

# Vintage 2017 – observations from the AWRI helpdesk

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**Since 1955 the AWRI has provided technical support to Australia's grapegrowers and winemakers. The AWRI helpdesk responds to queries, conducts investigations and monitors technical trends across the nation's wine regions, disseminating information via eBulletins, the AWRI website, webinars and face-to-face extension events. This article examines some of the technical challenges encountered by growers and winemakers during vintage 2017, which will be remembered as a cooler, later and slower vintage in many regions.**

## IDENTIFYING KEY TECHNICAL ISSUES

The close relationship between the AWRI helpdesk and Australian grapegrowers and winemakers places the helpdesk team in a unique position to understand the technical issues encountered each vintage across Australia. This allows the team to identify emerging issues early; to develop and deliver tailored extension content; to implement any required emergency response; and to communicate ideas for future projects to the AWRI research team. During vintage 2017 (between 1 January and 1 May) the helpdesk received more than 500 enquiries (Figure 1) and conducted 53 investigations. During the same period, the AWRI library delivered 764 articles and books, with around 64% of articles requested on winemaking topics, 22% related to viticulture and the remainder

## AT A GLANCE

- The start of the growing season was wetter and cooler than recent years for many regions.
- Soil temperatures were low, leading to slow early growth and uneven budburst.
- Good soil moisture drove strong canopy growth and dense foliage.
- The timing of vintage was around three to four weeks later than 2015 and 2016 in many regions.
- Very high malic acid levels in grapes were seen in some regions.
- Good fruit flavour was achieved at lower ripeness leading to lower alcohols.

related to wine and health and other topics. A significant number of the helpdesk enquiries this vintage related to viticulture, with a focus on effects of the wetter than normal start to the season. This report provides an overview of the growing conditions and the major technical issues encountered within the Australian wine industry during vintage 2017.

## CONDITIONS DURING THE GROWING SEASON

The start of the growing season in 2016 was wetter than average, with the Bureau of Meteorology recording the wettest May to September on record for Australia (BOM Annual Climate statement 2016). The wet conditions provided many challenges, including preventing some growers from

Breakdown of helpdesk queries received during vintage 2017

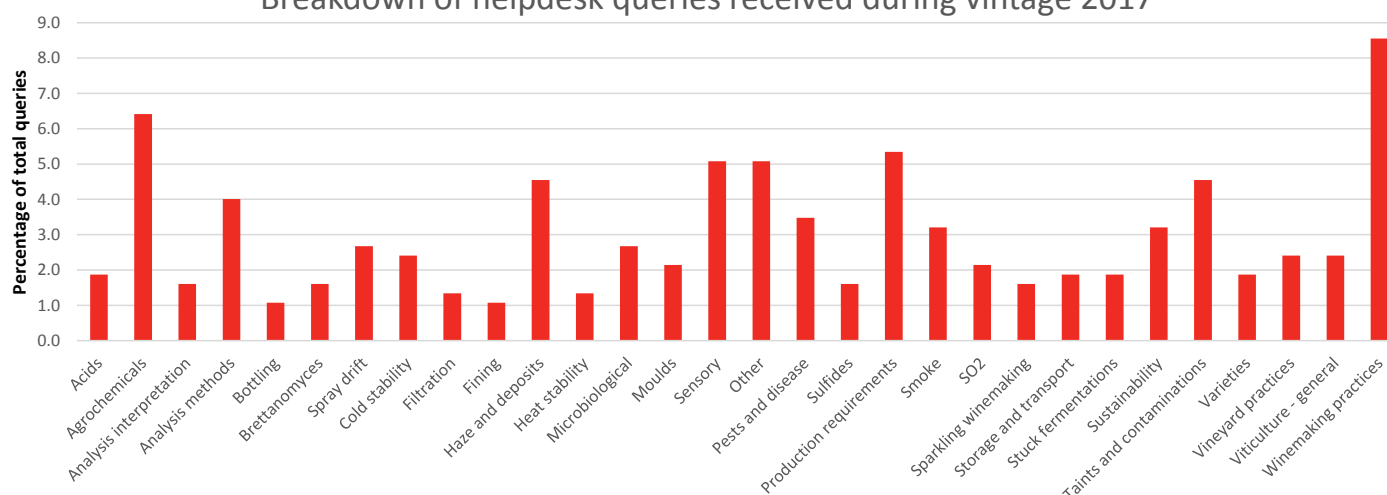


Figure 1. Queries received by the AWRI helpdesk during vintage 2017 (1 January to 1 May 2017), broken down by frequently used keywords. Query numbers are represented as a percentage of total national queries.

accessing vineyards to deliver the first few critical agrochemical sprays. The wet soils also kept soil temperatures low, slowing early growth and leading to uneven budburst. Conditions were similar to those of 2010-11, which gave some growers concern about the potential for agrochemical shortages. These can occur in cool, wet seasons because the fungicides that control disease in grapes are also used in other broadacre and horticultural crops. During this time, the helpdesk answered a high number of queries about options for controlling fungal diseases.

