

Vine improvement - wine quality assessment

Progress Reports from Annual Reports to
GRAPE AND WINE RESEARCH & DEVELOPMENT COUNCIL

Project Number: **RAC 1GW (RAC 1V)**

Principal Investigator: **Dr A J W Ewert**

Research Organisation: **Roseworthy Agricultural College**

Date: **1987 - 1990**

Project Title	Vine improvement - wine quality assessment
Project No	RAC 1V
Organisation	Roseworthy Agricultural College
Location	Grape and Wine Research Unit, Roseworthy College, South Australia
Supervisor	Mr AJW Ewart
Time Span	July 1987 - June 1990

Objectives

(a) To establish whether wine quality differences exist between Chardonnay wines from grapes grown on four different rootstocks. The stocks selected represent high, medium and low vigour stocks.

(b) To establish whether wine quality differences exist between six clones of Sauvignon Blanc grown at McLaren Vale. The six clones have been selected from a group of 14 clones planted in 1981 by the SA Department of Agriculture as part of a clonal selection program.

(c) To establish whether wine quality differences exist between six clones of Shiraz grown at Nuriootpa. The six clones have been selected from a group of 14 clones planted in 1982 by the SA Department of Agriculture as part of a clonal selection program.

Progress

(a) The Chardonnay rootstock trial was harvested on 26 February 1988. The fruit was extremely ripe although still in good condition with light green clusters with approximately twenty percent of the fruit being light yellow in colour. There were no differences in sugar levels but there were significant differences in TA and pH. The fruit grown on Ramsey stock had the highest titratable acidity (mean 9.1 g/L) and the own roots fruit the lowest (mean 7.7 g/L). There were slight differences in pH with the fruit from Schwarzmann rootstock and own roots having the highest pH value. The wines have yet to be bottled, analysed and subjected to sensory evaluation.

(b) The harvest and intake of Sauvignon Blanc fruit from McLaren Vale occurred on 9 March 1988. The fruit was in good condition and very ripe. The low yields, due to poor set, meant that only two fermentation replicates were possible. The two high-yielding Californian clones, F4V6 and F14V9, were harvested nine days later in order that all clones be of similar maturity. This was achieved with there being no significant difference in sugar (^{o}Brix), however, there were significant differences in titratable acidity (TA) and pH. The Californian clones had significantly lower TA, however, only clone F4V6 had a significantly higher pH than the other clones. The wines are currently undergoing stabilisation and will be bottled, analysed and assessed by sensory evaluation over the next two months.

(c) The Shiraz clonal trial fruit was harvested on 22 March 1988. A significant difference in harvest sugar levels was noted with the clones R2/E/V6 and R6/W/V28 being higher in maturity and these will need to be harvested slightly earlier than the other clones in 1989. There were no differences in pH or TA. The wines have been stabilised and bottled and an initial sensory evaluation is planned for September.

GENETIC IMPROVEMENT

Project Title	Vine improvement - wine quality assessment
Project No	RAC 1V
Organisation	Roseworthy Agricultural College
Location	Grape and Wine Research Unit Roseworthy SA 5371
Supervisor	Mr AJW Ewart
Funding	$4 480
Time Span	1987-88 - 1989-90

Objective

. To establish if wine quality differences exist between clones of Shiraz and Sauvignon blanc and if rootstocks affect wine quality of Chardonnay grown at McLaren Vale.

Progress

Sauvignon blanc clonal assessment

The second year of the trial once again showed a large maturity difference, with the two higher yielding Californian clones F4V9 and F14V9 being a large way behind in maturity. Four of the clones were harvested very ripe 26.1-26.8^{o} Brix whilst the two Californian clones were 21.3 and 22.9^{o} Brix. This trial is on a grower's property which meant that the two latter clones could not be left to reach the same maturity due to machine harvesting of the vineyard. The large differences in maturity will cause significant differences in wine quality. Additional sensory evaluation of the 1988 wines which were harvested at similar maturities has shown no difference in wine quality.

Shiraz clonal assessment

This 1989 trial was harvested at the same time, with no significant difference in pH or titratable acidity, however clone Tabilk 6 was significantly lower in maturity than Tabilk 28 and Coonawarra 11. In 1988 Tabilk 6 and Tabilk 28 had the highest maturity. The clones produced two distinct styles of wine, one being lighter and more elegant versus the big and extracted style. The panel of judges preferred the more extracted styles. The rank totals (most to least preferred) were as follows for the 1988 wines: Tabilk 28 (Rank Total) RT 9, NSW 15 RT 12, Tabilk 6, RT 13, BVRC 12 RT 22, Coonawarra 16 RT 24, Coonawarra 11 RT 25. Scoring using the 3, 7, 10 system resulted in significant wine differences being identified by five of the ten Judges. The highest scoring clone was Tabilk 28.

Chardonnay Rootstock Trial

The 1989 grapes were harvested at the same time and at similar maturity levels. Once again the musts from Ramsey and Ruggeri 140 stock had significantly higher titratable acidity than own roots and Schwarzmann. Schwarzmann once again had the highest pH must. The fruit maturity ranged from 22.4 to 24.0 Brix. Sensory evaluation of the 1988 wines has so far shown no significant Wine Quality differences.

The 1990 vintage will enable year-to-year variation to be taken into account in making final recommendations. It would appear at this stage that if the Sauvignon blanc clones are all harvested at a similar maturity no significant wine quality differences would occur. The Shiraz clones appear to be quite different in the style of wine to which they are best suited. The rootstocks appear to have a significant effect on must composition of Chardonnay but not on the overall wine quality.

Project Title	**Vine improvement wine quality assessment**
Project Number	RAC 1GW
Organisation	Roseworthy Agricultural College Grape and Wine Research Unit
Location	Roseworthy, SA
Supervisor	AJW Ewart
Funding	$11,379
Time Span	July 1988 - June 1990

Objectives

- To select clones of Sauvignon blanc and Shiraz with superior composition and wine quality.
- To evaluate wine composition and quality of Chardonnay grafted onto a number of yield enhancing rootstocks.

Progress

Clonal selection practiced in Australia and elsewhere in the world aims to select material which will increase productivity. This vine improvement needs to be assessed in terms of the final product to ensure that wine quality is maintained or improved. Of the six Sauvignon blanc clones assessed four are local selections and two are introductions from California. The fruit was harvested at the same time and the two higher yielding Californian clones were substantially lower in maturity. No strong overall wine quality differences were established although one judge in a panel of eight found F14V9 (Cal) superior to all other clones except SA125 which also was rated highly. In the Shiraz trial maturity differences were evident with clones NSW 15 and Tabilk 6 lower than all others. The clone Tabilk 28 stood out as having higher total anthocyanins and total phenolics than the other clones. Clone Tabilk 28 and BVRC 12 were scored highly and Tabilk 6 and NSW 15 poorly. The Chardonnay rootstock trial showed no difference in maturity even though the yields ranged from 8 - 14.1 kg/vine. Sensory evaluation by a panel of seven judges showed no significant difference. Additional sensory evaluation will be carried out.