Grapevine leafroll disease

Grapevine red blotch disease

"Leafroll" "Red blotch" **Pathogen**

Grapevine leafroll-associated viruses (GLRaV)

Complex of RNA viruses High genetic variability & adaptability GLRaV-3 is most common worldwide Broadly distributed worldwide Phloem-limited

Grapevine red blotch virus (GRBV)

DNA virus

Diverged from wild Vitis latent virus ~9000 y.a. Likely N. American in origin 2° spread common in California and southern Oregon

Phloem-limited

Mealybugs & Soft scale Pseudococcidae



Grape mealybug Vine mealybug Obscure mealybug Longtailed mealybug

Gill's mealybug

European fruit lecanium scale

Vector(s)

Threecornered alfalfa hopper (TCAH) Membracidae







Vector behavior

Phloem feeding insects Grapevine is feeding & reproductive host Limited alternate host range Principally short distance dispersal Only male has wings

Phloem feeding insect Legumes (clover & vetch) are principal reproductive hosts Wide (feeding) host range Longer distance dispersal (>4000 ft) Specialized muscles in hind femora for jumping

Leafroll disease management

Start clean: virus-tested plant material

Quantify symptomatic vines: vine-by-vine mapping

Remove infected vines individually (rogue) or in groups (spatial roguing)

Monitor grape & vine mealybug with pheromone-baited traps

Practice IPM for vine mealybug

Coordinate management with neighbors and in regional groups



Red blotch disease management

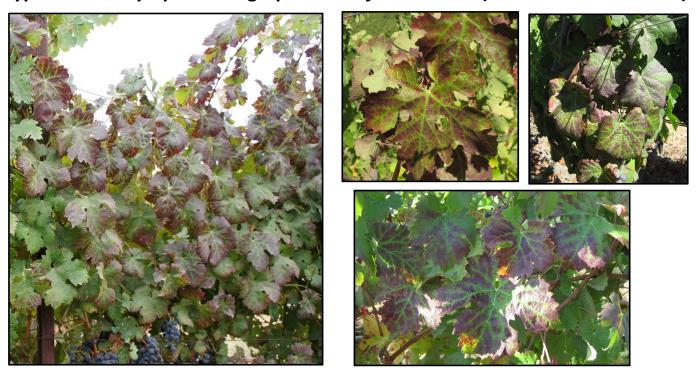
Start clean: Virus-tested plant material

Identify patterns of infected vines (aggregated areas & random infections) Aggressively remove sections of vines in aggregated areas (zonal roguing) Individually remove randomly distributed vines (rogue)

Coordinate vine removal & replanting among neighboring blocks Consider TCAH breeding habitat (clover, vetch) at landscape scale Barrier applications of kaolin clay reduce vector feeding on grapevines



Typical visual symptoms of grapevine leafroll disease (black-fruited cultivars)



Typical visual symptoms of grapevine red blotch disease (black-fruited cultivars)



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