McLaren Vale
Vine Improvement
Society Inc.

Heritage Shiraz Trial
2005-2006



Grape and Wine Research and Development Corporation
Project Number : RD04/04-1

Project team

Chief investigator	Mr Wayne Farquhar	SAVII
Yield assessor	Mr Darran McLaaren	MVVIS
Wine maker	Mr Chris Day	Provisor
Regional contact	Mr Jock Harvey	MVVIS
Field manager	Mr Darran McLaaren	MVVIS

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Preface
McLaren Vale Vine Improvement Society Inc received financial support from the Grape and Wine Research and Development Corporation undertake this trial.

Project objective
With the assistance of local winemakers, determine whether grapes from the Shiraz heritage clones under research have a role in improving the quality of red wine production.

Industry and regional benefits
The Shiraz grape is of economic importance to McLaren Vale and, indeed the whole Australian wine industry, as it is considered internationally as a classic red variety.

The current selections of Shiraz clones have been made on their yield characteristics (maximising yield) and an opportunity exists to reselect new clones based on their wine quality attributes (maximising quality).

Shiraz has a long history in McLaren Vale and there are still some vineyards of great age. These old Shiraz vineyards are based on genetic material brought to Australia from Europe pre-phylloxera. As a result these vineyards carry the genetic benefits of many generations of European selection, most of which was lost after the introduction of phylloxera.

Clonal selection work is considered a priority in all major European wine producing countries, with long running government funded programs producing clones of international importance. The Australian wine industry is suited to take advantage of the benefits of clonal selection because of the genetic diversity it has in old vineyard plantings.

Economic benefits
- Increased quality of Shiraz wine leading to value increases (and returns) to Australian producers;
- Expected international demand for quality clones.

Environmental benefits
- Preservation of the genetic heritage of Shiraz.

Social benefits
- The quality Shiraz clones to potentially offer growers additional returns per tonne and/or greater contract security;
- Increased Shiraz wine quality to offer consumers greater product value;
- Considerable value adding (and associated employment) from selecting clonal material and producing and selling wine derived from quality clones.

McLaren Vale Vine Improvement Society is aware of the need for new and improved clones and identified an opportunity to conduct this work in its own region with a replicated trial. The project was supported by McLaren Vale Winemakers and Viticultural groups. The supporting organisations are made up of a cross section of large companies and small family businesses.

Project background
After the South Australian vine pull in the 1970's it was feared that a large selection of heritage Shiraz may have been lost forever. Over a three year period from 1985-1987 members of vine improvement groups at McLaren Vale, Langhorne Creek and Barossa Valley in association with Dr Richard Cirami visited many 80-140 year old Shiraz vineyards to identify any remaining unique selections.
A total of 41 heritage Shiraz vines were selected from these regions and replicated in a planting on the SARDI property at Nuriootpa.
In 2000 South Australian Vine Improvement Inc (SAVII) chose 18 of the lowest yielding heritage Shiraz selections along with 4 industry bench mark clones as controls (clones 1654, R6WV28, R7EV13 and C6-17), for a planting in 2001 on Mr Jock Harvey's property at McLaren Vale. The 22 selections were fully replicated in a planting across 5 rows using the "Latin Square" trial design . The trial vines yielded their first commercial crop in 2004 and in 2004 each vine was pruned to 16 buds in preparation for a full industry assessment of the 2005 vintage.

Project procedure
Evaluation of each selection involved the following steps –

- Yield parameter assessment– yield per bunch, bunch weight, stem weight, berry diameter, berry weight, overall bunch size. These measurements were taken in the vineyard and at harvest;
- Harvest composition – Baume, pH, TA. These measurements taken immediately following harvest;
- Harvested grapes transported to Provisor for winemaking and bottling.
- Organoleptic assessment following small lot winemaking.

