



mclaren vale and riverina regions

a survey of wine producers, 2003-04 and 2004-05



abare research report 06.14

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foreword

Australian grape and wine businesses have been redefining the domestic and international wine trade for more than a decade. Conditions are now tougher, and all parts of the industry are examining tactical and strategic options with which to build further success. Understanding the characteristics of wine grape growers is one important element for strategic planning in an industry where product returns are currently subject to downward pressure.

This report is the third in a series commissioned by the Grape and Wine Research and Development Corporation to produce a profile of wine grape growers in key wine grape growing regions. Earlier reports have provided grower profiles for the Mudgee, Clare, Victorian Murray Valley and South Australian Riverland regions.

This report contains detailed physical, financial and technical data collected from growers in the McLaren Vale region of South Australia and the Riverina region of New South Wales. Growers in each region were surveyed to provide a snapshot of farm performance for the 2003-04 and 2004-05 financial years. The information in this report provides an insight into the competitive and resource issues faced by grape growers in the McLaren Vale and Riverina regions.

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summary

the regions

- > The McLaren Vale region is situated just south of Adelaide in South Australia, and is considered to be a cool climate wine region. The region has a reputation for producing premium and super premium quality wines; particularly shiraz and chardonnay. McLaren Vale accounts for around 7 per cent of South Australia's total wine grape production and about 3 per cent of Australia's total production.
- > The Riverina region is located in southern New South Wales, with much of its production area centred on the Murrumbidgee Irrigation Area towns of Griffith and Leeton. The Riverina is a warm climate wine region, producing largely for the popular premium and premium segments of the market. As a large producing region the Riverina produces about 60 per cent of total New South Wales wine grape production and around 13 per cent of total Australian wine grape production.
- > The average area planted to vines in the McLaren Vale region was 19.5 hectares in 2004-05, yielding just over 10 tonnes per hectare. This compares with an average vine area of about 31 hectares in the Riverina and a yield of 16.4 tonnes per hectare. In 2004-05, the average farm gate price of \$1303 a tonne received by growers in McLaren Vale was more than three times that in the Riverina region (\$426 a tonne), reflecting the higher quality of grapes produced in McLaren Vale.
- > In the Riverina region, the proportions of red and white wine grape varieties planted were about 45 per cent and 55 per cent respectively. Producers in McLaren Vale had a much higher proportion of red wine varieties (77 per cent) than white wine varieties (23 per cent).
- > Irrigation is important to commercial wine grape production in both regions. Growers in McLaren Vale irrigated an average of 83 per cent of their vine area and applied 4 megalitres of water to each hectare. This compares with 100 per cent of vine area irrigated and 4.7 megalitres of water applied to each hectare in the hotter, drier Riverina region.
- > In both regions, the top performing farms (based on rate of return to capital) maintained a considerably larger area under vines than the average for all farms. The total vine bearing area was 82 per cent larger in McLaren Vale, and it was 113 per cent larger in the Riverina.

financial performance

- > In 2004-05, grape producers in McLaren Vale recorded an average rate of return on capital and management of 3.4 per cent: a slight increase over the 3.1 per cent recorded in the previous year. The opposite movement in return on capital occurred in the Riverina. In 2004-05, return on capital was 2.4 per cent, whereas in 2003-04, it was 3.2 per cent.
- > Close to 100 per cent of farm cash receipts in the McLaren Vale region were received from wine grape sales, compared with 85 per cent in the Riverina. Growers in the Riverina received cash from sources such as off farm contracting, as well as citrus and wheat sales.
- > Farm cash income – defined as total cash receipts minus total cash costs – was higher in McLaren Vale (\$103 000) than in the Riverina (\$79 000). This result was due to McLaren Vale producers achieving higher total cash receipts and lower total cash costs than their Riverina counterparts.
- > Contractors' services comprised a significant proportion of total cash costs, particularly in McLaren Vale. Contract costs in this region accounted for 31 per cent of total costs. The equivalent value in the Riverina was 15 per cent.
- > When expressed on a per hectare basis, cash receipts in McLaren Vale were about 66 per cent higher than in the Riverina. This is because the higher grape prices in McLaren Vale more than offset lower yields when compared with the Riverina region.
- > Average total cash costs per hectare were also higher in McLaren Vale than in the Riverina. The costs of hired labor and contractors were significantly higher, reflecting more intensive labor inputs per hectare.
- > Producers on the top performing farms in each region significantly outperformed the region average on key financial performance measures. In absolute dollar terms, top performing farms achieved significantly larger cash surpluses and business profits, due primarily to their much larger vine areas and, therefore, higher total production.
- > On a per hectare basis, the top performing farms again achieved superior results to that for all farms, although the relative differences were not as great. The top group of farms in the Riverina region outperformed the average, largely by achieving lower costs per hectare. The top McLaren Vale group performed better through higher income per hectare.

- > Average off farm income per farm in McLaren Vale was around \$16 200. The Riverina was significantly higher at about \$27 500 a farm.

growers' use of information and training

- > Timely and relevant information is important in managing a commercial vineyard, and growers in each region have used a wide variety of sources for this purpose. The most used information sources in both the McLaren Vale and Riverina regions were the purchaser of the grower's grapes, industry organisations, journals and other farmers.
- > Training activities, particularly field days and workshops, were also widely used by growers in both regions. The proportion of growers participating in these two activities was higher in the Riverina than in the McLaren Vale region.

chemical use and environmental issues

- > Intensive horticultural activities, such as grape growing, tend to use high levels of chemicals to maintain optimal vine production. Chemical management—particularly minimisation of unwanted side effects, such as spray drift—was an issue of great importance to growers in both regions. At least 76 per cent of growers in each region nominated efficiency of chemical application as their major concern. Because of associated environmental and health concerns, around 66 per cent of growers in each region indicated they were attempting to reduce their chemical use.
- > Another prominent vineyard management issue was the ability to better target pests and diseases. Targeting vineyard pests and diseases was a concern for 70 per cent of Riverina growers and 47 per cent of McLaren Vale growers. Sixty-six per cent of growers in the Riverina and 52 per cent of McLaren Vale growers monitored for pests and diseases every two to seven days.
- > The quality of irrigation water was a more significant management issue in McLaren Vale than in the Riverina. Around 50 per cent of growers in McLaren Vale routinely monitored irrigation water quality, compared with 15 per cent of growers in the Riverina. Optimal use of fertilisers was important to most growers in each region using tissue or soil tests to determine their fertiliser requirements.

introduction

This is the third in a series of ABARE reports that provide regional profiles of wine grape farms in key wine producing regions in Australia. The wine growing regions profiled in this report are the McLaren Vale region in South Australia and the Riverina region in central New South Wales. Previous reports in this series provided profiles for the Murray Valley (Victoria) and the Clare, Riverland (South Australia) and Mudgee (New South Wales) regions. The Grape and Wine Research and Development Corporation provided funding for the surveys.

The farm profiles are based on data collected during face to face interviews with farm operators conducted by ABARE in 2005. The surveys collected detailed financial, physical and socioeconomic information from wine grape producers for the 2003-04 and 2004-05 financial years. The survey sample was selected from a frame based on the Australian Business Register and maintained by the Australian Bureau of Statistics.

The 2003-04 and 2004-05 survey years corresponded with the two largest Australian grape harvests on record. As a result of slowing export growth and above average production in other new world wine producing countries, such as Argentina, South Africa and the United States, Australian grape producers are increasingly likely to be operating in an environment of declining returns (Gordon 2006). Prices for red wine grapes are expected to decline until 2006-07, and white wine varieties are expected to fall until 2010-11 (Rose and Gordon 2006). Australian grape production is expected to remain at around current levels into the medium term.

The results from these surveys provide information on the physical and financial characteristics of wine grape growing enterprises immediately prior to widespread declines in wine grape prices that began in 2005-06, and are expected to continue into 2006-07. Nonetheless, they will contribute to a better understanding of producers' ability to adjust to a challenging economic environment.

The survey information is presented for two groups of farms in each region. As well as reporting the average for each region, some results are also reported for the top performing 25 per cent of farms in each region based on average rate of return to capital (excluding capital appreciation).

2

mclaren vale region

the region

McLaren Vale is a small wine grape producing region situated just south of Adelaide. The region produces approximately 7 per cent of South Australia's total wine grape production and around 3 per cent of Australia's production (ABS 2005).

The region is broadly bounded by the city of Adelaide in the north, the Sellicks Hill Range in the south and the Adelaide Hills and the Gulf of St Vincent in the east and west respectively. A detailed geographic boundary for McLaren Vale is based on its official geographical indication for wine growing regions (AWBC 2006).

For the purpose of this analysis, McLaren Vale is defined as the following City of Onkaparinga statistical local areas: Hackham, Hills, Morphett, North Coast, Reservoir, South Coast and Woodcroft.

Generally, the region experiences warm, dry summers and moderate winters with winter dominant rainfall. Frosts are rare and relative humidity is low during fruit ripening. The undulating topography and varying exposure to the cooling influence of the nearby ocean results in substantial mesoclimatic variation throughout the region (McLaren Vale Grape Wine and Tourism Association 2006, South Australian Wine Industry Association 2006).

