

# Grapevine red blotch virus

## What is Grapevine red blotch virus?

Grapevine red blotch virus (GRBV) was first reported on Cabernet Sauvignon in the Napa Valley (California, USA) in 2008.

Originally referred to as Grapevine red blotch-associated virus (GRBaV), the virus is associated with red blotch symptoms on leaves, as well as causing a significant reduction in sugar accumulation in grapes. Preliminary studies suggest that this virus is not of recent origin, but had instead escaped attention from grape growers in America because of the very similar symptoms to those of Leafroll virus

## What should I look for?

The symptoms of GRBV generally start appearing in autumn as irregular blotches on leaf blades and the basal portions of shoots. Look for primary and secondary veins on leaves turning red, as well as red blotches between the interveinal margins. These characteristic visual symptoms occur on the basal leaves and towards the end of the growing season.

GRBV can also cause a significant reduction in sugar accumulation of up to 5° Brix as well as increased acidity. It is likely that GRBV would be first detected in wine grapes, as these grapes are carefully monitored for sugar content to determine harvest date. Look for lower than expected Brix values in both red and white wine grapes.

GRBV affects crop vigor, yield and quality.

## What can it be confused with?

Grapevines with GRBV cause quite similar symptoms to those caused by Leafroll virus.

However, there are a few distinct differences between the two viruses that can easily be observed. Firstly, grapevines infected with Leafroll virus only turn red in and around the secondary veins of the grapevine leaf, with the primary veins and surrounding area remaining green.

With GRBV, the primary and secondary veins, as well as the interveinal zones turn red. Secondly, infection with Leafroll virus typically causes the margins of the leaf to roll onto itself, which gives the virus its symptomatic name. However, in GRBaV the leaves do not roll at the margins.



Grapevine infected with Grapevine red blotch virus

Source: Marc Fuchs, Cornell University



Symptoms include red blotches around the leaf and through primary and secondary veins

Source: M. R. Sudarshana, USDA-ARS



## How does it spread?

It is believed that the main modes of spread and transmission are through grafting and propagation material. The ability of GRBV to affect both mature and young grapevines has led researchers to suggest the possibility of a vector for the virus. However, recent surveys have demonstrated the role of insect vector(s) in secondary transmission.

There were 11 insect genera or species which were collected in vineyards and tested positive for GRBV by quantitative PCR. These included unknown Aphididae, the cicadellids *Aceratagallia* spp., *Acinopterus angulatus*, *Caladonus coquilleti*, *Colladonus montanus reductus*, *Colladonus* sp., *Empoasca* spp., *Erythroneura elegantula*, and *Scaphytopius graneticus*, along with the membracid *Spissistilus festinus* and an unknown delphacid. With *S. festinus* already shown to be able to transmit GRBV and *Scaphytopius graneticus* may be a candidate vector for further investigation.

## Where is it now?

Since its detection in California, the virus was simultaneously reported from various groups in the USA. Studies determined the virus is already widespread in both old and mature red and white *V. vinifera* cultivars throughout grape growing regions of America. GRBV is now found in Northern America including Canada, Argentina, India, Italy, Mexico and South Korea.

## How can I protect my vineyard?

- Only source high health status (preferably certified) plant material from reliable and accredited suppliers.
- Check your vineyard frequently for the presence of new pests and investigate any sick grapevines for unusual symptoms.
- Make sure you are familiar with common grapevine pests so you can tell if you see something different.
- Keep records of anything unusual and ensure all staff and visitors adhere to on farm biosecurity.



Grapevine infected with Leafroll virus with green primary leaf veins.

Source: Marc Fuchs, Cornell University



Symptoms include red blotches around the leaf and through primary and secondary veins

Source: Nuredin Habili, University of Adelaide

If you see anything unusual, call the  
**Exotic Plant Pest Hotline** on  
**1800 084 881.**

**EXOTIC PLANT PEST HOTLINE**  
**1800 084 881**

**DISCLAIMER:** The material in this publication is for general information only and no person should act, or fail to act on the basis of this material without first obtaining professional advice. Plant Health Australia and all persons acting for Plant Health Australia expressly disclaim liability with respect to anything done in reliance on this publication.