Harvest measurements (Table 1)

- Average bunch weight varied from the highest at 240 gm (selection 7) to the lowest at 112 gm (selection 20) with the mean for the group at 153gm
- Berry weight varied from 1.72gm (selection 13) down to 1.08gm (selection 15) with the group mean at 1.39gm
- Berry diameter varied from 13.75mm down to 11.40mm with the group mean at 12.24mm

Fruit delivery and analysis (Table 2)

- Harvest brix for the group ranged from 29.0 (selection 9 down to 27.2 (selections 11, 17)
- Harvest pH ranged from 4.22 (selection 9) down to 3.93 (selection 3)
- Harvest T/A ranged from 4.3 (selection 1) down to 3.7 (selection 17)

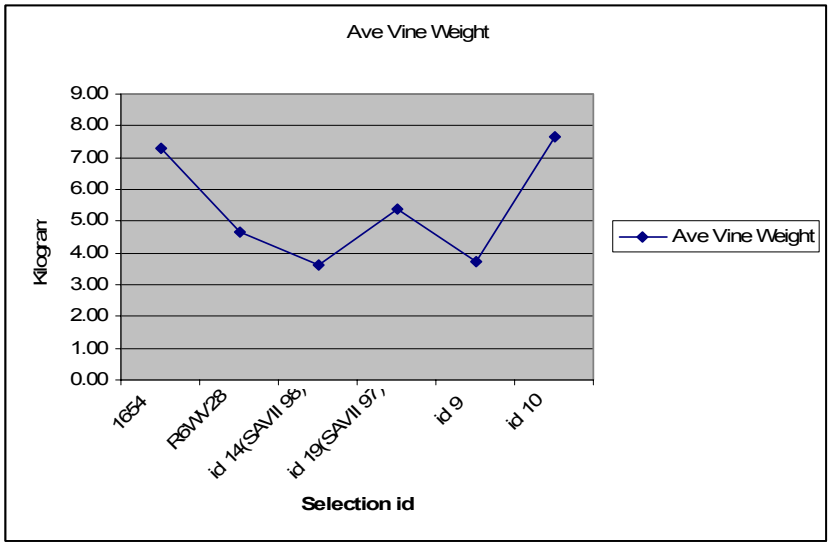
Wine assessment – Winemakers (Table 3)
Winemakers assessed Selections 19 (SAVII 97) and 14 (SAVII 98) as most favoured and Selections 9 and 10 as least favoured for organoleptic assessment

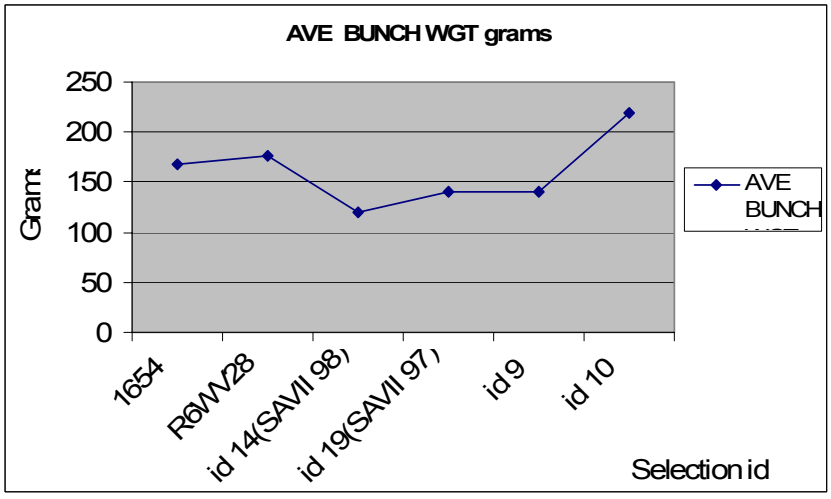
Wine Assessment – Grapegrowers (Table 4)
Several grapegrowers provided their assessments of the selections but scores were inconclusive and are included only for interest.

Winemaker Assessment Summary (Table 5)
Winemakers assessed selection 19 (SAVII 97) as most favoured with selection 14 (SAVII 98) as next most favoured. They assessed selection 10 and selection 9 as least favoured. Details of the Yield Characteristics and Wine Analysis of these six selections are summarised below.