Soil types also vary considerably throughout the region, ranging from podsolc soils of low fertility to fertile red brown earths, terra rossa, renzina, solodic and dark, cracking soils. While the majority of vineyards are irrigated, regional variations in mesoclimate and soil type allow vines to be grown without additional water in some areas (McLaren Vale Grape Wine and Tourism Association 2006, South Australian Wine Industry Association 2006).

John Reynell established the first commercial vineyards in the McLaren Vale region in around 1841. Over 6400 hectares are now devoted to vineyards, and over 80 wine producers are located throughout the region (South Australian Wine Industry Association 2006).

Due to its climatic conditions, the McLaren Vale region is considered one of the most reliable in Australia. It has a reputation for producing premium and super premium quality wines; particularly shiraz and chardonnay.

farm physical characteristics

The average total farm area operated by McLaren Vale grape growers was 37 hectares (table 1). The average area under vines was 19.5 hectares, which accounted for just over 50 per cent of average total farm area operated. The average area of nonbearing vines was small at 0.4 hectares, or less than 2 per cent of total vine area. Some grape growers in McLaren Vale also ran sheep enterprises.

table 1 **key characteristics and physical performance of wine grape growing farms McLaren Vale region** average per farm

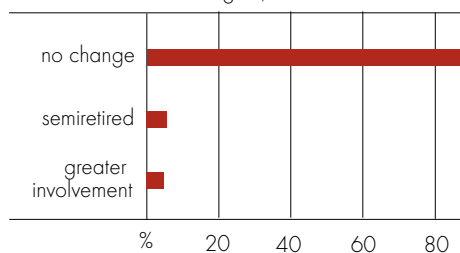
		average, all farms		top 25% ^a	
		2003-04	2004-05	2003-04	2004-05
farm characteristics					
total farm area operated	ha	37 (19)	37 (19)	40 (15)	40 (15)
number of sheep	no.	34 (75)	28 (72)	0 (0)	0 (0)
area of vineyards	ha	19.5 (15)	19.5 (15)	34.7 (16)	34.7 (15)
area of nonbearing vines	ha	0.4 (59)	0.4 (54)	0.0 (100)	0.0 (55)
vines per hectare	no./ha	1 461 (5)	1 618 (4)	1 467 (6)	1 484 (6)
average row width	m	na	3.1 (1)	na	3.3 (2)
yield	t/ha	10.5 (5)	10.2 (6)	11.3 (8)	11.5 (7)
quantity produced	t	201 (16)	195 (14)	391 (13)	400 (15)
water applied:					
- per hectare irrigated ^b	ML/ha	3.7 (11)	4.0 (11)	1.3 (12)	1.6 (13)
- per tonne of irrigated grapes produced ^b	L/t	282 (11)	308 (8)	121 (19)	141 (22)
proportion of production contracted to a winery:					
- 2005 harvest	%	na	77.6 (10)	na	83.5 (9)
- 2006 harvest	%	na	73.0 (11)	na	78.6 (15)

^a Based on two year average rate of return (excluding capital appreciation). ^b Only includes farms providing water use information. **na** Not available

Note: Figures in parentheses are standard errors, as expressed as percentages of the estimates. A guide to interpreting this measure of sample variation is included in appendix A.

The top performing farms (as measured by rate of return) operated total farm areas 8 per cent larger than the average for all farms. The top performing farms also planted considerably more of their total farm area (87 per cent) to vines, and all vines were of fruit bearing age. Consequently, total bearing area for this group was 82 per cent higher than the average for all farms.

fig A **grape producers' expectations of activities in five years time**
McLaren Vale region, 2004-05



The ABARE survey asked producers about their expected future involvement in the wine grape industry in five years time. The clear majority of growers in McLaren Vale (90 per cent) indicated there would not be any changes to their current involvement in the industry (figure A).

With similar grape yields in 2003-04 and 2004-05, average total grape production was also similar in both years, at around 200 tonnes per farm. Total grape production for the top performing farms was double that for the average farm, at around 400 tonnes per farm. This result can be attributed to a much larger area under vines and a 13 per cent higher yield per hectare.

Supplementary irrigation is widely used in McLaren Vale. On average, growers irrigated about 83 per cent of their vine area and applied around 4 megalitres of irrigation water per hectare. The top performing group of growers irrigated about 76 per cent of their vine area and applied around 1.6 megalitres of irrigation water per hectare.

The lower use of irrigation by top performing farms may reflect better water management to meet vine physiological demands and thereby optimise fruit development. It may also be due in part to more widespread use of trickle or drip irrigation methods – 100 per cent of farms in the top performing group used this method. Around 60 per cent of all farms used trickle or drip irrigation, however, and 30 per cent used flood irrigation.

Of the average 19.5 hectares per farm planted to vines, around 77 per cent (15 hectares) were devoted to red wine varieties (table 2). Shiraz (8.4 hectares) accounted for 43 per cent of total vine area with cabernet sauvignon (3.4 hectares) and chardonnay (2.6 hectares) constituting 17 per cent and 13 per cent respectively.

table 2 **area planted, production, yields and farm gate prices on grape growing farms McLaren Vale region** average per farm – selected varieties

		average, all farms		top 25% ^a	
		2003-04	2004-05	2003-04	2004-05
area planted					
chardonnay	ha	2.6 (17)	2.6 (17)	5.1 (20)	5.0 (20)
grenache	ha	1.4 (35)	1.3 (35)	1.2 (45)	1.1 (46)
semillon	ha	0.5 (25)	0.5 (25)	1.2 (23)	1.1 (23)
cabernet sauvignon	ha	3.4 (15)	3.4 (15)	5.9 (13)	5.8 (13)
shiraz	ha	8.3 (16)	8.4 (16)	14.3 (15)	14.6 (14)
merlot	ha	0.9 (32)	0.9 (32)	2.8 (34)	2.7 (34)
red wine varieties	ha	15.1 (15)	15.1 (15)	26.4 (14)	26.4 (14)
white wine varieties	ha	4.4 (17)	4.4 (17)	8.3 (23)	8.3 (22)
all wine varieties	ha	19.5 (15)	19.5 (15)	34.7 (16)	34.7 (15)
production					
chardonnay	t	29 (21)	36 (22)	63 (24)	77 (26)
grenache	t	11 (33)	12 (32)	12 (40)	12 (42)
semillon	t	7 (24)	7 (24)	19 (17)	19 (13)
cabernet sauvignon	t	34 (16)	29 (16)	69 (15)	57 (18)
shiraz	t	80 (18)	73 (14)	154 (11)	151 (12)
merlot	t	11 (28)	13 (33)	32 (30)	40 (35)
yields					
chardonnay	t/ha	11.4 (9)	14.2 (9)	12.4 (14)	15.3 (12)
grenache	t/ha	8.0 (9)	8.7 (9)	10.5 (20)	10.4 (10)
semillon	t/ha	15.4 (16)	16.2 (14)	16.2 (22)	16.6 (21)
cabernet sauvignon	t/ha	10.1 (5)	8.5 (6)	11.6 (5)	9.7 (10)
shiraz	t/ha	9.6 (6)	8.7 (6)	10.8 (7)	10.4 (7)
merlot	t/ha	11.8 (18)	13.7 (17)	11.6 (22)	14.7 (18)
all wine grapes	t/ha	10.3 (5)	10.0 (6)	11.3 (8)	11.5 (7)
farm gate prices					
chardonnay	\$/t	1 346 (5)	1 239 (5)	1 441 (4)	1 235 (9)
grenache	\$/t	1 214 (7)	1 332 (8)	1 356 (19)	1 371 (8)
semillon	\$/t	715 (11)	756 (9)	656 (16)	734 (15)
cabernet sauvignon	\$/t	1 162 (5)	1 092 (9)	1 222 (5)	1 047 (16)
shiraz	\$/t	1 361 (6)	1 494 (6)	1 522 (6)	1 490 (8)
merlot	\$/t	1 137 (8)	1 193 (13)	1 167 (9)	1 189 (15)
all wine grapes	\$/t	1 238 (4)	1 303 (6)	1 342 (4)	1 274 (9)

^a Based on two year (2003-04 and 2004-05) average rate of return (excluding capital appreciation).

Note: Figures in parentheses are standard errors, expressed as percentages of the estimates. A guide to interpreting this measure of sample variation is included in appendix A.

Grape varieties returning the highest yields in McLaren Vale were semillon, chardonnay and merlot. Reflecting the high proportion of area planted to shiraz this variety had the highest total production – 73 tonnes per farm in 2004-05.

