

The Risk and Economic Impact of Phylloxera in South Australia's Viticultural Regions

Executive Summary

A report prepared for



Phylloxera and Grape Industry
Board of South Australia

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Executive Summary

Background

The Phylloxera & Grape Industry Board of South Australia commissioned this study to:

- assess each of South Australia's key viticultural regions and determine the probability of an infestation with phylloxera;
- assess the risk¹ of an outbreak of phylloxera in each region.
- undertake a detailed analysis of the economic impact of a phylloxera outbreak² in each of these regions; and

The viticultural regions assessed were:

- Riverland
- Barossa and Eden Valleys
- McLaren Vale
- Coonawarra
- Langhorne Creek
- Padthaway
- Clare Valley
- Adelaide Hills
- Wrattenbully
- Limestone Coast Other (Mt Benson/Robe)
- Fleurieu Other

The Probability of Phylloxera Infestation and Spread in South Australia's Key Viticultural Regions

The following factors, considered likely to lead to an infestation of phylloxera were assessed:

- Proximity to the nearest Phylloxera Infested Zone (PIZ)
- Level of grape planting material imported from interstate
- Level of must or juice imported from interstate for processing in SA
- Vineyard machinery operating in both SA and interstate
- Movement of visitors and industry personnel between PIZ's and SA
- Recent plantings of new vineyards

The following factors were assessed in determining the rate at which phylloxera will spread in a region after infestation:

- Soil type
- Vineyard density
- Movement of grapes into region for crushing

¹ The 'risk' of phylloxera can be defined as a product of the probability of a phylloxera infestation and the consequences (economic impact) of an outbreak.

² Note that an infestation refers to the initial establishment of phylloxera while an outbreak refers to the situation once phylloxera has been detected.

- Rootstocks

The results of the analysis are presented in Table 1.

Table 1 The Overall Relative Probability of Infestation and Spread of Phylloxera in SA's Key Viticultural Regions^a

Region	Overall Relative Probability of Infestation With Phylloxera	Overall Relative Probability of Spread of Phylloxera
Riverland	H	M
Barossa and Eden Valleys	H	H
McLaren Vale	H	H
Coonawarra	M	H
Langhorne Creek	M	H
Padthaway	M	H
Clare Valley	H	L
Adelaide Hills	M	L
Wrattonbully	L	M
Limestone Coast Other (Mt Benson/Robe)	M	L
Fleurieu Peninsula Other	L	L

^a L = Low relative probability, M = Medium, H = High.

Source : SRHS analysis.

The Economic Impact of a Phylloxera Outbreak in South Australia's Key Viticultural Regions

(NEED TO ADD A 30 WORD MAXIMUM SUMMARY OF METHODOLOGY)

Vineyard Level Impact

The results of the economic impact analysis are summarised in Table 2 for the estimated impact on individual vineyards and Table 3 for the estimated impact on regional economies.

Table 2 The Impact of a Phylloxera Outbreak on Profitability for the Representative Vineyard for the Period 2002 to 2021^a

Region	Change in Vineyard Profitability ^a (% difference from base case)
Riverland	-54%
Barossa and Eden Valleys	-39%
McLaren Vale	-24%
Coonawarra	-35%
Langhorne Creek	-26%
Padthaway	-22%
Clare Valley	-41%

Adelaide Hills	-28%
Wrattonbully	-26%
Limestone Coast Other (Mt Benson/Robe)	-20%
Fleurieu Peninsula Other	-24%

^a Vineyard profitability was calculated as the present value of earnings before interest and tax (EBIT) over the period 2002 to 2021 using a discount rate of 7 per cent.

Source: EconSearch analysis.

Regional Impact

Table 3 The Regional Employment and Value Added Impacts of the Worst-Case Phylloxera Outbreak Scenario, 2010 ^a

Region	Employment (No. of jobs)	Value Added ^b (\$m)
Riverland	-105	-31.0
Barossa and Eden Valleys	-110	-24.5
McLaren Vale	-145	-34.1
Coonawarra	-112	-49.2
Langhorne Creek	-63	-15.9
Padthaway	-15	-7.5
Clare Valley	-4	-3.1
Adelaide Hills	2	-0.6
Wrattonbully	-7	-2.8
Limestone Coast Other (Mt Benson/Robe)	1	-0.8
Fleurieu Peninsula Other	-1	-0.5

Source: EconSearch analysis.

The Risk of Phylloxera in South Australia's Key Viticultural Regions

The 'risk' of phylloxera can be defined as a product of the probability of a phylloxera infestation and the consequences (economic impact) of an outbreak. Matrices were constructed to compare the risk of phylloxera at the vineyard and regional levels between South Australia's key viticultural regions.

Vineyard level

The vineyard level risk estimation matrix (Table 4) provides an estimate of the **comparative** risk of a phylloxera outbreak (as distinct from an absolute risk).

