



## Minimising the impact of controlled burns on wine-grape production



### Background

The exposure of vineyards and grapes to smoke may result in wines with undesirable sensory characteristics, such as smoky, burnt, bacon, medicinal or ash, usually described as 'smoke tainted'. The compounds in smoke primarily responsible for the taint are the free volatile phenols such as guaiacol, 4-methylguaiacol, *o*-cresol, *p*-cresol and *m*-cresol. These compounds are produced and released into the atmosphere when plant material is burnt.

### Why are grapegrowers and winemakers concerned about planned/controlled burns?

Consumers and winemakers have been shown to respond negatively to smoke-tainted wines. There are no effective ways to remove smoke taint from grapes or wines. Grapes which are tainted thus have no commercial value and are not likely to be harvested. This has significant

financial impact for grapegrowers because no harvest means no income. There is also a reputational risk if smoke-tainted grapes are harvested and made into wine that is sold domestically or exported.

### The key risk period for grapes

As grape berries develop and ripen, their susceptibility to smoke taint increases significantly. The risk period commences from late November, with the highest risk occurring between January and when the grapes are harvested (usually by May), depending on the region, grape variety and weather conditions (Figure 1). A cooler season can delay ripening and harvest date.

It is typically during the lead-up to harvest in April/May that autumn planned burns are scheduled by state government departments and local councils, potentially causing conflicts with vignerons. Late harvest varieties such as Mourvedre, Nebbiolo and Cabernet Sauvignon



are at greater risk of smoke taint than other varieties as grapes are typically still present on the grapevine when planned burns may be scheduled. Also, red wine-grape varieties can be more prone to smoke taint because the red winemaking process requires them to be fermented on skins.

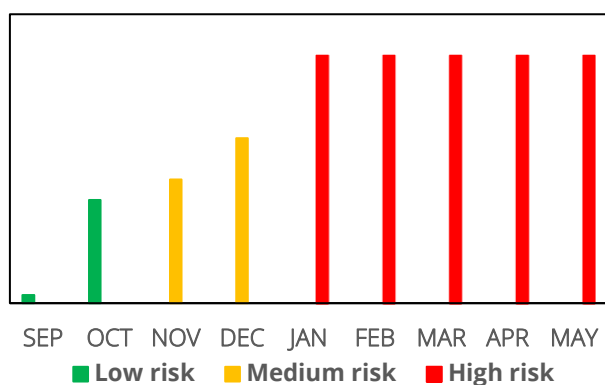


Figure 1. Graph showing the increasing risk of smoke taint from exposure of grapes to smoke as the growing season progresses. The highest risk occurs in the lead-up to harvest.

## Is there a difference between smoke from controlled burns and smoke from bushfires?

Studies have shown that grapes only need to be exposed to a single smoke event, irrespective of the source, to become 'tainted'. Repeated exposure to smoke has an additive effect on the overall levels of smoke taint in grapes and wine. Bushfires, forest fires, planned burns, grass fires and agricultural burns can all cause smoke taint if smoke from those fires is present in a vineyard in at a high enough level for a period of time. Current research suggests fresh smoke presents the greatest risk for smoke taint. Smoke movement from fires varies depends on fire burning dynamics and weather patterns. It is important to understand local weather patterns and likelihood of smoke entering a

vineyard at these sensitive times when making a decision to light a burn.

## How can the impact of a burn/fire on vineyards be minimised?

Knowing where vineyards are situated in relation to fire management zones is important for both the industry and planned burn managers. This can help with planning and conducting planned burn activities more effectively.

Timing, weather (wind, temperature, atmospheric conditions), soil and vegetation moisture levels and burn material are all key factors in determining if a vineyard may be affected.

Efforts should be made to light fires where wind will direct smoke away from vineyards. Other factors that will affect smoke movement include atmospheric conditions (e.g. inversion layers), temperature and soil moisture.

The timing of burns should ideally be chosen so that they do not expose grapes to smoke. Understanding the likely timing of harvest across a region, through a two-way dialogue that continues through the season is the best way to optimise burn planning.

## Communication is key

Maintaining good communication channels between planned burn managers and grape and wine associations is crucial in ensuring that decisions are made that take into account the interests of all parties involved.

If you plan to undertake a planned or prescribed burn in an area near vineyards, please contact the local grape and wine industry association and nearby wineries or vineyards to establish a dialogue and minimise risks of conflict.



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# Fact Sheet

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Communication should ideally occur early in the season, to allow planning to occur prior to high risk times, which are also often when wineries are at their busiest.

Effective communication will minimise the risk of smoke taint and allow contingency plans (such as adjusting harvest dates) to be developed.

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