Across all varieties, the average farm gate price in the region in 2004-05 was \$1303 per tonne, up 5 per cent on the previous year. Shiraz and grenache table returned the highest average farm gate price to each group of farms in 2004-05. Of the three most planted varieties, region average prices for chardonnay and cabernet sauvignon were lower in 2004-05 compared with the previous year but the average price for shiraz was higher. Top performing farms recorded declines in farm gate price for all three varieties.

farm financial performance

Even though some farms engage in other agricultural activities, such as sheep and wool production, farm businesses are almost totally dependent on wine grapes for their income. Wine grape sales for both groups of farms comprised close to 100 per cent of total farm cash receipts in both 2003-04 and 2004-05 (table 3). On average, total cash receipts in 2004-05 were around \$254 000 a farm, while for the top performing farms, the equivalent figure was 98 per cent higher at around \$503 000 a farm.

Average total cash costs were almost \$151 000 a farm in 2004-05 – around 6 per cent lower than in the previous year. Total cash costs for the top performing farms were 73 per cent higher than the average for all farms.

On average, contract costs comprised just over 30 per cent of total cash costs. Wages for hired labor and repairs and maintenance accounted for 16 per cent and 9 per cent of total costs respectively.

On average, farms spent 40 per cent of their total contract costs on mechanical harvesting and 25 per cent on hand harvesting. The remaining 35 per cent spent of total contract costs was spent on nonharvest activities such as pruning (figure

fig B **shares of crop contracting costs**
McLaren Vale region, 2004-05

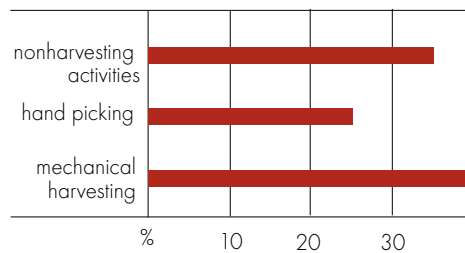


table 3 **financial performance of grape growing farms**
McLaren Vale region

	average, all farms		top 25% ^a	
	2003-04	2004-05	2003-04	2004-05
cash receipts				
total wine grapes	\$ 247 704 (15)	251 952 (16)	522 968 (12)	502 627 (15)
total cash receipts	\$ 251 383 (15)	254 145 (15)	528 269 (12)	503 370 (15)
cash costs				
wages for hired labor	\$ 25 763 (45)	23 990 (46)	43 355 (40)	39 064 (40)
fertiliser	\$ 3 203 (21)	2 718 (22)	6 902 (16)	5 954 (13)
crop and pasture chemicals	\$ 10 705 (25)	10 770 (23)	17 620 (39)	19 613 (32)
fuel, oil and grease	\$ 5 215 (18)	5 805 (16)	7 344 (29)	8 617 (24)
repairs and maintenance	\$ 14 606 (30)	13 877 (26)	27 897 (43)	27 076 (37)
tree and vine replacement costs	\$ 43 (56)	248 (76)	138 (64)	178 (83)
contracts	\$ 49 150 (19)	46 345 (18)	86 638 (30)	83 342 (30)
interest	\$ 15 607 (30)	11 167 (24)	34 294 (43)	19 049 (21)
other costs	\$ 36 478 (21)	36 052 (21)	60 179 (32)	57 536 (33)
total cash costs	\$ 160 769 (20)	150 971 (19)	284 367 (23)	260 429 (22)
financial performance				
farm cash income	\$ 90 614 (18)	103 174 (16)	243 902 (18)	242 941 (17)
plus buildup in trading stock	\$ -51 (97)	-468 (96)	0 (0)	0 (0)
less depreciation	\$ 14 333 (10)	13 648 (9)	19 221 (15)	17 237 (15)
less imputed family labor	\$ 23 103 (12)	24 502 (12)	24 722 (21)	25 401 (20)
farm business profit	\$ 53 127 (32)	64 556 (28)	199 958 (23)	200 303 (22)
profit at full equity	\$ 77 197 (24)	82 547 (25)	244 193 (14)	228 504 (20)
capital appreciation	\$ 0 (0)	-1 199 (86)	0 (0)	-3 736 (95)
profit at full equity - incl. capital appreciation	\$ 77 197 (24)	81 348 (26)	244 193 (14)	224 768 (20)
total value of capital at 30 June \$m	2.5 (15)	2.4 (15)	3.6 (13)	3.6 (12)
rate of return				
- excl. capital appreciation	% 3.1 (19)	3.4 (17)	6.8 (15)	6.4 (16)
- incl. capital appreciation	% 3.1 (19)	3.3 (18)	6.8 (15)	6.3 (16)
total farm debt ^b	\$ 121 965 (26)	136 868 (28)	271 732 (20)	267 334 (22)
equity ratio ^b	% 91 (2)	90 (3)	85 (4)	86 (4)
total liquid assets ^b	\$ 41 301 (58)	20 445 (63)	35 354 (77)	35 909 (75)
off-farm income	\$ 17 370 (38)	16 196 (40)	20 146 (86)	21 480 (80)

^a Based on two year (2003-04 and 2004-05) average rate of return (excluding capital appreciation). ^b Only includes farms that provided information on debt.

Note: Figures in parentheses are standard errors, expressed as percentages of the estimates. A guide to interpreting this measure of sample variation is included in appendix A.

B). The top performing farms had a similar percentage breakdown of contract costs as the average for all farms.

When cash receipts and cash costs are expressed on a per hectare of vines grown basis, the effect of total vine area on financial performance measures is removed. With this approach, the relative differences in cash receipts and costs between the top performing farms and the average for all farms are not as great as when expressed in absolute dollar terms.

Total cash receipts per hectare for the top performing farms in 2004-05 were 11 per cent higher than the average for all farms (table 4). In absolute dollar terms, the difference was almost 100 per cent, as shown in table 3. Average total cash costs per hectare for all farms were around \$7700 in 2004-05. For top performing farms, total cash costs per hectare were only slightly lower at around \$7500. The higher farm cash income (total cash receipts minus total cash costs) per hectare achieved by the top performing farms was largely due to better performance on the income generation side of their business rather than on the cost management side.

table 4 **receipts, costs and financial performance per hectare on wine grape growing farms McLaren Vale region** average per hectare grown

		average, all farms		top 25% a	
		2003-04	2004-05	2003-04	2004-05
total cash receipts	\$/ha	12 859 (6)	13 001 (5)	15 229 (9)	14 489 (8)
total cash costs	\$/ha	8 224 (7)	7 723 (6)	8 198 (12)	7 496 (10)
hired labor	\$/ha	1 318 (33)	1 227 (34)	1 250 (34)	1 124 (35)
fertiliser	\$/ha	164 (23)	139 (26)	199 (15)	171 (19)
crop and pasture chemicals	\$/ha	548 (17)	551 (16)	508 (28)	565 (21)
fuel, oil and grease	\$/ha	267 (20)	297 (18)	212 (40)	248 (32)
repairs and maintenance	\$/ha	747 (17)	710 (14)	804 (28)	779 (22)
administration	\$/ha	229 (23)	200 (24)	228 (29)	193 (30)
contracts	\$/ha	2 514 (9)	2 371 (10)	2 498 (18)	2 399 (20)
rates	\$/ha	373 (22)	396 (22)	388 (25)	421 (15)
interest	\$/ha	798 (33)	571 (29)	989 (48)	548 (25)
farm cash income	\$/ha	4 635 (21)	5 278 (14)	7 031 (26)	6 993 (20)
farm business profit	\$/ha	1 439 (41)	1 756 (34)	4 961 (28)	4 952 (22)
farm debt b	\$/ha	6 043 (30)	5 778 (31)	5 363 (29)	5 326 (29)

a Based on two year (2003-04 and 2004-05) average rate of return (excluding capital appreciation). b Only includes farms that provided information on debt.

Note: Figures in parentheses are standard errors, expressed as percentages of the estimates. A guide to interpreting this measure of sample variation is included in appendix A.

In absolute dollar terms, average farm cash income was about \$103 000 in 2004-05 while average farm business profit was a little under \$65 000 per farm. Eighty-four per cent of farms in the region recorded positive farm cash incomes and 56 per cent recorded positive farm business profits.

The estimated average rate of return to capital and management (excluding capital appreciation) across all grape growing farms in the region was 3.4 per cent in 2004-05. By way of comparison, average farm business loss for Australian cereal cropping and livestock grazing farms in 2004-05 was estimated to be around \$9000, with a rate of return (excluding capital appreciation) of just 0.6 per cent (Martin et al. 2006).

Despite having a higher total value of capital than the average for all farms, the top performing farms also recorded significantly higher farm cash income, farm business profit and a higher rate of return in 2004-05. This group achieved an average rate of return (excluding capital appreciation) of 6.4 per cent, for example, compared with the region average of 3.4 per cent.

Off farm income can provide a financial buffer in situations of low and/or fluctuating farm income. Average off farm income for all farms was around \$16 200 per farm in 2004-05, while for top performing farms it was about \$21 500.

The wine industry in McLaren Vale provides direct and indirect business and employment opportunities for regional communities. Issues that have a financial impact on the wine industry affect not only on grape growers, but also businesses further upstream, such as input suppliers. Table 5 shows how much growers spent on household items and various farm inputs in a local town, a local (and larger) regional centre as well as outside the region. The results show that local towns and regional centres supplied almost all the listed inputs purchased by growers.

