



## Disease Testing Guidelines For the Fall and Winter Season

By Judit Monis, Ph. D

Above Photo: Certain species of leafroll viruses spread with the aid of mealy bugs and soft scale insects. The spread occurs first to adjacent vines in the same row and finally to adjacent rows in the vineyard.

As the fall season progresses and the grape harvest comes to an end, vineyard managers and growers have more time to observe symptoms associated with grapevine diseases. Vines with suspicious symptoms can be marked and subjected to testing to determine if a pathogen is the cause. The markings will allow growers to determine if the symptoms (or causal agents) are spreading in the vineyard (or from neighboring vineyards). The winter and spring seasons are ideal for planning of new vineyard development functions. This is also a good time the time to order nursery stock and plan top working or field budding activities (even if they will occur in other seasons).

There are important steps for ensuring a healthy vineyard with consistent grape quality and yield potential. An integral part of this process involves the health status assessment of field selections, nursery rootstock and scion material prior to planting. Our laboratory specializes in testing grapevines

for the presence of disease causing agents (i.e., pathogens). We have developed reliable procedures for the detection of the most important pathogens that cause disease in grapevines. It is critical that samples are collected at the right time of the year and at the appropriate vine location for accurate disease assessment. The results from our disease testing lab will provide the information needed for sound vineyard development decision making.

Many viruses are able to spread in the vineyard with the aid of vectors (e.g., mealybugs, soft scale insects, nematodes). The control of the spread of harmful viruses requires rigorous protocols while handling vines and performing cultural practices in the vineyard. Hot water treatment of vine cuttings has been shown to be an effective practice to control the movement of virus vectors from one site to another. The dispersal of virus vectors by field equipment, birds, workers, or wind contributes to long distance spread of viruses associated with

leafroll disease. A study in South Africa has shown the reduction of virus spread by applying special management practices. The practice that contributed the most to decreasing the spread of disease was the diligent rouging and removal of infected vines together with insect control using systemic insecticides. Other practices include: using site-dedicated clothing and shoes for workers and avoiding the use of potentially contaminated equipment in the vineyard (sanitation of field equipment, tools, and worker's clothing). In sum, effective disease control requires above all a clean planting stock (i.e., disease-free tested status) and knowledge of virus infection in the vineyard and/or neighboring vineyards.

Top working or field budding is an activity that allows the grower to change the scion variety of an established vine by budding or grafting. This activity allows sampling the most mature sections

*Continued on Back*

## Disease Testing Guidelines Continued



(cordon and trunk) of the vine since the top of the vine will be replaced. The portions above and below the graft union constitute the best type of sample for testing for the presence of fungal pathogens (vine decline and Esca) and viruses which are included in HealthCheck™ Panel A (leafroll and rugose wood diseases). However, if the goal is to determine the presence of soil-borne pathogens (HealthCheck™ Fungal Panel), root samples will be also required.

The ideal sample number to test prior to making top grafting decisions will depend on the diversity of vines present in the vineyard. If the vineyard is planted with vines from the same origin (i.e., same rootstock/scion combination from a common source) testing a minimum of five vines is recommended for virus testing. If there are many rootstock/scion combinations, the vines are from unknown origin, there is suspicion of infection, or the vineyard is adjacent to an infected vineyard, a more exhaustive sampling regime is suggested. Furthermore, the number of vines to sample will increase if mealybugs, nematodes, or other disease transmitting vectors are present in the target vineyard or neighboring vineyards. If no apparent symptoms are present, random and representative sampling is most appropriate. If disease symptoms are present in the vineyard, testing samples from both symptomatic and asymptomatic vines will aid the diagnosis (in many

cases a pathogen can be detected before symptoms appear).

The time to submit samples of bench graft and rooting material for testing should coincide with the time the grower decides which rootstock-scion combination will be grafted. In most cases, nurseries are able to trace their mother vines and organize cuttings (collected at the end of the fall season) in specific bins. A representative sample should be collected from each bin of rootstock and scion material that will be used for grafting. An advantage of planning in the fall is that nursery mother stock can be observed for suspicious symptoms. The appropriate sample number will depend on mother block history and budget. For non-destructive testing, samples will need to be submitted at different times of the year to cover the whole spectrum of grapevine disease causing agents. For example, the Pierce's Disease bacterium is best detected later in the summer season (petioles from mature leaves), while the viruses associated with decline are best detected in the spring season (young foliar shoots).

Because of the potential of virus spread and fungal infections in vineyards it is important to test samples after finished bench graft product and/or rootstock rooting is harvested. If the planting material is subjected to cold storage, testing for the presence of fungal pathogens should occur after cold storage. The testing is

needed even if the vines are from a reputable certification program. Visual inspections are important but most likely cannot determine if a pathogen is present.

This fall and winter season is the most appropriate for submission of samples for HealthCheck™ Panel A, Fungal Panel, and Pierce's disease testing. HealthCheck™ Panel A includes the viruses associated with leafroll (GLRaV 1-7, and -9), rugose wood (GVA, GVB, GVD, RSPaV, RSPaV-Sy), and Tymoviruses (GFkV, GSyV-1). HealthCheck™ Fungal Panel detects and identifies fungi associated with canker, Esca, black foot, and other diseases. HealthCheck™ Panel PD detects *Xylella fastidiosa*, the Pierce's disease causal agent.

Please call us to discuss your specific testing needs and check our website for updates.

 eurofins | STA Laboratories

**Colorado Laboratory**  
1821 Vista View Drive  
Longmont, Colorado 80504  
(303) 651-6417

**Gilroy Laboratory**  
7240 Holsclaw Rd.  
Gilroy, CA 95020  
(408) 846-9964

[www.eurofinsus.com/stalabs](http://www.eurofinsus.com/stalabs)  
[stalabs@eurofinsus.com](mailto:stalabs@eurofinsus.com)