Once the weather warmed up, soil moisture drove strong canopy growth. The dense foliage required more frequent trimming than recent years to allow sprays and light to get into the canopy. With high soil moisture, shoots continued to grow later into the season, where a drying soil would normally signal to the vine to turn its resources towards fruit ripening. This meant that fruit began to ripen slowly across many regions and contributed to a later harvest. With only one year in the past 10 being cooler than long-term average (2011), and seven of Australia's 10 warmest years having occurred since 2005 (Bureau of Meteorology State of the Climate Report 2016), grapegrowers and winemakers were presented with a different vintage in 2017, and one that winemakers more frequently encountered decades earlier. In some regions, harvest was three to four weeks later than 2015 and 2016.

The majority of viticulture enquiries over vintage were related in some way to pest and disease management. More than half of these were covered under three keywords ('agrochemical', 'pests and disease' and 'spray drift' (chemical trespass)). The helpdesk also took many calls about how to control fungal diseases such as powdery mildew late in the season. Strategies involving the use of chemicals with fume or vapour action are recommended because getting good coverage is difficult in established canopies. The risk of pathogen resistance is high when infections are present, so using fungicides with different activity groups is advised.

Conditions during the growing season were cooler and generally more overcast than usual. This favoured the growth of powdery mildew, which can be inhibited by bright sunlight and hot temperatures. The absence of short periods of extremely hot weather also favoured many insects

and greater-than-usual insect pest problems were reported. High populations of millipedes, lightbrown apple moth caterpillars, mealy bugs and scale insects were seen, as well as some of their predators, including spiders. In some regions where scale populations were high, 'sooty mould' was an issue which resulted in the downgrading or even rejection of fruit.



**A significant number of the inquiries to the AWRI helpdesk during the 2017 vintage related to the effects of the wetter-than-normal start to the season, including a number of queries about acidity levels in wines due to the cooler year.**

**Photo: A Cabernet Sauvignon pumpover at Leeuwin Estate during its final week of the 2017 vintage in late April.**

### SOOTY MOULD

Sooty mould is a fungal infection where all parts of the vine (grapes, vine leaves, canes and cordons) can become blackened, as though they are covered with a fine layer of soot. The fungus *Capnodium* is thought to be a cause, although it is possible that other fungi are also involved. The fungi colonise areas of the vine where 'honeydew' has been excreted by sap-sucking insects such as scale and mealybug.

Although some growers report that scale and sooty mould are present in their vineyards every year to some extent, it is not known why their incidence and severity appear to have been greater in recent years. This year's outbreak has been attributed to high levels of scale activity, but the reasons for the scale are still being investigated. A Wine Australia-funded trial has commenced at the AWRI which will investigate any relationships between previous vineyard management practices,

climatic data, and the incidence, severity, and distribution of sooty mould and scale infestations, both between vineyards in the same region, and within blocks in the same vineyard. Several winemaking trials are also being conducted to examine any effect of sooty mould on fermentation performance, wine composition and sensory properties.

Growers are advised to monitor their vineyards for signs of scale during pruning and if high levels of infestation are found, to consider the use of targeted chemical treatments during dormancy. Pruning provides an opportunity to remove sites where the scale could survive during winter and heavy rather than light pruning should be beneficial.

### FLOODING RAINS

In early February, the helpdesk received calls from growers in Western Australia's Swan Valley who had been hit with unprecedented summer rains. The volume of rain caused significant flooding along the Avon River catchment and caught many growers by surprise. Some vineyards became totally submerged, leaving fruit unsalvageable. Following the flood event, access to vineyards was difficult and disease pressure increased. In response to this flood, the helpdesk team sent out an eBulletin to provide information and resources to help growers manage the challenging conditions. Even vineyards that were not flooded faced high humidity during harvest which increased disease risk.

### MANAGING POWDERY MILDEW IN THE WINERY

With the increased levels of powdery mildew seen due to the weather conditions, a number of queries were taken about managing powdery mildew-affected fruit in the winery. While this disease is generally managed in the vineyard with fungicide sprays, once veraison commences, control options that meet export market regulatory requirements are considerably reduced and this year some affected fruit did make it into wineries. To assist winemakers, helpdesk staff put together a new factsheet outlining steps that can be taken in the winery to best manage affected fruit and minimise any sensory effects. Advice covered tips for harvesting and sorting fruit, as well as information about pressing and additions.

## SPRAY DRIFT

High soil moisture in spring was also responsible for strong mid-row growth, which meant that growers needed to perform more tractor passes to slash or spray herbicide. Unfortunately, wet conditions also delayed access to broadacre farms which meant that weeds on these farms continued to grow later into the season. This led to later-than-usual use of herbicides that in some cases drifted into vineyards from neighbouring properties and caused damage to grapevine canopies. Reports of leaf damage from herbicide drift were received from diverse regions across Australia.

