Improving Grape and Wine Quality within the Strathbogie Ranges & Goulburn Valley Regions.







FINAL REPORT to
Grape and Wine Research and Development Corporation

Project No. RT 03/04-2

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Research Organisation: Strathbogie Ranges Wine Region

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1. Executive summary

Funding was obtained to conduct a technical seminar program in conjunction with a Barrel Show organised by the Strathbogie Ranges Wine Region. The topic was "Improving Grape and Wine Quality within the Strathbogie Ranges and Goulburn Valley Regions".

The seminar was run on 27th October 2003, with a follow up vineyard walk planned for the 10th February 2004. The seminar mainly covered the Wine Grape Quality Measurement Benchmarking Group (WGQMBG) project run by Luke Rolley. Its aims, methodology and results. The aims of the project are to assess vines and fruit, have the fruit analysed and wine made, and to use this information to make decisions in regard to the impact of vineyard management and seasonal conditions on fruit and wine quality.

Ross Polglase was the presenter. The seminar attracted 25 participants representing an excellent cross-section of vineyards from the regions. The seminar and information was evaluated for planning purposes.

A result of the seminar is that there are a number of growers, particularly in the SRWR that are keen to conduct quality benchmarking on their properties. They are putting another RITA application together to further expand their understanding and promote greater adoption of the process.

2. Background

The wine grape growers from the Strathbogie Ranges Wine Region (SRWR) and the Goulburn Valley Wine Association (GVWA) are very interested in the impact of vineyard management practices on wine quality. As emerging regions with a number of growers new to the industry, and with many businesses diversifying into wine making and marketing, any information that meets the regions needs is quickly taken up and implemented.

The Department of Primary Industries "Grapecheque" program has conducted vineyard walks using Ross Polglase (AR and PM Polglase Consulting), in conjunction with the associations for 2 years. The groups are very interested in Ross's comments in regard to the work he has been doing with the WGQMBG.



The Barrel Show technical seminar with Ross Polglase presenting information on work done by the WGQMBG.

3. Objectives

The aim of the Barrel Show organised by the SRWR was to obtain expert, impartial feedback on the young wines being produced from the regions, with an overall view of improving quality through increasing the participants' skills and knowledge on fruit and wine production. The technical seminar was organised separately to compliment the Barrel Show.

The workshop fits in with these objectives by demonstrating what other growers have achieved, sharing their findings, and by giving the group a process to pursue if they wish to follow the methodology developed by the WGQMBG.

The objectives listed in the RITA application is for the participants to:

- Access information regarding important crop components and management techniques to improve berry composition and optimise wine quality.
- Build up knowledge and skills in assessing and describing grape and characteristics and quality.

4. Method

To achieve their aims, the educational workshop consisted of a session on:

- Judging and assessing the quality of wine. Ian McKenzie, Senior International Wine Judge (not funded in this application)
- The results from the WGQMBG. Ross Polglase, Viticultural Consultant.

Ian's session presented information on how wine is judged and evaluated, internationally and domestically. Using sample wines, he showed the participants the difference between and the characteristics of an unplaced, a bronze, silver and gold medal winning Shiraz.

Ross then talked about the work done by the WGQMBG. The group already has some knowledge of the WGQMBG group and their techniques for evaluating vines pre-harvest, from vineyard walks conducted in 2001 and 2002. Hence Ross's talk focused on the latest results and the implications for these regions.

The seminar, information and direction the group wanted to go with the work was then evaluated using the focused discussion technique (ORID). Questions arising during the presentations were also noted.



Ross discussing fruit quality with wine grape growers.

5. Results/ discussion

The following presentations and attachments are provided:

- Seminar Notes (Appendix 1)
- Winegrape Quality Measurement and Benchmarking Project- seminar presentation, Ross Polglase (Appendix 2)
- Feedback to wineries from Ian McKenzie on unfinished wines in the Barrel Show (Appendix 3)
- Evaluation of the Workshop

Evaluation of the workshop

Twenty-five wine grape growers attended the workshop, with another 3 unable to attend, but requesting the notes be sent to them.

As a component of the evaluation process the following questions were asked of participants:

1. What are some of the key points you remember from Ross's presentation?
2. Did anything you hear in either presentation surprise or shock you?
3. As a result of the presentations is there anything you now realise you need more information about?
4. What will you change on your vineyard as a result of what you heard here today?
5. What did you like/dislike about Ross's presentation?

