Wine Australia

AUSTRALIAN Grape & Wine

Sector notice

Crown gall: know the facts and assess the risk

14 June 2024

The recent occurrence of crown gall-like symptoms in a small number of regions has prompted the establishment of a response group comprising representatives from key sector organisations, including Australian Wine Research Institute (AWRI), Australian Grape & Wine, Wine Australia, Vine Industry Nursery Association (VINA), South Australian Vine Improvement Association (SAVIA), State Departments, Vinehealth Australia, and diagnostic laboratories. This collaborative initiative aims to investigate the root cause(s) of the symptoms and develop effective strategies for management.

Causes

Crown gall is endemic to Australia and affects grapevines as well as many other horticultural crops. It is caused by two bacterial genera, Agrobacterium and Allorhizobium, both members of the Rhizobiaceae family. Pathogenic and non-pathogenic strains of these bacteria are widespread in soils and water, both in Australia and globally. The presence of these bacteria does not necessarily lead to disease.

Current incidence

Potential sources of these bacteria include soil, plant remnants and infected planting material. The disease occurs intermittently (and uncommonly) in Australian vineyards. It is unknown if the recent occurrences are a result of infected planting material or other sources and it appears that environmental factors, cultural practices, unknown factors, or a combination of these are at play. For this reason, the same batches of planting material that have shown crown gall symptoms in one region or one vineyard have been asymptomatic in others.

The complexities of crown gall, such as identifying the causal pathogen(s), tracing the infection source, uncertainty about factors influencing disease severity, and its long-term impact on vine productivity and longevity, highlight the need for further research.

Proactive steps growers can take

As we navigate through this challenging period, we strongly encourage growers to reach out to the AWRI (08 8313 6600 / helpdesk@awri.com.au) if they have any concerns or require further guidance.

It is particularly important for growers to understand the risk factors associated with crown gall symptom expression in newly planted or top-grafted vineyards. These include site-specific factors such as prior crown gall incidence, adverse weather conditions and risk of plant injury from waterlogging, frost, or nematodes. Vine wounding can create entry points for crown gall pathogen(s) and can trigger the formation of galls.

Growers are encouraged to take a proactive approach by regularly monitoring their vines for any signs of disease expression, adhering to best practices in vineyard establishment and grafting and maintaining good vineyard hygiene protocols.

We also encourage all growers to contact their nursery supplier if they have concerns about accepting vines for planting in 2024 or placing orders for 2025.

It is important to recognise that the propagation sector cannot guarantee grapevine planting material to be pest or disease-free, despite adhering to the best practice management protocols required for VINA certification, for the following reasons:

1. Source vines may be asymptomatic, posing challenges in visual disease detection.
2. Only a portion of vines are sampled for analytical testing, since evaluating each of the thousands of source vines every year is presently unfeasible with existing methods and would significantly raise the cost of planting materials.
3. Vines are tested for known pests, diseases, and strains, potentially leaving new strains or pathogens undetected.
4. The sensitivity of diagnostic tests may limit the detection of low pathogen levels, leading to false negatives.

Next steps

Addressing the current expression of crown gall disease requires proactive research, good communication, and collaboration. The response group continues to meet frequently to monitor the situation, exchange information and provide the latest knowledge to stakeholders.

Wine Australia is in the process of procuring research to identify the pathogen responsible for causing crown gall-like symptoms, understand the factors influencing severity of symptom expression in vineyards, design a robust diagnostic assay for the pathogen and trace the source(s) of the infection. Answering these questions is key to understanding the current situation and developing much-needed measures for prevention and control of crown gall in vineyards.

In conclusion, Wine Australia, along with all the members of the response group, remains resolute in supporting the sector to confront this challenge and safeguard the long-term sustainability of Australian viticulture.

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