Yield Characteristics – Favoured/Least Favoured/Industry Benchmarks (Table 6)

Selection	Av. Vine Weight Kilograms	Av. Bunch Weight grams	Av. Stem Weight grams	Av. Berry Wt.gm	Av. Berry Diam mm
Selection id.1 (R6WV28)	4.67	176	7	1.36	13.74
Selection id.5 (1654)	7.31	168	11	1.34	12.07
Selection id.19 (SAVII 97)	5.40	140	12	1.30	11.58
Selection id.14 (SAVII 98)	3.64	120	7	1.54	12.70
Selection id.9	3.73	140	8	1.46	12.61
Selection id.10	7.64	220	11	1.52	13.10
Group Average	5.40	161	9.3	1.42	12.87



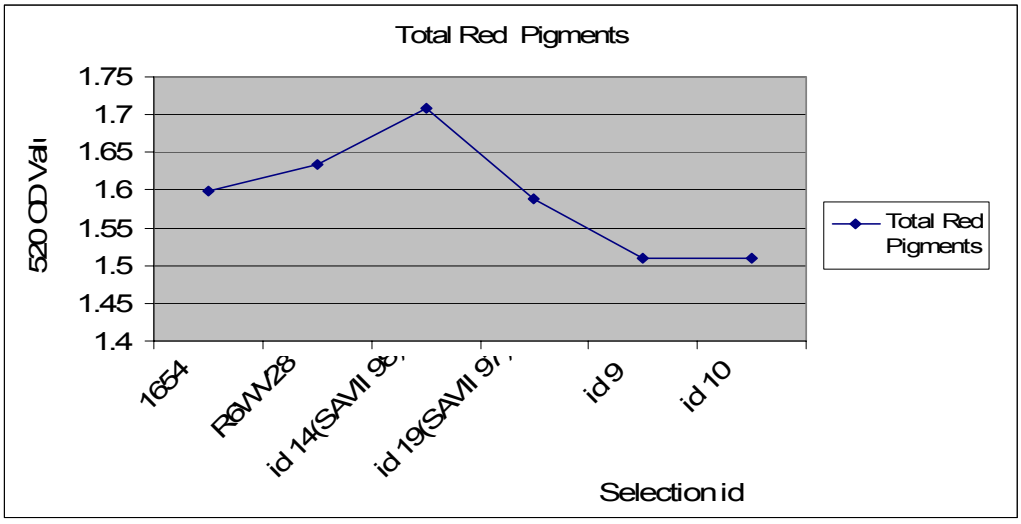


Juice Analysis at Crush – Favoured/Least Favoured/Industry Benchmarks (Table 7)

Treatment	Fruit Weight (kg)	Brix / Baume	pH	T.A. (g/L H_2T)
Selection id.1 (R6WV28)	50	28.3 / 16.0	4.11	4.3
Selection id.5 (1654)	50	28.1 / 15.8	4.12	3.8
Selection id.19 (SAVII 97)	50	28.9 / 16.3	4.14	4.0
Selection id.14	50	28.3 / 15.9	4.10	4.0
Selection id.9	50	29.0 / 16.5	4.22	4.1
Selection id.10	50	28.1 / 15.8	4.08	4.1
Group Average	50	28.1/15.6	4.11	4.0

Characteristics of Favoured, Least Favoured

The most favoured selections id.19 (SAVII 97) and id.14 (SAVII 98) had generally lower bunch weight than the group average. Selection id.19 (SAVII 97) could be regarded as having lower than average berry weight and berry diameter whereas Selection id.14 (SAVII 98) was higher than average for these two measures, yet this selection had the lowest average vine weight and the lowest average bunch weight. Selection id.19 (SAVII 97) had higher than group average Brix/Baume and higher than selection id.14 (SAVII 98). Selection id.9 had above average berry weight and slightly higher berry diameter than the group average. Brix/Baume was higher than the group average and also pH. The least favoured selection (id.10) had significantly higher bunch weight than the group average and also significantly greater berry diameter than the group average. Brix/Baume for this selection was equal to the group average. It would appear there are no characteristics of real significance which can highlight the winemaker assessments. Both Selection id.9 & id.10 had lower total red pigments colour score than Selection id.19 (SAVII 97) & id.14 (SAVII 98). Both Selection id.9 & id.10 had the lowest colour score of the 22 selections in this trial.