For most farm inputs, the average farm spent between 45 and 69 per cent of item by item expenditure in a local town, and between 31 to 47 per cent in a regional centre. Regional centres, however, were more important sources for household items (62 per cent of household expenditure).

Regional centres were also more important sources for top performing farms. The top performing farms spent a higher percentage (between 77 and 85 per cent) in a local regional centre and less (between 15 and 23 per cent) in a local town.

table 5 household and farm expenditure, by location, 2004-05
McLaren Vale region

		average, all farms		top 25% ^a	
total household expenditure in 2004-05	\$	26 504	(14)	24 975	(13)
proportion of household expenditure spent in:					
- local town	%	31	(38)	15	(75)
- local regional centre	%	62	(19)	77	(16)
- elsewhere	%	7	(49)	8	(76)
proportion of fertiliser expenditure spent in:					
- local town	%	69	(14)	15	(75)
- local regional centre	%	31	(31)	85	(14)
- elsewhere	%	0	(0)	0	(0)
proportion of seed expenditure spent in:					
- local town	%	54	(29)	0	(0)
- local regional centre	%	46	(34)	0	(0)
- elsewhere	%	0	(0)	0	(0)
proportion of chemicals expenditure spent in:					
- local town	%	64	(13)	15	(75)
- local regional centre	%	36	(23)	79	(15)
- elsewhere	%	0	(0)	6	(100)
proportion of fuel expenditure spent in:					
- local town	%	64	(13)	15	(75)
- local regional centre	%	36	(24)	85	(14)
- elsewhere	%	0	(92)	0	(0)
proportion of plant hire expenditure spent in:					
- local town	%	53	(30)	23	(94)
- local regional centre	%	47	(34)	77	(27)
- elsewhere	%	1	(117)	0	(0)
proportion of plant repairs and maintenance expenditure spent in:					
- local town	%	45	(34)	23	(94)
- local regional centre	%	47	(34)	77	(27)
- elsewhere	%	0	(0)	0	(0)
proportion of building repairs and maintenance expenditure spent in:					
- local town	%	59	(16)	15	(75)
- local regional centre	%	41	(23)	85	(14)
- elsewhere	%	0	(0)	0	(0)

^a Based on two year (2003-04 and 2004-05) average rate of return (excluding capital appreciation).

Note: Figures in parentheses are standard errors, expressed as percentages of the estimates. A guide to interpreting this measure of sample variation is included in appendix A.

growers' use of information and training

As in other agricultural industries, grape growers require timely and relevant information to make informed business decisions. McLaren Vale growers tended to use a wide variety of sources for their information needs (table 6). For all farms, 46 per cent or more of growers used industry organisations, other farmers, journals and the purchaser of their grapes (mostly wineries) as sources of information about farm production or management.

The most important information source nominated by growers in the top performing group was journals (64 per cent). This group differed from the average in that they made greater use of newspapers and the Internet and less use of industry organisations, other farmers and the purchaser of their grapes to obtain farm production or management information.

Training activities are another important means of acquiring information. Field days and workshops were the training activities most growers participated in during the two year period to June 2005 (figure C). Conferences and consultant organised training programs were significant but less used activities.

table 6 **sources of information used by grape growers, 2004-05**
McLaren Vale region

		average, all farms		top 25% ^a	
proportion of growers using:					
- industry organisations	%	57	(21)	35	(46)
- vine improvement associations/nurseries	%	9	(55)	12	(97)
- state agency	%	13	(81)	0	(0)
- other farmers	%	46	(27)	38	(45)
- conference papers	%	17	(61)	11	(100)
- journals	%	56	(21)	64	(16)
- newspapers	%	22	(41)	39	(26)
- electronic media	%	6	(35)	0	(0)
- internet	%	17	(32)	30	(50)
- purchaser of grapes	%	62	(16)	45	(29)
- other	%	4	(72)	0	(0)

^a Based on two year (2003-04 and 2004-05) average rate of return (excluding capital appreciation).

Note: Figures in parentheses are standard errors, expressed as percentages of the estimates. A guide to interpreting this measure of sample variation is included in appendix A

chemical use and environmental issues

Intensive horticultural enterprises, such as wine grape production, tend to require higher levels of chemicals than many broad acre farms, for example. General environmental and health concerns about chemical use can be heightened by the proximity of residences to vines typical in smaller vineyards.

Around two thirds of growers in the region stated they were attempting to reduce their chemical use, and 46 per cent of growers had undertaken a course on chemicals use in the past three years (table 7). The top performing farms used chemicals at a higher rate per hectare than did the average farm, and were also much more likely to use tissue or soil tests to determine fertiliser requirements and to monitor the quality of their irrigation water.

fig C **grape growing farms that participated in training activities**
McLaren Vale region, July 2003 to June 2005

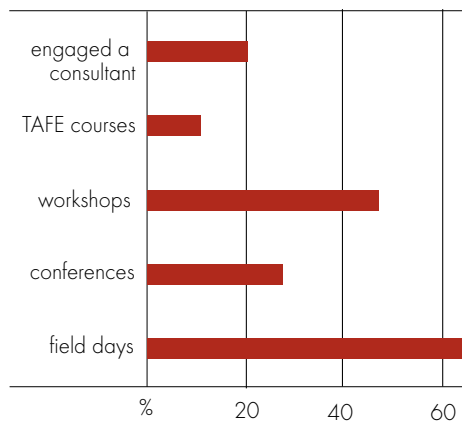


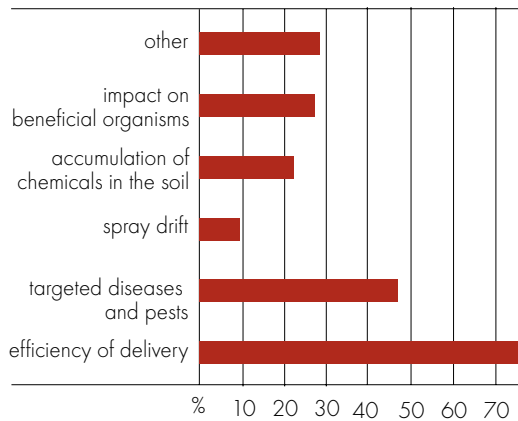
table 7 **chemical use on grape growing farms, 2004-05**
McLaren Vale region

		average, all farms	top 25% ^a
proportion of farms attempting to reduce chemical use	%	66 (15)	59 (26)
percentage reduction achieved	%	26 (28)	29 (32)
proportion of farms undertaking a chemical course in the past 3 years	%	46 (26)	45 (28)
proportion of farms mixing/applying sprays on a rate:			
- per litre/100 litres	%	93 (6)	95 (6)
- per hectare	%	42 (29)	58 (30)
as part of normal farm management program,			
proportion of farms using:			
- tissue or soil tests to determine fertiliser requirements	%	61 (18)	90 (11)
- irrigation water quality monitoring	%	52 (22)	72 (19)

^a Based on two year (2003-04 and 2004-05) average rate of return (excluding capital appreciation).

Note: Figures in parentheses are standard errors, expressed as percentages of the estimates. A guide to interpreting this measure of sample variation is included in appendix A.

fig D **environmental concerns associated with chemical use**
McLaren Vale region, 2004-05



Most growers from both groups monitored the incidence of vineyard pests and diseases every two to seven days (table 8). Sixty-seven per cent of growers from the top performing group used this monitoring regime, while for all farms the equivalent figure was 52 per cent.

Growers in McLaren Vale nominated a range of potential environmental concerns associated with chemical use in the vineyard (figure D). Of most concern were obtaining an efficient delivery of chemicals

(for example, to minimise spray drift and water contamination) and to accurately target pests and diseases.

table 8 **frequency of monitoring pests and diseases by grape growing farms, 2004-05 McLaren Vale region**

		average, all farms		top 25% ^a	
proportion of farms monitoring:					
- daily	%	10	(30)	5	(106)
- every 2-7 days	%	52	(23)	67	(23)
- every 1-2 weeks	%	27	(42)	11	(100)
- every 2-3 weeks	%	3	(95)	0	(0)
- every 3-4 weeks	%	0	(0)	0	(0)
- more than 4 weeks	%	0	(0)	0	(0)

^a Based on two year (2003-04 and 2004-05) average rate of return (excluding capital appreciation). Note: Figures in parentheses are standard errors. A guide to interpreting this measure of sample variation is included in appendix A

3

riverina region

the region

The Riverina extends over a large geographical area in southern New South Wales. Centred on the City of Griffith, the region extends both east-west and north-south for roughly 300 kilometres, although perceptions of the extent of the region can vary. The Australian Wine and Brandy Corporation provided a detailed geographic boundary for the Riverina based on its official geographical indication descriptions for wine growing regions (AWBC 2006).

While the majority of the region's vines are grown around the centres of Griffith and Leeton, smaller plantings are located around towns such as Wagga Wagga to the east, Jerilderie and Coleambally to the south, and Hay to the west. For the purposes of this analysis, however, the Riverina is defined as the Griffith and Leeton statistical local areas only.