What are some of the key points you remember from Ian and Ross's presentations?

- The importance of fruit distribution on the vine
- The eternal question of yield versus quality
- Time of harvest- determining, and the importance of
- How winemakers perceptions are very important to perceived quality and consequent price paid

Did anything you hear in either presentation surprise or shock you?

- The effects of differing pH on quality
- The linear correlation of the figures
- How hard it was to compare the two seasons

- How important it was to look at the various vine characteristics including lignification

As a result of the presentations is there anything you now realise you need more information about?
- The implications of drought on quality, yield and profitability
- Opportunities to be involved in the project or to do quality benchmarking in the region

What will you change on your vineyard as a result of what you heard here today?
- I will re-examine some of my existing vineyard management practices particularly in regard to irrigation
- I would like to get more information specific to my vineyard and site
- If possible I would like to participate in a quality benchmarking program
- I will look at the vines on my block to determine how lignified they are pre-harvest

What did you like/dislike about Ross's presentation?
"Ross has the experience and communication skills to really provide our region with really useful information"
"I like some of the comments Ross comes up with, they are very memorable and he is great to listen to"

In the course of the seminar questions and discussions centred on the following topics:
- Tannin levels from year to year
- Stress and the implications on seed numbers and pollination
- The necessity of acid and pH measurements
- Baume ranges at harvest and the effect on quality
- Where were the top wines assessed by the BWGQBMG from?
- Hedging the vines- is it necessary in this region? What are the effects on lignification?
- Balanced vines and achieving them
- Dropping fruit- timing and the effects on quality
- How to impress winemakers.

The issues that arose centred on yield versus quality, and yield implications for profitability.

6. Outcome/ conclusion

The outcome of the workshop and Barrel Show was an increased awareness of the WGQMBG's work, and the potential implications of some of the seasonal and management factors and their impact on wine quality. The wineries that participated in the Barrel Show received professional advice on their young wines, with constructive suggestions on where improvements could be made.

The group as a whole would like to participate in some quality benchmarking, particularly within the Strathbogie region. To this end a post-veraison vineyard walk is planned with Ross Polglase on the 10th February 2004, where the group will conduct vine assessments. The group is also keen to put in a further RITA proposal that will enable them to conduct a pre-harvest vineyard walk and vine assessment, have fruit samples analysed, have wine made and to conduct a review meeting post harvest. This will further build on the groups declared intention of growing the highest quality fruit, making the best wine and building a sustainable wine grape industry in their region.

7. Budget reconciliation

Budget	Funding required from GWRDC		Actual Expenditure
Ross Polglase present, travel etc.	$ 1,500.00		$ 803.00
Workshop planning, facilitation and admi	$ 1,050.00		$ 950.00
Workshop venue hire	$ 750.00		$ 750.00
Workshop general materials	$ 400.00		$ 350.00
Wine samples	$ 250.00		$ 150.00
Follow up vineyard walk w/ Ross. P.	$ 600.00		$ 600.00
Total	$ 4,550.00		$ 3,603.00
Add 10 % GST	$ 455.00		$ 360.30
Total funds obtained from GWRDC	$ 5,005.00	**Total Expended**	$ 3,963.30
		Remitted to GWRDC	$ 1,042.00

Appendix 1

Winegrape Measurement and Benchmarking Project: 2003
Ross Polglase, October 2003

The project, which has been funded by the Grape and Wine Research and Development Corporation, has now run for two seasons. The project aimed to provide growers with a better understanding of the factors which affect shiraz quality.

All aspects of the project were run on statistically valid basis.

Participants in the project

Forty-two blocks of shiraz, from producers in the Bendigo, Swan Hill, Pericoota (Moama), northeast Victoria and Gundagai regions were involved in the project. Viticulture staff, grower liaison officers and wine makers from Southcorp; the National Wine and Grape Industry Centre; Patrick Iland of Davidson Consulting; Brenton Dansie of the University of Adelaide and Ross Polglase contributed to the project.

Format of the project

In 2003, the project aimed to look at the links between vineyard assessments, berry analyses and wine quality. In 2002, we looked at the correlation between vineyard assessments, berry analyses and Southcorp grades.

Vineyard assessments were based on a vineyard score sheet largely developed by Patrick Iland. Myrrhee Consulting carried out Berry analyses. Small lots of wine were made at the National Wine and Grape Industry Centre, and were subsequently assessed by a panel of winemakers.

