

Russia Wine Project



**Government
of South Australia**



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David Travers
Vic Patrick

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Russia Wine Project

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David Travers
Agent General (Acting) for South Australia
The Australia Centre, Strand
London, WC2B 4LG
T: +44 (0) 20 7887 5126
F: +44 (0) 20 7887 5332
email: david.travers@south-aus.eu

Executive summary

1. Overview

- 1.1.1 During Australia Week in Moscow 2006, Mr Valeriy Loginov, the President of the Union of Russian Grapegrowers and Winemakers (SVVR), approached Austrade (Moscow) seeking technical and other cooperative assistance from the Australian wine industry. The SVVR expressed interest in technical oenological and viticultural advice and the purchase of (South) Australian wine industry goods, services and technology. The request was conveyed to the Government of South Australia following initial discussions with Mr Leon Bignell MP (who was in Moscow on a private visit) and the then Agent General for South Australia (London), Mr Maurice de Rohan AO OBE. Mr Loginov invited the Government of South Australia to make an initial assessment of Russia's wine industry, provide preliminary technical advice and to explore commercial opportunities, including the exportation of Australian wine, technology and services to Russia.
- 1.1.2 South Australia has many commercial winemaking and grapegrowing capabilities and products that the Russian wine industry may value. Immediately this report suggests that this may include: machinery sales (particularly mechanical pruners, harvesting machinery, light vineyard herbicide sprayers and micro irrigation technology) and vine planting material. Importantly though, Russia represents not just a commercial opportunity for these goods and services, but also an expanding wine consumer market that has been suddenly disconnected from its major traditional suppliers, Moldova and Georgia. More significantly, Russia represents an emerging opportunity for premium South Australian wine sales because a resources-fuelled economy is delivering greater wealth and creating higher levels of disposable Russian consumer income.
- 1.1.3 Russia's domestic wine industry is unique among global producers. Winegrape production is consolidated to three key regions in the south of the country, Krasnodar (31,700 hectares), Dagestan (19,700ha) and Stavropol (9300ha). Grapes have been grown in the southern Dagestan region for more than 2000 years.¹ These regions lie between the Black and Caspian Seas, about 1500km south of Moscow, near the Turkish border (See Map 1, page 9). In total, Russia has an estimated total vineyard area of about 71,300ha, or slightly more than 40% of Australia's vineyard area of 166,665ha.
- 1.1.4 The comparative productivity of the Australian and Russian wine industries diverges on actual harvest volume due to relatively lower yields from Russian vineyards. In 2006, Russia harvested an estimated 338,000 tonnes, less than 20% of Australia's latest official harvest result of 2,026,500 tonnes (2005).² Australia's current average vineyard yield is estimated at 13.2 tonnes/ha, almost three times the average Russian yield of 4.82 tonnes/ha. The size of the two countries' industries is perhaps best represented in winery scale. Each year Australia's two largest wine production facilities – Berri Estates and Casella –

¹ *The Oxford Companion to Wine*. Jancis Robinson (1994)

² ABS. Wine and Grape Industry Report, January 2006.

process more grapes than the entire Russian harvest. Berri Estates, in the South Australian Riverland, crushed an estimated 209,000 tonnes in 2005, while the Casella Wines' Yenda-based facility (Yellowtail), processed 152,829 tonnes in 2005.³ In 2005, Australia's 20 largest wineries processed a combined 1.2m tonnes, about 65% of the nation's crop.

1.2 Conclusions

1.2.1 After receiving the Russian request for assistance via Austrade in August 2006, Mr de Rohan AO OBE, wrote to Mr Loginov on 28 September, confirming that the State would fund a small delegation to provide the initial assessment (see Appendix 4.2.1). The purpose of this initial first stage was to provide preliminary technical advice and explore immediate commercial interests. From 30 October 2006, a two-member South Australian team – with important support from Austrade (Moscow) – undertook a one-week study. This report summarises that initial assessment.