Griffith and Leeton are situated in the heart of the Murrumbidgee Irrigation Area, which supports a range of other agricultural industries dependent on irrigation water; particularly citrus and rice growing. Vineyards were first established in the region soon after the official opening of the Murrumbidgee Irrigation Area in 1912. In 2006, approximately 18 500 hectares are planted to vines within the Murrumbidgee Irrigation Area, and 20 wine makers are located throughout the region. The Riverina produces about 60 per cent of New South Wales' total wine grape production, and around 13 per cent of Australia's total wine grape production.

The region's topography is generally flat and the main soil types found in the region are predominantly windswept red-brown earths with some grey clays. The Riverina experiences hot summers – which are associated high evaporation rates – and an annual average rainfall around Griffith and Leeton of 410-430 mm. The north and west parts of the region are generally hotter and drier than the southern and eastern parts.

Autumn conditions often favor the onset and spread of the fungus *botrytis cinerea* – also referred to as noble rot. The prevalence of this fungus has led to the Riverina establishing a national and international reputation for its botrytis affected white wine styles.

farm physical characteristics

The average total farm area operated by wine grape growers in the Riverina was 43 hectares in 2004-05 (table 9). On average, farms had small areas of citrus, and some farms surveyed also grew small quantities of wheat. The majority of total farm area (72 per cent, or about 31 hectares) was planted to wine grape vines, most of which (96 per cent) were of fruit bearing age.

Total farm area was a major differentiation between the average farm and those in the top 25 per cent (based on return to capital). Top performing farms operated total farm areas that were 130 per cent larger than the average for all farms. Despite planting a smaller proportion of their total area to vines (67 per cent), the top performing farms still had an average total bearing area that was more than 110 per cent larger than that for all farms.

table 9 **key characteristics and physical performance of wine grape growing farms Riverina region** average per farm

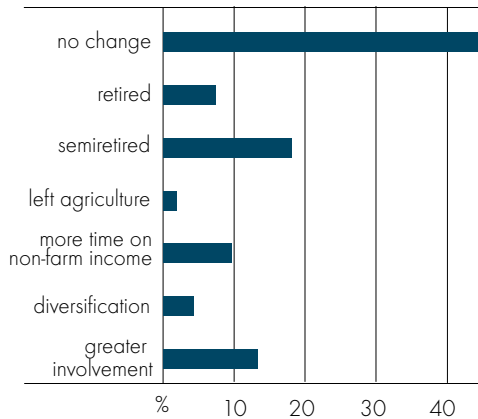
		average, all farms		top 25% ^a	
		2003-04	2004-05	2003-04	2004-05
farm characteristics					
total farm area operated	ha	44 (8)	43 (9)	100 (10)	99 (10)
area of citrus	no.	2.4 (48)	2.4 (48)	5.7 (82)	5.8 (81)
area of vineyards	ha	31.5 (17)	31.1 (17)	68.3 (28)	66.5 (28)
area of nonbearing vines	ha	1.4 (33)	1.1 (24)	2.0 (55)	2.5 (33)
vines per hectare	no./ha	1 172 (13)	1 181 (13)	1 182 (16)	1 223 (16)
average row width	m	na	3.1 (6)	0.0 (0)	2.8 (19)
yield	t/ha	16.3 (4)	16.4 (3)	16.4 (8)	17.0 (3)
quantity produced	t	491 (17)	493 (17)	1 090 (28)	1 089 (28)
water applied:					
- per hectare irrigated ^b	ML/ha	4.3 (5)	4.7 (7)	5.2 (6)	5.6 (7)
- per tonne of irrigated grapes produced ^b	L/t	282 (11)	308 (8)	121 (19)	141 (22)
proportion of production contracted to a winery:					
- 2005 harvest	%	na	66.3 (14)	na	95.4 (2)
- 2006 harvest	%	na	67.7 (13)	na	90.4 (2)

^a Based on two year average rate of return (excluding capital appreciation). ^b Only includes farms providing water use information. **na** Not available.

Note: Figures in parentheses are standard errors, expressed as percentages of the estimates. A guide to interpreting this measure of sample variation is included in appendix A.

In contrast to McLaren Vale region, the Riverina has a large proportion of growers who expect a reduced involvement in the wine grape growing industry in five years time. Reasons for this included retirement or semiretirement, diversification or departure from agriculture, and more time earning nonfarm income. This suggests the Riverina region is about to enter a five year period of significant ownership change within the industry.

fig E **grape producers' expectations of activities in five years time**
Riverina region, 2004-05



The growers that expected a reduced involvement in the industry in five years time generally operated smaller farms with a correspondingly smaller area of vines. While they received a similar level of receipts per hectare of vines, their average per hectare costs were significantly higher. In particular, they paid more for contractors, hired labor, chemicals, fertilisers and fuel. As a result of their higher costs, their farm cash incomes and farm business profits were much lower than producers that expected a similar or greater involvement in the industry in five years time.

In 2004-05, total average grape production for all farms was 493 tonnes, while for the top performing farms it was 1 089 tonnes (table 9). These tonnages were virtually unchanged from the previous year.

The proportion of vine area planted to red wine and white wine varieties was about 45 per cent and 55 per cent respectively, with no significant difference in these proportions between the two farm groups. Nor was there a large difference between the two groups in the proportion of total vine area devoted to the three most planted varieties: shiraz, semillon and chardonnay. These three varieties collectively comprised 58 per cent of total vine area for all farms and 53 per cent for the top performing farms.

Average yield per hectare for all wine grape varieties did not vary significantly between 2003-04 and 2004-05 for either group of farms. Nor were yields much different between the two groups of farms. Semillon was the highest yielding variety for both farm groups in 2004-05.

table 10 **area planted, production, yields and farm gate prices on grape growing farms Riverina region** average per farm – selected varieties

		average, all farms		top 25% ^a	
		2003-04	2004-05	2003-04	2004-05
area planted					
chardonnay	ha	6 (21)	6 (21)	12 (28)	12 (27)
grenache	ha	0 (69)	0 (69)	0 (94)	0 (94)
semillon	ha	5 (13)	5 (13)	11 (19)	11 (21)
cabernet sauvignon	ha	3 (39)	3 (39)	7 (58)	7 (58)
shiraz	ha	7 (11)	7 (11)	12 (19)	12 (20)
merlot	ha	2 (49)	2 (48)	5 (77)	5 (77)
red wine varieties	ha	14.2 (21)	14.1 (21)	30.2 (38)	29.4 (39)
white wine varieties	ha	17.3 (17)	17.0 (16)	38.1 (25)	37.1 (24)
all wine varieties	ha	31.5 (17)	31.1 (17)	68.3 (28)	66.5 (28)
production					
chardonnay	t	71 (31)	84 (24)	169 (47)	177 (34)
grenache	t	2 (69)	1 (71)	3 (94)	3 (94)
semillon	t	99 (14)	100 (17)	206 (18)	227 (26)
cabernet sauvignon	t	40 (39)	42 (42)	101 (59)	114 (60)
shiraz	t	119.4 (16)	100.7 (13)	246.6 (29)	186.0 (24)
merlot	t	32.0 (41)	33.6 (44)	72.2 (67)	73.8 (72)
yields					
chardonnay	t/ha	12.1 (17)	14.0 (7)	13.9 (22)	14.3 (9)
grenache	t/ha	20.2 (19)	17.2 (32)	0.0 (0)	0.0 (0)
semillon	t/ha	18.7 (7)	19.3 (9)	18.9 (8)	21.6 (14)
cabernet sauvignon	t/ha	14.6 (4)	15.5 (6)	14.3 (3)	16.4 (3)
shiraz	t/ha	17.4 (10)	14.6 (5)	20.3 (16)	15.5 (9)
merlot	t/ha	13.8 (11)	14.4 (8)	13.2 (14)	13.7 (7)
all wine grapes	t/ha	15.6 (4)	15.8 (3)	16.0 (6)	16.4 (3)
farm gate prices					
chardonnay	\$/t	746 (6)	593 (3)	777 (6)	595 (2)
grenache	\$/t	367 (7)	423 (5)	400 (0)	400 (0)
semillon	\$/t	360 (6)	426 (2)	391 (4)	418 (3)
cabernet sauvignon	\$/t	357 (11)	371 (9)	352 (17)	385 (12)
shiraz	\$/t	403 (4)	403 (4)	397 (6)	403 (4)
merlot	\$/t	389 (4)	375 (4)	376 (0)	357 (1)
all wine grapes	\$/t	432 (4)	426 (2)	442 (5)	423 (3)

^a Based on two year (2003-04 and 2004-05) average rate of return (excluding capital appreciation).

Note: Figures in parentheses are standard errors, expressed as percentages of the estimates. A guide to interpreting this measure of sample variation is included in appendix A.