## HIGH MALIC ACID CONTENT IN 2017

In terms of winemaking, there have been a number of queries about acidity levels in wines due to the cooler year. Whilst pH levels are 'normal', titratable acidity levels are slightly higher than usual, caused by higher levels of malic acid in fruit. Reports of 3-4g/L malic acid are typical in regions that normally might only have half this amount. Winemakers have also asked about how the higher-than-usual malic acid content would affect the titratable acidity post-malolactic fermentation (MLF). For malic acid, theoretically, each gram per litre (g/L) of malic acid contributes 1.12g/L to the titratable acidity (TA) expressed in terms of tartaric acid. If all of the malic acid is converted to lactic acid, the TA (expressed as tartaric acid) will drop by 0.56g/L for each g/L of malic acid that was originally present in the wine.

For example, if a wine starts with 4g/L of malic acid, the TA would be expected to drop by 2.24g/L after MLF. Note the pH should also be expected to increase following MLF and this can be managed by adding acid before fermentation commences to counterbalance the pH change post-MLF.

## WATER ADDITION PERMITTED IN 2017

In February, the Australia New Zealand Food Standards Code was amended to allow limited addition of water to high sugar must and juice to reduce the chance of fermentation problems. Under the new amendment, water may be added to high sugar juice or must prior to fermentation to reduce the sugar level to no less than 13.5°Baumé (equivalent to 24.3°Brix). This means that the amount of water allowed

depends on the initial sugar level of the juice or must. Helpdesk staff prepared articles and a new water addition calculator to support winemakers in adjusting to this changed regulation; however, high sugar musts were not a big issue this year due to the cooler conditions.

## ADVICE ON SMOKE

This vintage saw few enquiries about smoke taint, the lowest number since 2005. Although no extensive bushfires were experienced in grapegrowing regions, there were still some smoke-related issues from minor fires and prescribed burns that occurred close to vineyards in Tasmania, Victoria, South Australia and Western Australia. The later timing of vintage (three to four weeks later than the previous two) resulted in some cross-over between times when quite ripe fruit was hanging on vines and times when other landholders were conducting burn-offs. Grapes are highly sensitive to uptake of smoke taint compounds from around veraison onwards, making the risk of the fruit becoming smoke tainted high if smoke exposure occurs close to harvest.

The AWRI recommends growers and wineries maintain communications with public land management agencies and stay aware of the scheduling of prescribed burns. Talking to neighbours and letting them know about the potential damage smoke can cause to fruit close to harvest is also recommended, especially if neighbours typically hold permits to conduct burn-offs. In one example from this season, a grower had to nervously await smoke analysis on fruit that was ready for picking after a neighbour had burnt stubble which sent fresh smoke over his vineyard for a short period of time. Luckily for the grower in this situation, the fruit was not affected. During vintage 2017, the AWRI also continued to collect samples to expand the smoke taint background database used to help provide interpretation of smoke taint analysis results.

## 2017'S MOST UNUSUAL QUERY

Every year the helpdesk receives enquiries and carries out investigations that can only be described as 'odd' or 'unusual'. One such enquiry this year was not a technical query related to winemaking, but instead concerned the health and safety of workers working in extreme heat during vintage. The helpdesk

was contacted by a winemaker who wanted to know if the AWRI had any experience with, or had researched, cooling vests for winery workers. While the helpdesk carries a broad range of experience and offers advice on numerous technical topics, sometimes queries fall outside its areas of expertise and further information is sought from other sources. Discussions with a workplace safety agency on this topic revealed that the use of ice vests or cooling vests is not a requirement under legislation. The agency provided a number of useful resources about working in extreme environmental conditions such as those that can be experienced in Australia during vintage. These included references on how to identify and manage heat-related illness as well as strategies to be considered when working in extreme heat and during heatwaves. For further information on any safety requirement, the AWRI recommends companies contact their local workplace safety agency.

## WHAT'S IN STORE FOR 2018?

Every vintage is different, and it is impossible to predict what will be the key climatic influences or technical issues. The Bureau of Meteorology (BOM) does, however, provide some longer-term forecasts that might provide a hint of what's in store. In April 2017 the BOM's seasonal climate outlook for May to July 2017 was released and it indicated that rainfall is likely to be below average and night temperatures cooler, which might lead to frost conditions. The recently-released winter outlook (June to August 2017) continued to indicate that rainfall is likely to be below average over the southern half of mainland Australia and that a drier-than-average June is predicted over much of WA, SA and western parts of NSW and Victoria. As the year progresses, further outlooks will be issued and any trends or issues identified will be communicated by the helpdesk to growers and winemakers.

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