

Grapevine Leafroll

Grapevine Leafroll-Associated Viruses (GLRaVs)



RESEARCH
PD/GWSS BOARD

BOARD DESIGNATED DISEASE

Origin

Grapevine leafroll (GLRaVs) is believed to have originated in Eurasia and is now seen in vineyards worldwide. There is evidence that grapevine leafroll occurred in the eastern United States in the mid-nineteenth century and spread westward from there.

Many Different Viruses

The term “grapevine leafroll” is actually used to describe a host of different but related viruses. These viruses include grapevine leafroll-associated viruses (GLRaVs) 1–9 and a group of more recently described viruses (GLRaV-Pr, GLRaV-De, and GLRaV-Car). Grapevine leafroll-associated virus 3 (GLRaV-3) is the most widespread in the U.S.

Host Range

Grapevine leafroll has been detected in all varieties of wine, table, and raisin grapes. There are no known non-grape hosts. Responses to infection by different GLRaVs or combinations of these by different grape rootstocks and scions vary significantly.

Potential Damage

Severity of symptoms and yield losses due to GLRaVs depend on the combination of viruses, cultivars, rootstocks, climate, soil, and viticultural practices. Although some varieties are asymptomatic, no sources of GLRaV resistance have been found in *Vitis vinifera* cultivars or clones.



How It Spreads

In the past, most transmission was through the propagation of plant material. However, with plant material certification programs and educational efforts promoting the planting of certified vines, this is no longer true. In addition, there is no evidence of mechanical transmission through pruning or other plant management practices. Vine-to-vine transmission by insect vectors is then believed to be the only means of spread in established vineyards. The disease is known to be spread by insect vectors. Vine mealybug is one known vector, and there may be others.

Current Control Measures

Growers are advised to only plant certified plant materials derived from virus-tested stocks when establishing new vineyards. In areas where this is not possible, propagating stocks should be carefully screened for viruses using rigorous laboratory tests. The movement of farm equipment between vineyards should be minimized since this may assist mealybug dispersal in vineyards. The use of pesticide sprays to control mealybugs may be useful for reducing damage but are not always effective in controlling their spread.