With a low average annual rainfall of approximately 420 millimetres, hot summers and high evaporation rates, Riverina grape growers depend heavily on irrigation water. Both groups of farms irrigated 100 per cent of their vine area. On average, farms applied 4.7 megalitres of irrigation water per hectare in 2004-05, with top performing farms applying about 1 megalitre per hectare more than this.

Across all varieties, the average farm gate price in 2004-05 was only slightly below that received in 2003-04. This slight decline in average price can be largely explained by a 21 per cent fall in chardonnay prices, which more than offset increases in grenache and semillon prices. Despite recording the largest percentage fall in price for any variety, chardonnay still returned the highest price to growers of \$593 per tonne. This decline in chardonnay price was consistent with declines in other regions, including the Murray Valley and Lower Murray (Gordon 2006). There was little difference in farm gate price (average of all varieties) between the top performing farms and the average for all farms.

farm financial performance

Wine grape production was the most important source of income for Riverina producers. On average, producers in the Riverina received 85 per cent of their total cash receipts from grape sales. Other sources of cash income included off farm contract work and sales of wheat and citrus.

In 2004-05, average total cash receipts for all farms were around \$243 000. For top performing farms, total cash receipts were more than 130 per cent higher, at about \$565 000 a farm. This was mostly the result of top performing farms producing significantly more wine grapes from a much larger area of vines.

Average total cash costs were about \$164 000 in 2004-05, which was up slightly on the previous year. Total cash costs for the top performing farms were almost 70 per cent higher, at around \$277 000 a farm. The item by item composition of total cash costs was much the same for both groups of farms.

Growers in the region often use the services of contractors for grape harvesting and other vineyard activities such as pruning. The breakdown of contract costs in figure F shows a high overall use of mechanical harvesting, as opposed to hand harvesting of grapes. Over half of total contract costs (57 per cent) were spent on mechanical harvesting. As a relatively new wine expansion area, many Riverina growers have specifically set up their vines for mechanical harvesting. Advantages of mechanical harvesting include allowing wineries to intake full parcels of grapes over short periods and allowing growers to harvest at night.

table 11 **financial performance of grape growing farms**
Riverina region average per farm

	average, all farms				top 25% ^a				
	2003-04		2004-05		2003-04		2004-05		
cash receipts									
total wine grapes	\$	212 034	(20)	206 606	(18)	482 373	(33)	460 658	(28)
total cash receipts	\$	250 705	(16)	243 288	(16)	580 092	(25)	564 653	(23)
cash costs									
wages for hired labor	\$	16 688	(39)	16 607	(32)	28 789	(79)	24 178	(75)
fertiliser	\$	11 131	(26)	11 044	(20)	21 507	(45)	18 003	(37)
crop and pasture chemicals	\$	11 441	(15)	13 200	(17)	24 072	(24)	27 962	(25)
fuel, oil and grease	\$	8 423	(11)	9 813	(15)	13 770	(16)	17 986	(27)
repairs and maintenance	\$	18 994	(19)	20 349	(19)	37 644	(35)	36 199	(31)
tree and vine replacement costs	\$	925	(28)	2 525	(25)	1 419	(27)	2 231	(6)
contracts	\$	27 519	(18)	24 838	(17)	38 472	(34)	37 118	(31)
interest	\$	13 070	(32)	14 427	(34)	31 005	(21)	36 069	(20)
other costs	\$	52 727	(15)	51 261	(14)	86 349	(27)	77 732	(21)
total cash costs	\$	160 919	(14)	164 065	(13)	283 027	(27)	277 479	(24)
financial performance									
farm cash income	\$	89 786	(25)	79 224	(28)	297 065	(24)	287 174	(24)
<i>plus</i> buildup in trading stock	\$	0	(0)	0	(0)	0	(0)	0	(0)
<i>less</i> depreciation	\$	15 782	(11)	14 852	(11)	24 492	(21)	23 432	(19)
<i>less</i> imputed family labor	\$	34 446	(8)	35 220	(8)	46 017	(10)	47 130	(10)
farm business profit	\$	39 559	(56)	29 152	(75)	226 556	(32)	216 611	(31)
profit at full equity	\$	60 402	(39)	45 962	(52)	264 699	(29)	253 612	(28)
capital appreciation	\$	30 857	(68)	25 741	(58)	108 420	(34)	37 048	(89)
profit at full equity									
- incl. capital appreciation	\$	91 259	(41)	71 703	(41)	373 119	(24)	90 660	(29)
total value of capital at 30 June	\$m	1.9	(12)	1.9	(12)	3.6	(18)	3.6	(18)
rate of return									
- excl. capital appreciation	%	3.2	(30)	2.4	(43)	7.4	(15)	7.0	(15)
- incl. capital appreciation	%	4.9	(32)	3.8	(32)	10.4	(13)	8.1	(22)
total farm debt ^b	\$	389 568	(21)	393 687	(23)	459 076	(28)	466 611	(30)
equity ratio ^b	%	86	(2)	86	(2)	87	(2)	86	(3)
total liquid assets ^b	\$	32 632	(59)	17 820	(52)	31 407	(80)	9 976	(62)
off-farm income	\$	27 622	(48)	27 539	(47)	32 309	(59)	31 199	(58)

^a Based on two year (2003-04 and 2004-05) average rate of return (excluding capital appreciation). ^b Only includes farms that provided information on debt.

Note: Figures in parentheses are standard errors, expressed as percentages of the estimates. A guide to interpreting this measure of sample variation is included in appendix A.

Expressing cash costs and cash receipts on a per hectare of vines grown basis removes the effect of area on financial performance measures. When expressed this way, the difference between the top performing farms and the average for all farms is not as great as when expressed in absolute dollar terms.

On a per hectare basis, the top performing farms earned cash receipts that were 9 per cent higher than the average for all farms and incurred cash costs that were around 20 per cent lower (table 12). This illustrates that the higher farm cash income (total cash receipts minus total cash costs) per

fig F **shares of crop contracting costs**
Riverina region, 2004-05

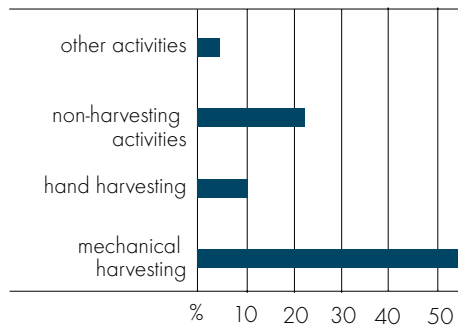


table 12 **receipts, costs and financial performance per hectare on wine grape growing farms Riverina region** average per hectare of vines grown

		average, all farms		top 25% a	
		2003-04	2004-05	2003-04	2004-05
total cash receipts	\$/ha	7 956 (4)	7 815 (7)	8 494 (8)	8 493 (13)
total cash costs	\$/ha	5 107 (9)	5 270 (9)	4 144 (15)	4 174 (14)
hired labor	\$/ha	530 (28)	533 (22)	422 (56)	364 (51)
fertiliser	\$/ha	353 (17)	355 (14)	315 (19)	271 (11)
crop and pasture chemicals	\$/ha	363 (13)	424 (15)	352 (23)	421 (28)
fuel, oil and grease	\$/ha	267 (15)	315 (8)	202 (23)	271 (7)
repairs and maintenance	\$/ha	603 (18)	654 (16)	551 (38)	544 (26)
administration	\$/ha	285 (13)	270 (11)	262 (23)	220 (20)
contracts	\$/ha	873 (20)	798 (22)	563 (35)	558 (38)
rates	\$/ha	317 (16)	406 (13)	239 (17)	292 (19)
interest	\$/ha	415 (28)	463 (31)	454 (26)	543 (27)
farm cash income	\$/ha	2 849 (12)	2 545 (18)	4 350 (5)	4 319 (14)
farm business profit	\$/ha	907 (51)	674 (69)	2 263 (26)	2 178 (24)
farm debt b	\$/ha	6 400 (29)	6 927 (28)	6 206 (32)	6 482 (33)

a Based on two year (2003-04 and 2004-05) average rate of return (excluding capital appreciation). b Only includes farms that provided information on debt.

Note: Figures in parentheses are standard errors, expressed as percentages of the estimates. A guide to interpreting this measure of sample variation is included in appendix A.

hectare achieved by the top performing farms (\$4319 versus \$2545) was more due to better management of costs rather than revenue generation.

In absolute dollar terms, the average farm cash income for Riverina wine grape producing enterprises was about \$79 000 in 2004-05, while average farm business profit was around \$29 000 a farm. At an individual farm level, 67 per cent of farms in the region recorded positive farm cash incomes, and 42 per cent recorded positive farm business profits. The average rate of return to capital and management (excluding capital appreciation) for all farms was 2.4 per cent. This was down on the 3.2 per cent attained in 2003-04.

The top performing farms achieved an average rate of return of 7 per cent – almost three times greater than the average for all farms. While this group had a higher total value of farm capital (\$3.6 million), they also earned much higher profits compared with the average calculated across all farms in the region.