Conclusions
A review of the winemaker assessment summary (table 5) shows a clear preference by the fourteen winemakers who undertook the wine evaluation of this "Heritage Shiraz Trial" tasting. The two selections id 14 (SAVII 98) and id 19 (SAVII97) were the highest ranked. The two clones most widely used by industry today, namely "1654 and R6WV28", ranked well below these two "Heritage Selections". Whilst this trial has only had one batch of wines made from it, there is enough statistical comparison data of bunch weight, vine weight and total colour pigments of these two selections along with the winemaker's organoleptic assessments to warrant more extensive plantings of both these selections as potential improvements to Shiraz red wine production.

Availability
Both of the most preferred selections have now been given clonal names and are available for wider industry plantings and assessment.
Selection id. 19 is now given the clonal name of Shiraz SAVII 97 and
Selection id. 14 is now given the clonal name of Shiraz SAVII 98.
These two new released clones are available from McLaren Vale Vine Improvement Society and other South Australian Vine Improvement groups.

APPENDIX

Measurement Tables

Harvest measurements (Table 1)

	NO OF VINES	TOTAL WGT PICKED Kg	25 BUNCH WGT Kg	AVE BUNCH WGT gram	STEM WGT gm	NO OF BERRIES	AVE BERRY WGT gram	AVE BERRY DIAM mm
SELECTION id.1 (R6WV28)	12	56.0	4.4	176	7	100	1.36	13.74
SELECTION id.2 (R7EV13)	11	57.0	4.0	160	9	100	1.34	11.73
SELECTION id.3 (C6-17)	7	54.5	4.1	164	10	100	1.50	12.24
SELECTION id.4	8	58.5	4.2	168	11	100	1.34	12.07
SELECTION id.5 (1654)	18	57.0	3.0	120	10	100	1.24	11.44
SELECTION id.6	12	57.0	5.0	200	6	100	1.24	11.74
SELECTION id.7	15	53.0	6.0	240	7	100	1.44	12.86
SELECTION id.8	12	54.5	3.5	140	7	100	1.16	12.17
SELECTION id.9	15	56.0	3.5	140	8	100	1.46	12.61
SELECTION id.10	7	53.5	5.5	220	11	100	1.52	13.10
SELECTION id.11	8	56.0	3.6	144	7	100	1.26	11.40
SELECTION id.12	10	53.0	3.5	140	8	100	1.60	11.89
SELECTION id.13	12	53.0	3.4	136	8	100	1.72	13.15
SELECTION id.14	14	51.0	3.0	120	7	100	1.54	12.70
SELECTION id.15	14	52.0	3.1	124	8	100	1.08	11.59
SELECTION id.16	11	54.0	3.5	140	11	100	1.60	12.16
SELECTION id.17	12	54.0	3.9	156	10	100	1.36	12.23
SELECTION id.18	10	51.0	3.6	144	10	100	1.32	11.94
SELECTION id.19 (SAVII 97)	10	54.0	3.5	140	12	100	1.30	11.58
SELECTION id.20	10	52.0	2.8	112	5	100	1.34	12.28
SELECTION id.21	11	51.0	3.6	144	9	100	1.40	12.68
SELECTION id.22	14	52.0	3.5	140	12	100	1.44	11.95

Fruit delivery and analysis (Table 2)
Fruit was delivered to Provisor for winemaking on 21 and 22 March 2006. Analysis at receival and following crushing was as follows -

