Canker diseases have been found throughout grape-growing regions of California and the world, infecting all major varieties. Researchers estimate overall loss in grower net income due to these diseases at $260 million per year in California alone. Those losses come in the form of reduced yields, loss of fruiting wood, retraining vines and replanting.

Twenty-one different species of fungi have the capability of entering through pruning wounds and causing cankers. The most prominent species include *Eutypa lata*, *Botryosphaeriaceae* spp., *Phaeoacremonium aleophilum* and *Phaeomoniella chlamydospora*.

There are no known effective controls of canker diseases once inside the vine. Eradication is impossible. Prevention – involving pruning and use of fungicides – is the best method for managing these diseases. Common symptoms of canker diseases include delayed budbreak, bud mortality, cane and shoot dieback, stunted growth, leaf chlorosis and wood cankers.

**Rally® Fungicide at Dormant Timing**

In 2010, Dow AgroSciences received registration from U.S. EPA and California Department of Pesticide Regulation for Rally® fungicide to aid in the control of grapevine canker diseases. It is registered as a Special Local Need (SLN) in California and as a Section 3 supplemental label in other states.

Under these labels, Rally can be tractor-applied to pruning wounds after pruning. This will help manage fungal pathogens, which infect woody tissue, including various *Botryosphaeria* species.

Research conducted by Dr. Doug Gubler and Ryan Herche at UC Davis has shown that Rally applied soon after pruning can help prevent infection by fungi that cause these canker diseases.

**Apply Rally by Tractor**

Rally can be applied to vines with standard vineyard sprayers – self-propelled or pulled by tractor/ATV. In the past, growers could apply another fungicide after pruning, but they had to paint it on by hand or use hand-held spray bottles – a time-consuming and expensive process. The other management option growers have is to prune out infected wood.

**Reduce Powdery Mildew Inoculum**

A late winter application of Rally also can reduce overwintering powdery mildew infections. UC Davis researchers found that this application can reduce powdery mildew similar to a lime sulfur and oil treatment applied at similar timing.
In Gubler and Herche’s research trials, Rally protected pruning cuts from the major pathogens involved in Bot canker, Eutypa canker and Esca disease (also known as measles).
**APPLICATION TIPS**

**Rate:**  
4 oz/A Rally in **33 gpa**  
5 oz/A Rally in **42 gpa**  
6 oz/A Rally in **50 gpa**  

Lower spray volumes may be used only if the spray thoroughly wets all susceptible grapevine tissue and the same ratio of Rally to water is maintained.

**Spray timing:**  
Rally should be applied soon after pruning, as pruning wounds are the primary route of infection. Depending on conditions, pruning wounds can take several weeks to heal and are susceptible until healed. Rally will provide at least two weeks of protection. If wounds have not healed by then and weather conditions continue to favor infection, apply another Rally treatment.

**Tank mixes:**  
Add a registered organosilicone spray adjuvant to increase penetration of cut wood surfaces. Rally can be tank mixed with Topsin fungicide for more complete control.

**REI:** 24 hours

**Spray equipment:**  
Rally can be applied with standard vineyard sprayers – self-propelled or pulled by tractor/ATV. Certain nozzles can be capped so that the fungicide is directed toward pruning wounds. Approval of backpack application is expected in early 2012.

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**Over-the-vine sprayer with only one open nozzle per side.**

**Spray system mounted on Gator utility vehicle.**

**Modified spray system designed for specific trellis and pruning technique.**
Importance of Pruning

The primary means of fungal infection is airborne inoculum which lands on newly-created dormant pruning wounds, then invades the vascular system. Spore release is triggered by rainfall. About ¼" of rainfall is enough to cause spore release. Spores disperse through vineyards in air currents, and some of them land on fresh pruning cuts. The younger the pruning wound, the more likely the spores will be successful in colonizing.

During typical rainy months – November through February – pruning cuts are highly susceptible to infection. Where possible, the final pruning cuts should be made later. Initial pruning cuts can be made at any time if double pruning is planned.

Benefits of Double Pruning

Pruning technique can significantly reduce the risk of disease infections. UC Davis research found that double pruning, alone, can provide nearly 95% control of canker diseases. In a double pruning system, the initial pruning is done from late fall to early winter, and vineyards are “pre-pruned” to just above the second wire. The first pruning can be done quickly by a tractor-pulled pruning machine.

The second/final pruning occurs in late February and March when canes are pruned to leave only a few buds. These cuts are generally less susceptible to infection because pruning wounds tend to heal faster as temperatures increase. Also, disease pressure tends to be lower then, as spore sacks become depleted from winter rains.

Rally should be applied soon after final pruning and before a rain.

To Learn More

DVD: Short video showing applications of Rally. Call 888/395-PEST or email: dowagrosciences@pestclues.com
