

# Timely Trunk Renewal to Overcome Trunk Disease

## **Grapevine trunk diseases**

There are four major grapevine trunk diseases, all caused by different, taxonomically unrelated fungi. These diseases are called Esca, *Eutypa* dieback, *Botryosphaeria* dieback and *Phomopsis* dieback.

The principal means of spread of trunk diseases is by winter pruning-wound infection with wind-dispersed or splash-dispersed spores (depending on the

## **The damage**

Under extreme conditions, vine death due to Esca and *Botryosphaeria* can occur before the vine matures and begins to form fruit, but commonly they and the other trunk diseases first show symptoms (dead spurs, stunted shoots or foliar symptoms) between five and seven years of age. As more and more vines develop symptoms, yields decline.

## **Trunk renewal in perspective**

Present recommendations for trunk disease control in California are for preventative action starting in young vineyards and include delayed pruning or double pruning and treatment of pruning wounds with fungicides such as Topsin M (thiophanate-methyl; United Phosphorus Inc., King of Prussia, Penn.) and Rally (myclobutanil; Dow



**Figure 2. A vine in England with two suckers in line with the vine row and on both sides of the trunk. These are ideally placed to replace the existing diseased trunk with two healthy trunks, each one supporting a cordon. The trunk could be removed either the following winter or the next winter, with minimal or no crop loss.**

Scientific studies in Australia since 1988 have shown that the cumulative yield losses due to *Eutypa* dieback can be mitigated by taking healthy suckers from the base of the vine to replace the trunk. This technique works with other trunk diseases also. It takes advantage of saving the vine root system.

# Timely Trunk Renewal

- A “cure” for trunk disease?
- Healthy new parts (suckers or basal shoots)
- No guarantee that re-infection will not occur
- Pruning wounds must be protected by fungicide application.



### **General assumptions**

- 1) The protocol defined below is not applicable to vines with unhealthy root systems, which may be caused by root pathogens or for other reasons, or to vines with other diseases such as virus.
- 2) The cordons and, to a lesser extent, the trunks of mature vines are likely to have more wood cankers and discoloration than those of young vines. The greater the proportion of such wood symptoms, the greater is the impact on yield.
- 3) Present abiotic stresses may compound damage from trunk disease. Sometimes the stress should be addressed before trunk renewal, as for example with poor soil drainage.
- 4) Use of healthy suckers arising from base buds well below wood symptoms offers the opportunity for trunk renewal while retaining the original root system.

# Vineyard Procedures for the Protocol

- Trunk disease infection assessment
- Trunk disease risk assessment
- Combining risk and infection to decide an appropriate management strategy

Strategy 1: Pre-harvest inspection is generally not necessary, as some symptomatic and dead vines are evident at winter pruning. Remove dead vines and burn. Encourage and retain suckers on symptomatic vines, and commence trunk renewal.

**Strategy 2:** Perform pre-harvest inspection to identify early stage symptomatic vines. Begin trunk renewal for any symptomatic vines and adjacent vines if clumping and staining are evident.

**Strategy 3:** *As above, and begin program of water-shoot generation and training to replace all trunks within one or two years.*

**Strategy 4:** For all vines, winter-prune very hard, remove all trunks in spring, train suckers for replacement trunks, or, remove all vines and replant.



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Esca progression in three different age trunks from one original vine root system.

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Grapevine trunk diseases in California,”  
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International Council of Grapevine Trunk Diseases (ICGTD)

web-site: [icgtd.ucr.edu](http://icgtd.ucr.edu)