Treatment	Fruit Weight (kg)	Brix / Baume	pH	T.A. (g/L H_2T)
SELECTION id.1 (R6WV28)	50	28.3 / 16.0	4.11	4.3
SELECTION id.2 (R7EV13)	50	28.6 / 16.2	4.12	4.1
SELECTION id.3 (C6-17)	50	27.0 / 15.3	3.93	4.0
SELECTION id.4	50	27.4 / 15.5	3.99	4.0
SELECTION id.5 (1654)	50	28.1 / 15.8	4.12	3.8
SELECTION id.6	50	27.7 / 15.6	4.12	3.8
SELECTION id.7	50	28.5 / 16.1	4.17	4.0
SELECTION id.8	50	28.2 / 15.9	4.17	4.0
SELECTION id.9	50	29.0 / 16.5	4.22	4.1
SELECTION id.10	50	28.1 / 15.8	4.08	4.1
SELECTION id.11	50	27.2 / 15.4	4.04	3.9
SELECTION id.12	50	28.6 / 16.2	4.13	4.1
SELECTION id.13	50	28.3 / 16.0	4.08	4.1
SELECTION id.14	50	28.3 / 15.9	4.10	4.0
SELECTION id.15	50	28.3 / 16.0	4.12	4.0
SELECTION id.16	50	28.8 / 16.3	4.12	4.2
SELECTION id.17	50	27.2 / 15.3	4.13	3.7
SELECTION id.18	50	27.9 / 15.6	4.03	4.0
SELECTION id.19 (SAVII 97)	50	28.9 / 16.3	4.14	4.0
SELECTION id.20	50	28.2 / 15.9	4.15	3.8
SELECTION id.21	50	28.2 / 15.9	4.11	3.9
SELECTION id.22	50	27.2 / 15.4	4.14	3.8

* Brix and Baume measured separately by refractometry and densitometry respectively.

Wine assessment – Winemakers (Table 3)

Sample														
Assessor	1	2	3	4	5	6	7	8	9	10	11	12	13	14
SELECTION id.1 (R6WV28)	15	16	10	12			3.0	3.0	3.0	6.0	3.0	4.0	4.0	7.0
SELECTION id.2 (R7EV13)	15	15		12	15					6.0	1.0	3.5	3.0	5.0
SELECTION id.3 (C6-17)	16	13		12						6.0	3.0	2.0	3.5	6.0
SELECTION id.4	16	14	15	13	14		6.0		6.0	6.0	2.0	2.5	4.0	4.0
SELECTION id.5 (1654)	16	15	9	12		11.0				6.0	3.0	2.0	4.5	7.5
SELECTION id.6	17	15		14			3.0		3.0	6.0	2.0	3.0	3.0	7.0
SELECTION id.7	17	14		14		8.0	6.0	6.0		6.0	4.0	3.5	4.5	5.0
SELECTION id.8	15	15		13		5.0		3.0		6.0	2.0	3.5	4.0	6.0
SELECTION id.9	16	15		14			3.0			5.0	5.0	2.5	3.0	5.5
SELECTION id.10	14	15		12		10.0	3.0		3.0	5.0	1.0	3.0	3.5	6.5
SELECTION id.11	12	14		14		12.0				4.0	4.0	2.5	3.5	7.5
SELECTION id.12	16	15		12		14.0			6.0	5.5	4.0	2.0	3.5	6.0
SELECTION id.13	13	16	8	9				6.0		5.0	2.0	3.0	4.0	5.5
SELECTION id.14	14	16	14	11	13	13.0	6.0		6.0	5.0	2.0	4.5	3.0	7.0
SELECTION id.15	17	15		9		6.0				5.0	5.0	4.5	4.5	6.0
SELECTION id.16	16	16		8						6.0	2.0	2.5	2.5	8.0
SELECTION id.17	18	13		10		15.0	6.0			6.0	3.0	5.0	3.0	7.0
SELECTION id.18	17	16		11			3.0			6.0	1.0	3.0	4.5	5.0
SELECTION id.19 (SAVII 97)	16	16	13	14	12			6.0	6.0	6.0	1.0	3.5	4.0	6.5
SELECTION id.20	15	15		9				3.0		6.0	4.0	2.5	3.5	7.0
SELECTION id.21	18	14	12	11			6.0		3.0	6.0	2.0	2.5	3.0	7.5
SELECTION id.22	16	16	7	10		9.0	3.0		6.0	6.0	2.0	1.5	3.5	7.0