On average, off farm income was around \$27 500 a farm in 2004-05, while for top performing farms it was about \$31 200. The importance of income generated through off farm activities was not greatly different between the two farm groups. As a measure of this relative importance, off farm income can be expressed as a percentage of total household receipts (defined as farm cash receipts plus off farm income). For the top performing farms, off farm income was equivalent to 5 per cent of total household receipts (2004-05 figures), while the average for all farms was 10 per cent.

The grape growing industry provides Riverina regional communities with important business and employment opportunities. The fortunes of the grape industry affect other businesses, such as input suppliers, to varying extents. Survey estimates of the proportion of expenditure on household items and various farm inputs in a local town, a local (and larger) regional centre or outside the region are presented in table 13. For seed, plant hire, plant and building repairs and maintenance cost items, the proportion of expenditure spent in a regional centre exceeded that spent in a local town. For all other cost items, including household expenditure, local towns were a more important supply source.

The relative importance of local towns and regional centres by cost item was the same for top performing farms with one exception: top performing farms sourced more building repairs and maintenance services from local towns than from local regional centres. The proportion of inputs sourced from outside the region was negligible for both groups of farms.

table 13 **household and farm expenditure, by location, 2004-05**
Riverina region

		average, all farms		top 25% ^a	
total household expenditure in 2004-05	\$	25 951	(10)	26 520	(14)
proportion of household expenditure spent in:					
- local town	%	75	(10)	55	(27)
- local regional centre	%	23	(33)	43	(35)
- elsewhere	%	1	(68)	0	(0)
proportion of fertiliser expenditure spent in:					
- local town	%	63	(8)	100	(0)
- local regional centre	%	37	(14)	0	(0)
- elsewhere	%	0	(0)	0	(0)
proportion of seed expenditure spent in:					
- local town	%	40	(71)	40	(71)
- local regional centre	%	60	(48)	60	(48)
- elsewhere	%	0	(0)	0	(0)
proportion of chemicals expenditure spent in:					
- local town	%	57	(10)	96	(3)
- local regional centre	%	40	(15)	4	(68)
- elsewhere	%	3	(100)	0	(0)
proportion of fuel expenditure spent in:					
- local town	%	51	(16)	79	(15)
- local regional centre	%	49	(17)	21	(54)
- elsewhere	%	0	(0)	0	(0)
proportion of plant hire expenditure spent in:					
- local town	%	39	(41)	47	(45)
- local regional centre	%	61	(27)	53	(40)
- elsewhere	%	0	(0)	0	(0)
proportion of plant repairs and maintenance expenditure spent in:					
- local town	%	30	(35)	34	(36)
- local regional centre	%	70	(15)	66	(18)
- elsewhere	%	0	(0)	0	(0)
proportion of building repairs and maintenance expenditure spent in:					
- local town	%	43	(26)	67	(28)
- local regional centre	%	57	(20)	33	(56)
- elsewhere	%	0	(0)	0	(0)

^a Based on two year (2003-04 and 2004-05) average rate of return (excluding capital appreciation).

Note: Figures in parentheses are standard errors, expressed as percentages of the estimates. A guide to interpreting this measure of sample variation is included in appendix A.

growers' use of information and training

Riverina growers used a variety of information sources and training activities to better manage and operate their farms. The four sources of information about farm production and management used by more than 50 per cent of growers were the purchaser of a grower's grapes (mostly wineries), journals, industry organisations and other farmers. These were also the four highest ranked sources by the top performing farms, although for this group the purchaser of grapes was relatively more important and industry organisations were relatively less important.

The training activities with the highest level of participation among Riverina wine grape producers were workshops and field days. About 77 per cent of growers in the region attended these two activities in the two years to June 2005 (figure G). A further 50 per cent and 45 per cent of growers participated in consultant organised training programs and conferences respectively.

chemical use and environmental issues

While chemicals are important to maintaining the optimal condition of vines and fruit, many Riverina growers want to reduce the amounts used in their vineyards. On average, close to 70 per cent of growers indicated they were attempting to

table 14 **sources of information used by grape growers, 2004-05**
Riverina region

		average, all farms		top 25% ^a	
proportion of growers using:					
- industry organisations	%	57	(17)	42	(46)
- vine improvement associations/nurseries	%	23	(36)	5	(88)
- state agency	%	22	(38)	33	(0)
- other farmers	%	52	(18)	53	(18)
- conference papers	%	14	(52)	18	(89)
- journals	%	58	(17)	58	(21)
- newspapers	%	36	(26)	38	(11)
- electronic media	%	25	(34)	38	(11)
- internet	%	9	(67)	0	(0)
- purchaser of grapes	%	68	(14)	84	(8)
- other	%	2	(90)	6	(91)

^a Based on two year (2003-04 and 2004-05) average rate of return (excluding capital appreciation).

Note: Figures in parentheses are standard errors, expressed as percentages of the estimates. A guide to interpreting this measure of sample variation is included in appendix A.

reduce chemical use, and 75 per cent had undertaken a chemical course in the past three years. A lower proportion (53 per cent) of growers on the top performing farms stated they were attempting to reduce chemical use, although a higher percentage (93 per cent) had been on a chemical course (table 15).

There was little difference between the top performing farms and the region as a whole in the proportions of growers using tissue or soil tests to determine fertiliser requirements (around 90 per cent). There was a difference between the two groups, however, in the proportions of growers monitoring irrigation water quality. Thirty-six per cent of top performing farms routinely monitored water quality, as opposed to 15 per cent of all wine grape producers in the region.

fig G **grape growing farms that participated in training activities**

Riverina region, July 2003 to June 2005

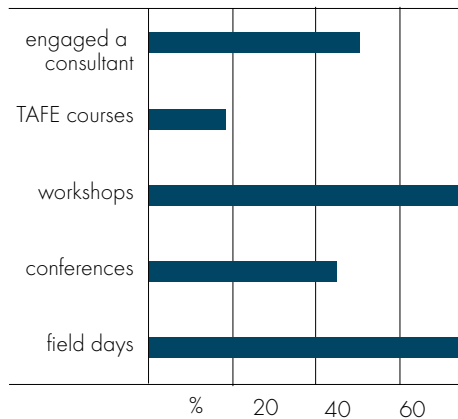


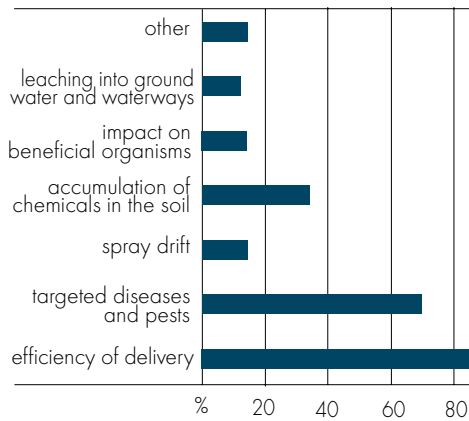
table 15 **chemicals use on grape growing farms, 2004-05**
Riverina region

		average, all farms	top 25% ^a
proportion of farms attempting to reduce chemical use	%	67 (12)	53 (19)
percentage reduction achieved	%	22 (21)	17 (24)
proportion of farms undertaking a chemical course in the past 3 years	%	75 (11)	93 (5)
proportion of farms mixing/applying sprays on a rate:			
- per litre/100 litres	%	76 (11)	59 (34)
- per hectare	%	54 (18)	60 (32)
as part of normal farm management program,			
proportion of farms using:			
- tissue or soil tests to determine fertiliser requirements	%	88 (7)	92 (7)
- irrigation water quality monitoring	%	15 (46)	36 (6)

^a Based on two year (2003-04 and 2004-05) average rate of return (excluding capital appreciation).

Note: Figures in parentheses are standard errors, expressed as percentages of the estimates. A guide to interpreting this measure of sample variation is included in appendix A.

fig H **environmental concerns associated with chemical use**
Riverina region, 2004-05



Riverina growers nominated efficiency of chemical delivery (87 per cent) and precise targeting of diseases and pests (70 per cent) as their most important environmental concerns associated with chemical use in the vineyard (figure H). With the exception of the accumulation of chemicals in the soil (nominated by 34 per cent of growers), all possible environmental problems were concerns to around 14 per cent of growers.

table 16 **frequency of monitoring pests and diseases by grape growing farms, 2004-05 Riverina region**

		average, all farms		top 25% ^a	
proportion of farms monitoring:					
- daily	%	22	(37)	19	(59)
- every 2 to 7 days	%	66	(14)	76	(15)
- every 1 week to 2 weeks	%	0	(0)	0	(0)
- every 2 to 3 weeks	%	0	(0)	0	(0)
- every 3 to 4 weeks	%	0	(0)	0	(0)
- more than 4 weeks	%	0	(0)	0	(0)

^a Based on two year (2003-04 and 2004-05) average rate of return (excluding capital appreciation).
Note: Figures in parentheses are standard errors, expressed as percentages of the estimates. A guide to interpreting this measure of sample variation is included in appendix A.

survey methodology and definitions

ABARE surveys are designed, and samples selected, on the basis of a framework established and maintained by the Australian Bureau of Statistics. The estimates published in this report include viticultural establishments with an estimated value of agricultural operations of \$22 500 or more. A definition of the estimated value of agricultural operations is given in the Australian Standard Industrial Classification (ABS 1983).