Vineyard analyses

The vineyard score sheet looks at:

- shoot length and variability
- whether shoots had been trimmed
- extent and location of lateral growth
- shoot periderm development (degree of cane lignification
- degree of seed lignification
- leaf condition
- fruit exposure
- spread of fruit
- light level near bunches
- berry size
- berry colour
- berry shrivel
- flavour intensity
- sugar/acid balance
- skin chewiness
- tannin intensity
- vine balance and crop load

The best correlations were for berry colour and size, cane lignification, leaf condition after leaf 5, spread of fruit and fruit exposure. However, the correlations were poorer than was the case in 2002.

Berry analyses

Samples of berries were sent to Myrrhee Consulting for analyses. The characteristics measured were:

- berry weight
- seed weight/berry
- skin weight/berry
- anthocyanins (colour)/g berry
- phenolics/g berry
- flavonols/g berry
- baumé
- phenolics/g seed, extracted from the seed surface

The best correlations in 2003 were for colour, phenolics and flavonols per gram of berry, berry size and baumé. However, these correlations were low to moderate rather than high.

Wine assessments

Samples of wine were made from each block, following a protocol that had been agreed upon by the National Wine and Grape Industry centre, winemakers from Southcorp and Patrick Iland. The wines were assessed using the show judging system, each wine being scored out of 20.

Flavour complexity, flavour concentration, the level of confectionary and hard tannins (negative characters) and the levels of raspberry, plum, spice and soft tannins were assessed.

There is a spread of fruit from all districts. This proves what many of us know: regions may confer a potential "quality ceiling", but it is possible to grow poor quality fruit in any district.

The results show a narrow range of scores (from 13.42 to 16.25). The narrow range may have been related to the drought conditions that prevailed during the season. However, we know that grape quality, as assessed by winemakers, showed much greater range than the wine scores in this trial indicate. Not all shiraz grapes can be expected to receive the same treatment in the one winery; rather, winemakers usually attempt to combine fruit into parcels with relatively similar characteristics.

The conclusion is clear; producers must aim to impress their winemaker with the quality of their fruit, to ensure that the fruit gets the treatment that it warrants.

Quality in the vineyard

It seems that shiraz growers should aim to produce relatively small berries with good colour, have fruit that is spread out in the canopy, with healthy leaves past leaf 5 carried on canes that are well lignified at harvest.

None of this is new, but it is of value because it ha been determined through replicated trials, where the final quality has been assessed in wine.

Trellising and pruning

Trellising and pruning have an influence on the spread of fruit. Growers, who use strict vertical shoot positioning (VSP), where the canopy on both sides of the row is lifted, place a relatively low limit on yield. This occurs because lifting both sides of a trellis narrows the cropping zone to a narrow cylinder down the row.

Using a partial lift with VSP creates a greater "fruiting volume", achieving a better spread.

Growers in hot areas aim for higher yields. They typically have larger canopies and carry their fruit over a larger volume of canopy per metre of trellis.

Exposure

Whilst higher levels of fruit exposure were better than very low exposure, we are not saying that full exposure is always desirable. In fact, in most climates some cover is essential, especially in fruit exposed to the afternoon sun.

Exposure often relates to shoot density and orientation.

Leaf condition

Leaves produce sugar. Once grapes reach veraison, their sugar content rapidly begins to rise. This can only happen if the leaves on the last half of fruit bearing canes remain in good condition.

Berry size

Berries grow mainly by cell division between set and veraison, then by cell expansion after veraison. The best opportunity to control berry size is in the set to veraison period, by controlling soil water levels. Once the berries approach veraison, it is essential to ensure that the vines receive enough water for sugar production to occur, without encouraging shoot growth.

Cane lignification

The extent of cane lignification tells us how the vines have been growing. Vines that have been over watered in the set to veraison period will show excessive growth, and a poor degree of lignification at veraison and harvest. Such vines will typically produce large berries. Fruit will ripen late if over watering occurs past veraison, because shoot growth will compete with the berries for sugar.

Vines that have been excessively water stressed between set and veraison will also produce canes that have poor lignification at veraison and harvest. Such vines have a poor ability to produce sugars, so harvest may be delayed. They also typically go into a cycle of declining yields, as the vines are unable to store adequate reserves of carbohydrates after harvest.

