Australian Government
Grape and Wine Research and Development Corporation

Sustainability of Langhorne Creek Viticulture – Assessing and benchmarking Cabernet Sauvignon wine grape quality for improved performance and marketability.



FINAL REPORT to

GRAPE AND WINE RESEARCH & DEVELOPMENT CORPORATION

Project Number: **RT 05/01 – 04-05-R5**

Principal Investigator: **Davidson Viticultural Consulting Services**

Research Organisation: **Langhorne Creek Wine Industry Council Inc.**

Date: **28 November 2007**

Executive summary:
The project was initiated for the purpose of assessment and benchmarking of Cabernet Sauvignon wine grape quality, the aim being for improved performance and marketability over a three year period, seasons 2005/2006 – 2007/2008. In the 2006/2007 growing season, Langhorne Creek experienced below average winter and growing season rainfall and consequent drought with yields 60% below expected. With drought conditions expected to persist it was decided to finalise the Project after only two years.
The related project report summarises the work carried out over the last two seasons (2005/2006 – 2006/2007) and provides details of the five trial sites, including management practices and measurements of grapevine characteristics over this time period. In both seasons, small batch vinification was undertaken from the vines assessed and preliminary sensory analysis undertaken from the finished wine.
All sites are capable of producing Cabernet Sauvignon 'typical' of the Langhorne Creek Region. Viticultural practices and climatic conditions are similar but there is significant variation in soil type which is the ultimate determinant of vine performance and fruit quality.
Seasonal variation was observed with vines exhibiting less vigour and fruitfulness in the 2006/2007 season. Dry conditions are the most likely cause of this observation, as management practices remained the same in both seasons at all sites with the exception of Site 5 where higher than normal irrigation volume was inadvertently applied in growing season 2006/2007, allowing more normal vine growth.
The continuing drought conditions and related water quality and access issues has prompted interest in continuing vineyard assessment with a focus on vine sustainability, soil structure and health, and recovery. Continuation of this work is dependent on further funding success.

1. Background:

Cabernet Sauvignon has been a major driver for the success of the Langhorne Creek wine region and is a variety that the region is recognized for producing with consistency and quality. Market pressures have lead to a recent decline in demand for this variety, however it is still considered vital to the long-term viability of the local wine industry with extensive areas planted to this variety, as a strong wine varietal, and exceptionally suited to this area.
In 2003 the Langhorne Creek Winemakers Association led a structured benchmark wine tasting session to assess commercial Langhorne Creek Cabernet Sauvignon wines against leading wines from other re known Australian and international Cabernet Sauvignon producers. The outcome from this forum was largely positive indicating that Langhorne Creek Cabernet Sauvignon was indeed capable of competing soundly on both the national and international wine market, possessed unique qualities in flavour and tannin structure, but also provided potential for further development of structure to adopt 'flavour profiles' more suited to the world market to give a competitive edge. This is a theme deserving of further investigation.
The tasting forum looked at completed commercial wines of various origins. The renewed focus is to assess Cabernet Sauvignon vineyard performance, fruit and wine characters to provide growers with real-time local quality comparisons as a means for continued improvement and competitiveness. Five sites across the Langhorne Creek wine region were selected to conduct vineyard performance assessments throughout the season and ultimately to small batch winemaking. The sites provided a range of geographical and soil types.
Perceived benefits of the project include:
Improved knowledge of Cabernet grape growing and winemaking leading to a more marketable product and increased profits.
Improved management capabilities for growers of Cabernet Sauvignon across different areas of the Langhorne Creek wine region.
Help to ensure long-term viability of the local industry and contribute to the ongoing prosperity of the region.

2. Objectives:

To use canopy assessment and berry sensory analysis of Cabernet Sauvignon to benchmark blocks within the Langhorne Creek region.
To assess small lot winemaking results from these blocks in structured tasting sessions to gauge performance and market potential.
To involve growers and winemakers in the assessment process to stimulate discussion, facilitate learning and provide guidelines for fruit assessment in the vineyard.

To stimulate discussion and generate ideas for improving management.
To provide indicative tools for growers to assess and benchmark quality across blocks.