1.2.2 A key objective of the one-week visit was to provide both initial technical ideas and to assess South Australia's capability in being able to respond to the needs in these areas. In agreeing to the Russian request, South Australia developed terms of reference for a specific analysis of four key areas. These are broadly summarised as:

1. Russian winemaking
2. Russian viticulture
3. Russian wine tourism
4. Australian wine sales

1.2.3 There are a number of immediate possibilities, though South Australian and Russian companies will clearly need to make their own commercial risk assessments about the nature of possible agreements. This report does not make commercial assessments or recommendations, though there is some macro risk assessment provided as background (see 2.3). This report simply highlights the collaborative potential of both industries and attempts to create a framework – including a proposed visit by a Russian delegation to South Australia in March 2007 – where this potential may be progressed. Examples of potential areas of commercial activity are highlighted in Table 1.

	Russian Winemaking	Russian viticulture	Russian wine tourism	Australian wine sales
1. Plant and material sales	Equipment	Machinery, irrigation tech	Unique products	Bulk and bottled product
2. Consultancy services	'Flying winemakers'	Viticultural consultants	Architects	Distribution and supply analysis
3. Education Products	BSc Oenology	BSc Viticulture, TAFE	TAFE education	Wine marketing education
4. Other services	Food tasting collaboration	Exhibitions and trade shows	International marketing	Bulk exports

TABLE 1. Examples of potential commercial South Australian activity in Russia.

³ Compiled by Winetitles based on information supplied by wine companies. www.winebiz.com.au

1.2.4 Across the four categories identified in Table 1, a number of specific immediate opportunities exist. These have been identified by the SVVR and various regional Russian government departments and include:

- 1. Plant and material sales (goods), particularly but not limited to:**
 - a. Mechanical pruners, herbicide sprayers and irrigation technology
 - b. Vine planting material (grafted rootstocks)
 - c. Bottled and bulk wine exports
- 2. Consultancy services**
 - a. 'Flying winemakers' and viticultural consultants
 - b. Winery design and tourist facility architectural services
 - c. Vineyard development and construction contractors
- 3. Education**
 - a. Exchanges between industry employees
 - b. Formal attendance by Russian winemaking students to University of Adelaide
 - c. South Australian vocational education
- 4. Other**
 - a. South Australian attendance at Russian winemaking and grapegrowing exhibition (April 2007)
 - b. Russia-Australian investment, joint-ventures
 - c. Public administration scholarships at Carnegie Mellon University in Adelaide

1.3 Recommendations

To increase the potential for longer-term sustainable relations, including the successful development of the opportunities described at 1.2, this report recommends:

1. a Russian wine delegation visits South Australia in early March 2007 (during vintage) to directly explore the areas of potential commercial interest identified and to enable the delegation to consider the future of technical collaboration with South Australia;
2. an agreement between the Government of South Australian and Southern Federal District regions be developed which describes in more detail the various aims and objectives of a collective partnership; and;
3. consideration of bilateral exchanges and scholarships between industry, government and education sectors, to further reinforce this partnership.

2. Background

2.1 Russia

2.1.1 With an estimated gross domestic product (2005) of US\$740.7 billion⁴, the Russian economy is slightly larger than the Australian economy (US\$612.8b) but represents one of the fastest growing in the world. Russia ended 2005 with its seventh straight year of growth, averaging 6.4% annually since 1998, when the federation was gripped with a significant financial crisis. The most recent data (2006 Q2) puts current growth at 7.4%.⁵

2.1.2 This growth is underpinned by debt repayment activity (including full repayment of legacy debt to the Paris Club of sovereign lenders), low personal taxation rates, an improving market economy and increasingly more ‘typical’ corporate security mechanisms such as counterfeit protection and import protocols.

	Russia	Australia	US
Area	17m km2	7.6m km2	9.6m km2
Population (July 2006 est)	142.8m	20.2m	298.4m
Arable land	7.17%	6.15%	18.0%
Literacy	99.6%	99.0%	99.0%
GDP (official exchange rate)	US\$740.7billion	US\$612.8billion	\$US12.49 trillion
GDP real growth rate	6.4%	2.7%	3.2%
GDP per capita	US\$11,000	US\$31,600	US\$41,600
Oil proved reserves	69 billion bbl (2003)	3.66 billion bbl (2002)	22.45 billion bbl (2002)
Natural gas proved reserves	47.57 trillion cu m (2003)	2.54 trillion cu m (2002)	5.35 trillion cu m (2002)
Unemployment	7.6%	5.1%	5.1%
Inflation	12.7%	2.7%	3.2%
Vineyard area	70,000ha	166,665ha	393,117ha
Grape production	0.338m tonnes	1.923m tonnes	4.07m tons ⁶
Beverage wine production	300mL	1,420mL	2,289mL
Wine consumption	800mL	364.8mL	2,253mL (2002)
Wine consumption per capita	3.74 litres	20.54 litres	8.77 litres

Table 2. Country comparisons. Source: CIA, OIV, USDA, ABS, CVVS (2005 estimates/actuals, except where indicated).