Ross Polglase

Appendix 3

Variety	Winery	Score	Comments
Pinot Noir	Dominion Wines	16.5	Bright lively, light to medium red, black cherry and strawberry, sweet aromatic fruit but simple. Sweet fruit with some depth, nice texture leading to ripe tannins.// Good colour, upfront berry appeal on nose, licorice and spice, medium weight, varietal, good tannin grip.
Chardonnay	Baarrooka	15.75	Medium colour lacks greens, peachy sweet fruit, straight forward but attractive, medium weight, easy drinking uncomplicated style.// Cheesy nose, slight mustyness, good balance, cool climate fruit, citrus, bit restrained.
Pinot Noir	Rojo Wines	13.5	Dull, oxidised? Bit flat with stalky green notes, palate stale and flat, tannins bitter and hard.//nice ruby no purples, slight VA on nose, lacks freshness, builds on finish but lacks weight.
Cab Franc	Baarrooka	14.75	Bright medium colour, aromatic berry fruit, little confectionary, hint of spice/rhubarb, clean fresh sweet rounded palate, some RS, tight and bright.// attractive deep purple, flat nose lacks primary fruit, so2 required, bit light and simple, young tight palate, gun smoke and berry, tannins well integrated.
Merlot	Baarrooka	13.5	Deep rich colour but already browning, premature development, stale and dull almost rancio, soft mid palate but flat, odd 'pickle jar' character permeates wine.// big rich wine, ripe fruit, tomato bush, brettanomyces? Perfumed but oak dominated, light tannins, wine not as big as nose suggests.
Shiraz	Too Rour Vineyard	15	Deep but slightly mature colour, light eggy sulphide, over the top light fruit, simple quite green palate, lacks depth and generosity, plain.// flat h2s nose, touch leafy, ripe with pepper and spice flavours, good young balance, drink now style, not a keeper.
Shiraz	Maygars Hill	13.5	Dense but very mature colour, nose lacks freshness, odd non vinus processed meat like aroma, quite dull land stale. Solid mid palate quite straky, incredibly mousy which I suspect is not transient, SO_2 may help.// smoked bacon and oyster nose, CO_2 on palate, developed characters coming thru, bit weedy and thin on palate, different style, has a problem.
Shiraz	Dominion Wines	15	Bright medium red, some purples, quite varietal and fresh, spicy end of the spectrum, light anise, French oak, medium weight mid palate, firm tannins which should integrate well. Medium weight style.// attractive inky hue lacking up front varietal appeal, hint of VA savoury oak medium weight, where is the richness?
Merlot	Plunkett Wines	16.25	Spritz on palate, youthful, tight acid, subdued but varietal nose, good balance.// Excellent deep vibrant dense colour, clean slightly spicy, some green leaf but acceptable, oak level sits well, medium weight, sweet fresh fruit leads to slightly green tannins, lots of gas makes it difficult to assess.

Shiraz	Baarrooka	12	Deep but dull overdeveloped colour, volatile and stale, dominated by overt American oak like characters, sweet and sour palate.//volatile!!! Poor sample, lolly and estery nose, unattractive character throughout, balanced tannin, soft rounded mouthfeel, sweet and sour.
Shiraz	Victor Nash	15.5	Deep but dull colour, sulphuric dull nose, but fruit seems rip underneath, rich and full bodied mid palate, but lacking freshness. Could cleanup to be a good wine if receives due attention.//some spice and aniseed aromas, good fruit expression, chewy tannin persistence, good balance, integrated oak, will come together nicely, but needs attention.
Merlot	Baarrooka	14.5	Some deep red but brick also, relatively plain fruit but some simple sulphide spoils it, palate is medium soft, showing premature development.// No fruit expression, stale, sulphide, soft round mouthfeel, little persistence, some blackberry and plum.
Shiraz	Plunkett Wines	15	Balanced, soft, developed, sweet cherry and anise nose, varietal with cool climate background, nice tannin and savoury characters, good oak throughout.// Deep colour but mature for age, fruit seems ripe but nose is overall dull, premature, some nice pepper and spice, some bitterness, check for brettanomyces infection.
Shiraz	The Falls Pastoral Company	13	Rich deep dense red, some premature development, excellent oak with some aldehyde behind it, sweet ripe fruit underneath, palate sweet and round but leads to mousiness, check so2 levels.// sweet cherry and berry, needs time to come together, aldehyde, stewy fruit, little textural persistence.
Shiraz	Plunkett Wines	18	excellent vibrant deep colour with vibrant purples, lovely ripe sweet fruit towards blackberries with some climate spice, lovely depth and richness with very good texture and mouthfeel, soft round supple mid palate leading to strong well balanced ripe tannins.// young and tight, co2 on palate, appealing ripe varietal nose, good savoury notes, balanced tannins, good integrated oak, yum.
Shiraz	Plunkett Wines	16	deep dense colour with some purples, some h2s is masking what appears to be some excellent ripe rich fruit, big rich full bodied mid palate with a lot of flavour and intensity, perhaps a little clumsy just now but has excellent potential, strong mouth puckering tannins which should settle down and integrate.//muted aromas, touch of h2s, big and full palate, huge wine, spicy fruit white pepper and tea leaf, warm, will age well, palate has a lot of depth and texture masking fruit, probably in a transition stage.
Shiraz	Baarrooka	13	deep but very dull brown, stale colour, stale flat nose and palate, going nowhere.//perfumed oak throughout but neglected sample. Prickle on palate, mature flavours, leather and earth already, unattractive for a 2002.
Cabernet Sauvignon	Dominion Wines	15	medium colour quite bright, clean and fresh, plain not particularly varietal, some light h2s, medium weight, lacks fruit definition, tannins quite firm and drying,.//deep rich cassis with oak background, hollow mid palate has good firm finish, with chewy tannins, big and complete, just needs more fruit drive or varietal signature.

