



Grapevine Pinot Gris Virus



Figure 1. Grapevine Pinot Gris Virus symptoms including leaf mottling and deformation. Source: Dr. Pasquale Saldarelli, Senior Scientist/Virologist, Istituto per la Protezione Sostenibile delle Piante, Bari, Italy.

Grapevine Pinot Gris Virus

Grapevine Pinot Gris Virus (GPGV) is a virus recently detected in grapevines in Australia.

Grapevine Pinot Gris Virus (GPGV) is a member of the genus *Trichovirus* in the family *Betaflexiviridae*. It is a recent scientific discovery and the origin of the virus is unknown. There are multiple, genetically distinct isolates of GPGV that have been detected in diseased and symptomless grapevines. There is limited information available on links between symptoms and the presence of specific GPGV isolates. This means that the presence of GPGV may not predict symptoms. The full impact of GPGV on vine health is currently unknown and is further complicated by the finding that GPGV is frequently found in mixed infections with other viruses.

GPGV has been reported in China, Croatia, Canada, Georgia, Germany, Italy, France, Korea, Slovenia, Czech Republic, Slovak Republic, Greece, USA and Turkey and has been confirmed in at least 28 wine and table grape varieties including Pinot Gris, Pinot Noir, Traminer, Chardonnay, Merlot, Cabernet Franc, Cabernet Sauvignon, Carmenere, Sauvignon Blanc and Shiraz.



Damage, symptoms and occurrence

Grapevines infected with GPGV can either show symptoms or be asymptomatic. Symptoms associated with infection include delayed budburst, leaf distortion and mottling, shortened shoot internodes, increased berry acidity and poor yield (reports of up to 80% yield loss). The virus has been associated with economic losses, particularly in the presence of other viruses. The symptoms of GPGV may be confused with early season bud mite damage, cold injury or herbicide damage.

Internationally, GPGV-associated symptoms have been reported in both young and old vineyards (2-50 years) with no relationship between incidence and vine age. Symptoms appear most distinct at the start of the season and are less apparent on late season growth, with infected plants reported to 'recover' after veraison by producing symptomless shoots and leaves. Symptomatic vines cluster and predominantly occur along vineyard rows and sometimes occur across rows which is indicative of spread by slow moving vectors.

GPGV and associated symptoms are more frequently reported in Pinot Gris, Pinot Noir, Pinot Blanc and Traminer than other wine-grape varieties.



Figure 2. Grapevine Pinot Gris Virus symptoms including stunted shoots (left) and leaf mottling and deformation (right) Source: Dr. Pasquale Saldarelli, Senior Scientist/Virologist, Istituto per la Protezione Sostenibile delle Piante, Bari, Italy.



Spread

GPGV can be spread through the movement and exchange of infected propagation material and the virus and the disease are graft transmitted. The virus is possibly transmitted by grapeleaf bud and blister mites (*Colomerus vitis*). There is no evidence to support the transmission of the virus mechanically on pruning or harvesting equipment.

Alternative hosts

Common vineyard weeds including Fat Hen (*Chenopodium album* L.) and White Campion (*Silene latifolia* subsp. Alba (Mill.)) are confirmed hosts of GPGV and express symptoms when infected. For more information on the control of vineyard mites and weeds, refer to the reference list below.

Reporting suspected cases of GPGV

GPGV is an exotic plant pest recently detected in Australia. If symptoms are seen it must be reported promptly to the **Exotic Plant Pest Hotline on 1800 084 881**.

Virus testing

It is recommended that all grapevine propagation materials (e.g. potted vines, rootlings, cuttings and buds for grafting) are virus tested prior to receipt.

Diagnostics

Virus testing of grapevines is available from Crop Health Services in Victoria and Waite Diagnostics in South Australia. For field sampling and sample submission instructions, contact either:

Crop Health Services

AgriBio Specimen Reception

Main Loading Dock

5 Ring Road,

La Trobe University,

Bundoora, VIC, 3083

Ph: 03 9032 7323 / 03 9032 7515 or email: chs.reception@ecodev.vic.gov.au

Web: <http://agriculture.vic.gov.au/agriculture/pests-diseases-and-weeds/diagnostic-services>

Waite Diagnostics

University of Adelaide

Waite Main Building, Lab S118

Waite Road, Urrbrae, SA 5064

Ph: 08 8313 7426 or email: nuredin.habili@adelaide.edu.au

Web: <http://www.agwine.adelaide.edu.au/facilities/wdiag/>



What happens if I get a positive test result for GPGV?

- GPGV is currently a notifiable plant pest.
- If a positive result is obtained you will be immediately notified by the laboratory.
- The laboratory is also legally obliged to notify the state biosecurity agency at the same time.
- The state biosecurity agency will work with you to determine what management practices may be required to contain or eradicate the virus to prevent further spread.

What does a positive test result mean?

- A positive result indicates that GPGV was present in the grapevine that was tested.
- Grapevine viruses, including GPGV, may have an impact on fruit production and vine growth, affecting quality and yield.
- Controlling grapeleaf bud and blister mites may prevent further spread of GPGV.
- Removal of alternative weed hosts (Fat Hen and White Champion), which may act as a reservoir of the virus, may prevent further spread of GPGV within vineyards.
- Removal of an infected grapevine may prevent further spread in vineyards where the virus occurs with low incidence.
- The use of virus-tested grapevine material is recommended for establishing new vineyards and replanting or top-working of older vineyards.

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Reference and further reading

Targeting sprays for vineyard pests and diseases: https://www.awri.com.au/wp-content/uploads/spray_targeting.pdf

Grapevine pests and their management:
http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0010/110998/Grapevine-pests-and-their-management.pdf

Grapevine management guide 2016-17:
http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0017/302840/grapevine-management-guide-201617.pdf

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Giampetruzzi, A., Roumi, V., Roberto, R., Malossini, U., Yoshikawa, N., La Notte, P., Terlizzi, F., Credi, R., Saldarelli, P. 2012. A new grapevine virus discovered by deep sequencing of virus- and viroid-derived small RNAs in cv Pinot gris. *Virus Res.* 163:262-268.

Gualandri, V., Asquini, E., Bianchedi, P., Covelli, L., Brilli, M., Malossini, U., Bragagna, P., Saldarelli, P., Si-Ammour, A. 2016. Identification of herbaceous hosts of the *Grapevine Pinot Gris Virus* (GPGV). *Eur. J. Plant Path.* DOI 10.1007/s10658-016-0989-4.

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Contact

For further information, please contact the AWRI helpdesk

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