3. Method:

The project was conducted over two growing seasons and vintages, 2005/06 (vintage 2006) and 2006/07 (vintage 2007).
A third season was originally muted but due to drought conditions and funding limitations this project in its current form was concluded in 2007.
The project included seasonal monitoring of 5 sites for vine attributes and performance, soil moisture logging, climatic data collection, fruit ripening, juice attributes and small lot wine making. Wines underwent independent basic sensory assessment and the fruit from the 2007 vintage was assessed for berry sensory attributes. More detailed fruit ripening data was also collected in 2007. EM38 soil conductivity scans were also conducted on each site after vintage 2006.
Full details are in the attached project report.

4. Results/Discussion:

Refer to the attached project report. (Supplied in hardcopy and electronic format.)

5. Outcome/Conclusion:

Describe the outcome of your project.
The project met the expectations of the original application although a third year of assessment was not pursued due to prevailing drought conditions which would have compromised continuation of the project in its current form.
The project has generated a lot of local interest and discussion amongst growers in a cohesive and cooperative atmosphere. It has also given renewed positive focus to the local industry in what have been and will continue to be difficult times (drought).
The project has provided valuable grower insight to detailed assessment of standard vineyard blocks and the resultant fruit and wine. With the five variable sites, most growers in the district have been able to relate their practices and soil type to comparable outcomes across the district.
There have been many avenues to disseminate information and encourage involvement with this project as outlined in the brief summary below.

- Updates in Trellis Talk (local member newsletter).
- Workshop – installation and use of GBug soil moisture monitors in vineyards.
- Workshop – Grower field visit to each vineyard trial site season 05/06.
- Testing – capacity and use of Model-T weather stations.
- Communication – regional weather data.
- Workshop - EM38 soil conductivity demonstration.
- Seminar – project update.
- Presentation & wine tasting – progress for season 05/06 presented at a grower day Nov 2006.
- Workshop – grower field visit to each vineyard trial site season 06/07 (Jan).
- Presentation of wine analysis results of relevance at irrigator drought seminar Sept 2007.
- Presentation & wine tasting – final project outcomes for season 06/07 and wine tasting for vintage 2007 to be conducted in Dec 2007.

Over the term of the project soil data and climatic data has been collected, and will continue to be collected, to provide valuable historical trend data. This will be of significance to regional Climate Change Risk Assessment work being undertaken.
The trial sites and information collected, in alignment with the current drought situation, have provided incentive to apply for funding for continued project work across these and other sites to investigate vine performance and recovery, as well as soil structural and salinity impacts under drought conditions (and associated water quality and accessibility issues).

6. Budget reconciliation:

Budget Reconciliation Report attached.

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REGIONAL INNOVATION & TECHNOLOGY ADOPTION (RITA) RECONCILIATION

Project No. RT 05/01 – 04-05-R5

Project Title
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- **Please ensure that all figures are inclusive of GST (if applicable).**
- The figures in the following table should reflect the approved GWRDC funding amount and any approved Variation after Project commencement.

Budget item	Approved Budget 2006/07 year GWRDC (Regional)	Expenditure 2006/07
Block assessment	**8800 (4400)**	**22629**
Project management (incl. workshops)	**3300 (1650)**	**1682**
Reports	**5280 (660)**	**4237**
Materials	**1100 (1100)**	**271**
Office costs	**1650 (550)**	**0**
Travel	**858**	**1179**
Wine ferments	**5720 (7260)**	**15303**
(Amounts in brackets = regional contribution, other is GWRDC budget amount)		
TOTALS (incl. GST)	(a) $26708 (15620) = $42328	(b) $45301
Balance* (a) minus (b)	$-2973	
Total GWRDC funding (whole project – 2 years)	$53416	

***Notes:**

- Approval must be requested from GWRDC to carry over funds to the following year.
- A full financial Reconciliation is required at the end of the project (to accompany the Final Report). Any unspent funds must be returned to the Corporation

I hereby certify that this Statement of Expenditure is true and correct.

..... Lian Jaensch..... 28 November 2007
Signature Printed Name Date