ABARE uses industry definitions based on the Australian and New Zealand Standard Industrial Classification (ANZSIC). This classification is in line with an international standard that is applied comprehensively across Australian industries, both within Australia and internationally. For the purpose of this survey, grape growers (ANZSIC 0114) can be defined as units engaged mainly in growing or sun drying grapes.

Information collected in the survey included detailed financial, physical and socioeconomic characteristics. Collection of the information from grape growers is conducted by a face to face interview with follow up interviews over the telephone.

sample selection

The population is divided into a number of size categories, or stratas, and samples are selected randomly within these strata. ABARE surveys are voluntary and, therefore, are more prone to nonresponse than those that are compulsory. For this reason, each sample farm has several reserve selections. These reserve units are in the same stratum as the primary unit and are selected to be as similar as possible to the primary unit. Where primary units are not available, the reserve units are approached. Nonresponding farms included those that did not wish to cooperate, those unable to be contacted or interviewed within the survey time frame, and those that were not producing wine grapes.

reliability of estimates

The reliability of the estimates of population characteristics presented in this report depends on the design of the sample and the accuracy of the measurement of characteristics for the individual sample vineyards.

box 1 sample weighting

The estimates presented in this report are calculated by weighting the data collected from each sample vineyard and then using these weighted data to calculate population estimates. Sample weights are calculated so that the numbers of vineyards and the estimated areas of grapes in the selected regions correspond as closely as possible to the Australian Bureau of Statistics estimates.

Sample weights differ from farm to farm. Typically, larger farms have small weights and smaller farms have large weights, reflecting the strategy of sampling a higher fraction of the larger farms than of smaller farms (the former having a wider range of characteristics and accounting for a much larger proportion of total output).

The sample weights used for the final estimates presented in this report are based on data derived from the 2005 Agricultural Survey conducted by the Australian Bureau of Statistics.

use of relative standard errors

To obtain the standard error from the relative standard error, multiply the relative standard error by the survey estimate and divide by 100. For example, if average total cash receipts are estimated to be \$100 000 with a relative standard error of 6 per cent, the standard error for this estimate is \$6000.

There is roughly a two in three chance that the census value (the value which would have been obtained if all farms in the target population had been surveyed) is within one standard error of the survey estimate. There is roughly a 19 in 20 chance that the census value is within two standard errors of the survey estimates.

Thus, in the above example, there is an approximately two in three chance that the census value is between \$94 000 and \$106 000, and an approximately 19 in 20 chance that the census value lies between \$88 000 and \$112 000.

reliability of estimates

A relatively small number of vineyards out of the total number of vineyards in a particular region are surveyed. Estimates derived from these vineyards are likely to be different from those that would have been obtained if information had been collected from a census of all vineyards. How closely the survey results represent the population is influenced by the number of vineyards in the sample, the variability of vineyards in the population and, most importantly, the design of the survey and the estimation procedures used.

To give a guide to the reliability of the survey estimates, measures of sampling variation have been calculated. These measures, expressed as percentages of the survey estimates and termed relative standard errors, are given next to each estimate in parentheses. In general, the smaller the relative standard error, the more reliable the estimate.

definition of terms

Owner manager: The primary decision maker for the business. This person is identified by discussion between interviewer and interviewee as (one of) the key decision maker(s). This person is usually responsible for the day to day operation of the business and may own or have a share in the business.

Area of land at business premises: Includes all land operated by the business, whether owned or rented by the business.

Labor: Measured in work weeks, as estimated by the owner manager. It includes all work on the business by the owner-manager, partners, family and hired permanent and casual workers, but excludes work done by contractors.

Hired labor: Excludes the owner manager, partners and family labor, and work undertaken by contractors. Expenditure on contract services appears as a cash cost.

Capital: The value of capital employed by the business is the market value of all the assets used, including leased items, but excluding machinery and equipment either hired or used by contractors. Market valuations were provided by the owner manager of surveyed businesses and included the market value of land and fixed improvements used by the business, excluding the value of the owner manager's

house. The house value deducted from the total value of land and fixed improvements was the present day replacement cost, depreciated for age.

Debt: Estimated as business debt. Includes all debts attributable to the business, excluding personal debt and underwritten loans. Information collected at the survey interview was supplemented by information in the business accounts.

Total cash receipts: Total of revenues received by the business during the financial year, including revenues from the sale of grapes (wine and table), citrus, grain and hay crops, livestock and livestock products. It includes revenue received from royalties, rebates, refunds, plant hire, contracts, insurance claims and compensation, and government assistance payments.

Total cash costs: Payments made by the business for materials and services and for permanent and casual hired labor (excluding partner and other family labor). It includes the value of any lease payments on capital, produce purchased for resale, rent, interest, cropping and livestock related purchases. Capital and household expenditures are excluded from total cash costs. Handling and marketing expenses include commission, levies, etcetera for business produce sold. Administration costs include accountancy fees, banking and legal expenses, postage, stationery, subscriptions and telephone. Other cash costs include relatively small cost items like stores, advisory services and travelling expenses.

Depreciation: Estimated by applying the diminishing value depreciation method to the market value of capital items at 30 June 2005. Capital items are categorised into several groups and relevant depreciation rates are applied. The capital groups include vehicles; handling, harvesting and packing equipment; cultivation and sowing equipment; computers, electronic and communications equipment; other plant and equipment; and buildings on the business premises.

Imputed labor cost: Payments for owner manager and family labor may bear little relationship to the actual work input. An estimate of the labor input of the owner manager, partners and their families is calculated in work weeks and a value is imputed at the relevant Federal Pastoral Industry Award rates.

Farm business profit: Cash operating surplus plus buildup in trading stocks, less depreciation, less the imputed value of the owner manager, partner(s) and family labor.

Profit at full equity: Return to capital and management plus interest, rent and finance lease payments. It is the return produced by all the resources used in the business.

Rate of return: Computed by expressing farm business profit as a percentage of the total opening capital of the business.

Equity ratio: Calculated as business equity as a percentage of owned capital at 30 June.

Off farm income: Collected for the owner-manager and spouse only, including income from wages, other businesses, investment and social welfare payments. The results shown are averages for those businesses for which off farm income information for both the owner manager and spouse is available.

references

- ABS (Australian Bureau of Statistics) 1983, Australian Standard Industrial Classification, Canberra.
- 2005, Australian Wine and Grape Industry, cat. no. 1329.0, Canberra.
- AWBC (Australian Wine and Brandy Corporation) 2006, Wine Regions - Table of Australian Geographical Indications with Links to Maps, Adelaide (www.awbc.com.au).
- Gordon, W. 2006, Australian Wine Grape Production Projections to 2007-08, ABARE Research Report 06.4 Prepared for the Grape and Wine Research and Development Corporation, Canberra.
- Martin, P., Hooper, S., Bilali, M., Puangsumalee, P., Phillips, P. and Treadwell R. 2006, Australian Farm Survey Results, 2003-04 to 2005-06, ABARE, Canberra.
- McLaren Vale Grape Wine and Tourism Association 2006, The Region, South Australia (www.mclarenvale.info/theregion/climate).
- Rose, R. and Gordon, W. 2006, 'Wine industry: strategic global directions and Australian outlook to 2010-11', Australian Commodities, vol. 13, no.1, March quarter, ABARE, Canberra, pp. 162-74.
- South Australian Wine Industry Association 2006, South Australian Wine Regions, Adelaide (www.winesa.asn.au).

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Australian Gas Association	Institute of National Affairs, Papua New Guinea
Australian Greenhouse Office	International Food Policy Research Institute
Australian Wool Innovation Limited	ITS Global
Commonwealth Secretariat, London	Land and Water Australia
CSIRO (Commonwealth Scientific and Industrial Research Organisation)	Meat and Livestock Australia
Dairy Australia	Minerals Council of Australia
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Department of Foreign Affairs and Trade	Ministry of Prime Minister and Cabinet, New Zealand
Department of Industry, Tourism and Resources	National Australia Bank
Department of Infrastructure, Victoria	National Oceans Office
Department of Natural Resources and Mines, Queensland	Newcastle Port Corporation
Department of Primary Industries, New South Wales	Organisation for Economic Cooperation and Development
Department of Primary Industries, Queensland	Plant Health Australia
Department of Primary Industries, Victoria	Pratt Water
Department of Prime Minister and Cabinet	Rio Tinto
Department of Transport and Regional Services	Rural Industries Research and Development Corporation
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Fisheries Research and Development Corporation	University of Queensland
Fisheries Resources Research Fund	US Environmental Protection Agency
Food and Agriculture Organisation of the United Nations	WA Global Ocean Observing System
Forest and Wood Products Research and Development Corporation	Wheat Export Authority
Grains Research and Development Corporation	Woodside Energy
	Woolmark Company