Cab Sauv	Baarrooka	14	bright medium red colour, slightly herbaceous green character on nose, with little real fruit, light to medium weight, lacking in depth and generosity, rather lean and green.//dumb on nose, poor sample, savoury with creeping prickle, lacking richness and opulence, balanced for weight and will drink well now, lacking varietal distinction but a nice dry red.
Cab Sauv	Maygars Hill	14.5	medium colour but premature, minty greenish fruit, some h2s and rather dull, palate has some mid palate depth but lacks freshness and vibrance, tannins quite strong and furry, some h2s bitterness on finish.// blueberry and cassis nose with perfumed oak, hint of h2s, good textural interest, but one dimensional, balance and easy drinking now, not true to variety.
Cab Sauv	Plunkett Wines	17.25	lovely deep rich dense colour, bright and fresh, sweet berries, lifted fruit, ripe and varietal, exc palate balance, sweet fruit mid palate, a lot of flavour but has elegance and finesse, lovely tannin structure, very good.// young tight and youthful, big and bold, restrained aromas but elegant, monster palate, plenty of grip, has potential. yum yum
Cabernet Sauvignon	Elgo Estate Wines	12.5	deep rich solid colour, solid very ripe sweetfruit, but lacking freshness, palate full bodied, rather butch, however incredibly mousy which may be transient -ie mlf induced, low point due to mousiness which may not be permanent.// dense cassis and horse hair nose, dirty, dense ripe fruit flavours, good use of oak, which is integrated and adding to the wine, palate better than nose, easy drinking appeal, sweet and ripe.
Chardonnay	Dominion Wines	15	Punters delight, malo butterscotch toast, res. Sugar, upfront oak but not integrated, estery and tropical.// oak and mlf dominate fruit, oily, sweet fruit lacks vibrancy, soft rounded mid palate, alcohol hot, raw oak lingers, bit clumsy. Lacks greens
Chardonnay	Dominion Wines	16	warm, big fat palate, VA?, pear, citrus, better oak balance, lacks greens.// Fresh and lively, some citrus/grapefruit, light simple and fresh, rounded, warm finish but balanced.
Cab Sauv	Baarrooka	13.5	deep but very developed colour, VA and stale, nose and palate.// varietal signatures on nose and palate, classic green bean characters, touch of herbal funk and volatility, but adding interest, seen better days.
Shiraz	Plunkett Wines	16	Vibrant fresh bright colour, fresh aroma but not particularly distinguished, soft round palate relatively simple, solid tannins with good potential.// young and tight varietal nose, restrained palate, medium weight, good acid and structure chewy tannin persistence, good potential.
Cabernet Sauvignon	Strathbogie Ranges Wine Company	15	brown developed flat colour, smelly sulphidic, lacks fruit on palate, stale and flat, sulphide bitterness spoils the palate.// tired nose, but easy drinking palate, lots of instant appeal, ready for bottle, gripping and warm on finish, problem with mercaptan.