Wine Assessment – Grapegrowers (Table 4)

Sample				
Assessor	1	2	3	4
SELECTION id.1 (R6WV28)	14.5	6		2
SELECTION id.2 (R7EV13)	15.5	6.5		
SELECTION id.3 (C6-17)	14.5	8		
SELECTION id.4	12.5	5		
SELECTION id.5 (1654)	15	8.5		2
SELECTION id.6	15	6.5		2
SELECTION id.7	16	8		
SELECTION id.8	14	8		
SELECTION id.9	15	7.5		
SELECTION id.10	14	8.5		
SELECTION id.11	14.5	8.5		
SELECTION id.12	16	9	3	
SELECTION id.13	13.5	8.5		
SELECTION id.14	16	9	2	2
SELECTION id.15	16	7.5		
SELECTION id.16	15	8.5		
SELECTION id.17	15	8		
SELECTION id.18	16.5	7.5	1	2
SELECTION id.19 (SAVII 97)	14	6		2
SELECTION id.20	14.5	8		
SELECTION id.21	14.5	7		
SELECTION id.22	16	6		

Winemaker Assessment Summary (Table 5)

	Favoured Most	Least	Net	
SELECTION id.1 (R6WV28)	2	3	-1	
SELECTION id.2 (R7EV13)	2	3	-1	
SELECTION id.3 (C6-17)	0	2	-2	
SELECTION id.4	4	2	2	
SELECTION id.5 (1654)	2	1	1	
SELECTION id.6	2	3	-1	
SELECTION id.7	4	3	1	
SELECTION id.8	0	2	-2	
SELECTION id.9	0	4	-4	Least
SELECTION id.10	0	5	-5	Least
SELECTION id.11	3	3	0	
SELECTION id.12	2	0	2	
SELECTION id.13	1	2	-1	
SELECTION id.14 (SAVII 98)	7	2	5	Most
SELECTION id.15	4	3	1	
SELECTION id.16	2	1	1	
SELECTION id.17	3	2	1	
SELECTION id.18	3	3	0	
SELECTION id.19 (SAVII 97)	7	1	6	Most
SELECTION id.20	0	1	-1	
SELECTION id.21	4	3	1	
SELECTION id.22	2	4	2	

Comments from assessors with respect to the Most/Least favoured selections included -

Most favoured –

Selection id.19 (now given the clonal name of SAVII 97):

Tropical lift, lychee. Soft tannin. Good weight
Very nice auts and length. Herbs
Bit stinky. Good weight and mouthful. Flint characters. Interesting. Like the finish
Tarry, vegetative. Good palate. Ripe. Expressive
Young. Attractive
Raspberry nose
Intense. Good layers. Juicy fruit
Sweet. Herbal. Dairy
Grippy
Heaps of mouth. Spice, sandalwood. Intense balanced palate
Fragrant. Lifted complex. Long length

Selection id.14 (now given the clonal name of SAVII 98):

Confectionary. Pepper. Light structure
Good auts and structure. Rich, long
Rich, elegant. Some spice
Ripe notes, tarry, compost, dark cherry. Complex. Tannins good
Generous. Mature
Weedy and green nose. Good palate
Lifted. Good weight. Fine tannins
Spicy. Herbal
Dark intensity. Simple palate
Earthy. Dark. Full even structure

Least favoured -

Selection id.10:

Raspberry. Course tannins. Hollow.
Good auts and flowers. Good length. VSI hot
Cherries, rhubarb. Falls away
Simple. Spritz like. Raspberry/tamarillo flavours. No weight. Merlot like
Earthy. Slight VA. Not much structure
Dirty. Pungent
Sweet notes
Has potential

Selection id.9:

Minty. Blackberry. Briars. Good structure. Persistent length
Nice floral notes
Ripe black fruits, blackberry, soft
Interesting. Tightness. Blackberry notes. Complex. Very tight palate. Spicy. Mulberry. Tannins prominent.
Herbal
Quince. Pomegranate. Simple palate
Good tannins
Ordinary
Lacks intensity and end structure
Green. Capsicum. Tight. Unripe characters

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