Table 4 A Risk Estimation Matrix for Phylloxera in South Australia's Key Viticultural Regions: **Vineyard Level Assessment**^a

Probability of Phylloxera Infestation	High	McLaren Vale	Clare Valley Barossa and Eden Valleys	Riverland
	Medium	Padthaway Langhorne Creek Adelaide Hills Limestone Coast Other	Coonawarra	
	Low	Wrattonbully Fleurieu Other		
		Low	Medium	High
		Vineyard-Level Economic Impact of Phylloxera Outbreak		

Source: EconSearch and SRHS analysis (Derived from Tables 1 and 2).

Regional level

The risk of phylloxera at the vineyard level is not necessarily the same as the risk at the regional level. A risk estimation matrix was also constructed at the regional level (Table 5).

Table 5 A Risk Estimation Matrix for Phylloxera in South Australia's Key Viticultural Regions: **Regional Assessment**^a

Probability of Phylloxera Infestation	High	Clare Valley		McLaren Vale Barossa and Eden Valleys Riverland
	Medium	Adelaide Hills Limestone Coast Other	Langhorne Creek Padthaway	Coonawarra
	Low	Wrattonbully Fleurieu Other		
		Low	Medium	High
		Regional Economic Impact of Phylloxera Outbreak		

Source: EconSearch and SRHS analysis (Derived from Tables 1 and 3).

Conclusions and Recommendations

The key conclusions of this study are as follows.

- The viticultural regions of SA vary greatly in the factors or characteristics that determine the overall relative probability of infestation and spread of phylloxera. Therefore, each region will need to focus on different issues to reduce the probability of infestation and spread of phylloxera.
- At the **vineyard level**, the Riverland vineyards are most vulnerable to the impact of phylloxera because they have the lowest profit margins and a high relative probability of infestation.
- At the **regional level**, the Riverland, Barossa and Eden Valleys, McLaren Vale and Coonawarra, are most vulnerable to the impact of phylloxera outbreak because
- The impact of a phylloxera outbreak in any given viticultural region on the relevant regional economy could be greater than the impact on the South Australian economy due to the substitutability of grapes between regions and the positive economic impact of investment in new vineyards and winery infrastructure.
- Estimates of the economic impact of a phylloxera outbreak were calculated on the basis of current (2001) grape prices. If the prices received for winegrapes were to fall in the future, which seems likely, the actual economic impact of a phylloxera outbreak could be much more severe than reported here. Further, the relative economic impact between regions could change if prices were to move differentially between regions.
- The rate of yield decline in phylloxera infested areas and rate of spread of phylloxera, within and between vineyards, were key assumptions in the risk analysis. Unfortunately, limited data are available and much of it is anecdotal and subjective.
- The use of phylloxera rootstocks is very low in SA; approximately 14 per cent of total vineyard area in 2000 with large variations between regions from about 1 per cent in Coonawarra to 29 per cent in the Riverland.

A number of recommendations are made to the PGIBSA that will assist it to fulfil its charter to:

- prevent phylloxera entering the state;
- control outbreaks of phylloxera in the state; and,
- develop plans for the eradication of phylloxera in the state's vineyards.

The consultants recommend that:

1. The findings of this study be used to prioritise phylloxera prevention activities in regions with a high risk of a phylloxera outbreak.
2. The planting of vines grafted to phylloxera resistant rootstocks be increased, particularly in the regions identified as having high phylloxera risk. This particularly applies to regions with very low levels of rootstock, eg Coonawarra. Rootstocks are still the best insurance against a phylloxera outbreak.
3. A high level of awareness of the factors likely to lead to an infestation of vineyards with phylloxera in SA be maintained by PGIBSA and other agencies.

4. Research into the factors affecting phylloxera infestation and spread, currently being carried out in Victoria, be continued. This work provides data on which to assess phylloxera risks in SA.
5. Regular gathering of information on the movements of grapes, must, juice, planting material, machinery and visitors from interstate and between regions in SA should continue to be carried out. These data will allow objective measurement of the key contributing factors to phylloxera infestation and spread.
6. Secure and practical protocols for the movement of grape material, machinery, and personnel between PIZ and PRZ interstate and PEZ in SA continue to be developed and existing protocols and regulation be subject to ongoing review. These protocols should be standardised nationally with input from the National Vine Health Steering Committee (NVHSC).
7. Adjoining PEZ in SA and Victoria, for example Sunraysia and Riverland, work closely together to provide increased phylloxera security for both regions.
8. Constant vigilance and preparedness for an outbreak of phylloxera must be a key strategy for the SA grape industry. The grape industry needs to understand that quarantine barriers are now based on a risk assessment and there is no such thing as “zero risk” for the entry of phylloxera into SA. The early detection of an outbreak of phylloxera in vineyards will lessen the chance of spread to other vineyards in the region or elsewhere and reduce the economic impact of the outbreak.

If these recommendations are effectively implemented, the probability of phylloxera infestation in South Australian vineyards will be further reduced and the risk minimised.