the understanding that no discrimination is intended and no endorsement by UC Cooperative Extension is implied.

Sonoma County Viticulture Newsletter – January 2004



Sonoma County Grape Day is February 24, 2004!



The University of California prohibits discrimination against or harassment of any person 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 (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) in any of its programs or activities or with respect to any of its employment policies, practices, or procedures. 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.

**UC Cooperative Extension
133 Aviation Blvd., Suite 109
Santa Rosa CA 95403
Return Service Requested**