Smoke management: wine grapes and prescribed burning in South Australia

February 2026

Smoke taint affecting wine grapes can occur following prolonged smoke exposure to grapes from significant bushfire events. While the risk of smoke taint from prescribed burning is less likely (due to the smaller size, intensity and duration of prescribed burns), National Parks and Wildlife Service (NPWS) still undertakes steps to minimise the risk of harm caused by smoke.

Prescribed burn protecting a vineyard in the Adelaide Hills

NPWS uses prescribed burning to reduce fuel loads across strategic areas of public and private land to help limit the spread and intensity of bushfires and protect communities and the environment.

Staff always work to reduce the risk of smoke exposure, and balance this with the need to reduce the risk of bushfire to the community and industry, including grape growers and other primary producers.

Smoke from prescribed burns is unavoidable but, due to careful management, smoke taint has not been known to occur as a result of prescribed burning in South Australia.

Why prescribed burning is important

Fire is a natural part of the South Australian landscape and even the best prevention activities can't stop bushfires occurring during extreme or catastrophic fire weather events. However, reducing fuel loads does reduce the speed and intensity at which a bushfire burns, which can reduce the risk to lives, property, and the environment.

Smoke management is always a consideration during burn planning and delivery, especially when burning close to vulnerable communities such as nursing homes, hospitals and schools, and primary producers such as orchards and vineyards. NPWS consults with CFS, local councils, private landholders and agricultural groups before a burn is scheduled.

On the day of the burn the right combination of fuel load, fuel moisture, temperature, relative humidity and wind speed is needed to ensure the burn is safe and effective. As such prescribed burning is limited to certain days during spring and autumn when conditions are suitable.

For this reason, it can be difficult to avoid an overlap with grape ripening and harvest, particularly when grape harvest is delayed.

Table 1: Regional grape harvest period (in grey) (Broadacre burn-off smoke management guideline, PIRSA, 2023).

Region	January	February	March	April	May
Riverland					
Adelaide Plains					
Barossa Valley and Eden Valley					
Clare Valley					
McLaren Vale and Southern Fleurieu					
Langhorne Creek					
Adelaide Hills					
Limestone Coast					
Kangaroo Island					

Risk to grapes

Grapevines exposed to heavy or prolonged smoke during sensitive growing periods may produce wine that displays smoke-like aromas which can render wine unfit for sale and consumption.

This can result in significant financial loss for wine grape growers.

Repeated smoke exposure, and exposure over a long period, have been found to result in an accumulation of smoke compounds in grapes and resulting wines. However, a carry-over effect from one growing season to the next has not been found.

Vineyards near parks

There are 18 recognised wine areas across South Australia, often near public lands and areas of high bushfire risk.

Prior to burning, NPWS staff will identify smoke sensitive sites or activities in proximity to prescribed burns using a sliding scale (Table 2). Where identified they will actively seek to manage the risk of smoke exposure using the steps outlined below.

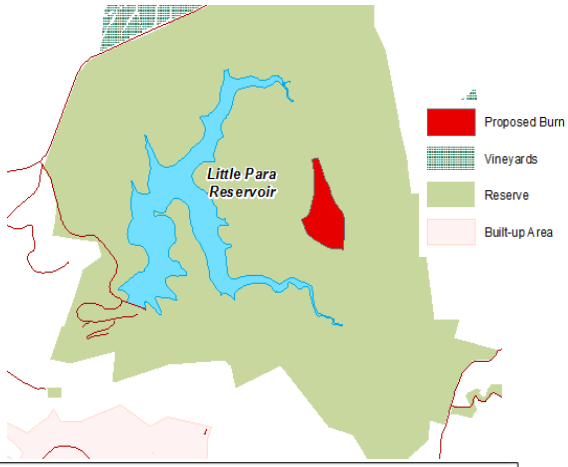
Table 2: Proximity of smoke sensitive sites/activities in relation to size of burn.

Size of burn	Proximity to smoke-sensitive site/activity
<1ha	<500m
1 - 20ha	<1km
20 - 100ha	<5km
>100ha	<10km

Reducing the risk of smoke exposure

Fuel moisture levels, forecast wind direction and surface temperature inversions all affect smoke production and dispersion. NPWS is committed to reducing the risk of smoke taint by:

- identifying prescribed burns which may impact neighbouring vineyards
- liaising with Vinehealth Australia and wine industry groups regarding the status of the grape harvest
- choosing a day with favourable wind conditions to avoid smoke exposure to nearby vineyards
- contacting the Bureau of Meteorology for its smoke modelling tools to predict smoke dispersion
- burning when the fuel has sufficiently dried out and at the right time of day
- assessing potential impacts from smoke drift or inversion layers
- monitoring weather conditions during the burn and changing the lighting pattern or postponing the burn if conditions become unsuitable
- rescheduling a burn if conditions are not favourable.



One Tree Hill Detailed Forecast
Friday 20 March 2020

	9:30 AM	12:30 PM	3:30 PM	6:30 PM	9:30 PM
Air temperature (°C)	16	20	23	16	11
Wind speed km/h	7	11	11	7	9
Wind direction	NNE	NNW	NW	NW	WNW
Relative humidity (%)	64	46	39	51	73
Forest fuel dryness factor	10	10	10	10	10
Mixing height (m)	1039	1993	2105	1900	1885

Figure 1: An example map showing vineyard location and forecast data leading up to a prescribed burn, to inform potential smoke exposure.

What to expect in autumn

Grape growers should be aware that many burns are also carried out by private landowners and ForestrySA.

If you are concerned about smoke from other sources please contact your local council (which issues permits during the fire danger season) or the Environment Protection Authority.

NPWS will continue to liaise with Vinehealth Australia and wine industry groups regarding vineyard locations, and their harvest status, in proposed burn areas.

Explore upcoming prescribed burns in your area with NPWS's interactive map, and sign up to be sent updates for your region.

More information

environment.sa.gov.au/fire-management