2.1.3 While China, Russia’s eastern neighbour, may hold much of the global economic attention because of its sheer population size, Russia’s growth is being driven by the resources sector. By 2006, it has become the world’s

⁴ CIA. The World Fact Book. www.cia.gov/cia/publications

⁵ Emerging Market Indicators, p134. *The Economist* (25 November 2006)

⁶ Wine Institute of California http://www.wineinstitute.org/industry/keyfacts/us_ca_winegrape_crush.php

largest energy exporter. Oil exports are estimated at 5.15 million bbl/day⁷ (2004) with oil proved reserves estimated at 69 billion bbl (2003) – almost 20 times Australia’s reserves and three times that of the United States. Natural gas is an even larger industry with 2004 export estimates at 157.2 billion cu m, with proved reserves estimated at 47.57 trillion cu m (2003) – the world’s largest.

2.1.4 In addition to the substantial wealth in oil and gas reserves, Russia’s other major industries include: coal, iron ore, timber, agriculture, automotive and agricultural equipment. According to *Lonely Planet*, Russia’s major trading partner is the European Union (especially Germany), though it also provides significant exports to Belarus, Ukraine, China and the US.

2.1.5 While Russia owes much of its recent economic power to oil and gas production, in 2005, Russian president Vladimir Putin acknowledged the significant role the other primary industry sector provided and declared agriculture a national priority.⁸ With this subsequent focus and healthy taxation support for emerging and growth agricultural productions, such as grapes and wine, attempts to establish a viable full-cycle wine industry has attracted the attention of a number of new investors, particularly those with oil and gas profits seeking to diversify their interests.

2.1.6 Australia is increasing exports to Russia and in 2004-05 Austrade estimates two-way trade was about A\$460 million. South Australia’s trade with Russia is low. In 2005-06 South Australian merchandise exports to Russia were worth A\$17.183m⁹, while imports were A\$2.158m. The major commodities exported were livestock products including fresh chilled, frozen and preserved meat, offal and raw skins. Wine is yet to account for any significant share of exports, although there are encouraging signs of growth.



Picture 1: Australian beef on sale in Moscow, October 2006.

In 2005-06 South Australia exported more than A\$11.2 of meat, offal and lamb skins to Russia, accounting for 80% of the State’s total export value.

⁷ CIA. The World Fact Book. www.cia.gov/cia/publications

⁸ Development of the Agri-Industrial Complex of Russia. Presidential edict No 1226 (21 October 2005)

⁹ *Country Brief*, Department of Trade and Economic Development (18 September 2006).

- 2.1.7 Austrade is increasingly optimistic about trade with Russia. Business and banking hours are comparable with the west though retail hours are more likely to extend into the late evening (typically 10pm). The retail sector is growing, particularly in Moscow where more than 1 million m² of new retail space is under construction.¹⁰ Russia is estimated to be the 12th largest retail market in the world and is expected to pass Spain, Brazil and Mexico in the short term to move inside the top 10. Austrade also notes, significantly, that the retail sector now extends beyond Moscow and St Petersburg, Russia's two largest cities, and into the regions. This is an important indicator for the wine retail market, particularly the bottled wine sector for which (South) Australia has important (but largely untested) potential.

Grape Production

- 2.1.8 During the height of the Soviet Union era, the former union of states had a combined vineyard area of 1.32m hectares, making it comparable with the larger vineyard areas in France, Italy and Spain. However, between 1985-88, under the national anti-alcohol drive of the then leader Mikhail Gorbachev, the area under vine was reduced. By 1990 it had decreased by 30% to 1m hectares.¹¹
- 2.1.9 The dissolution of the USSR, the subsequent autonomy of the members of the Commonwealth of Independent States (CIS), adverse seasonal conditions and poor economic conditions during the 1990s saw the total area of vineyard further reduced. Total vineyard area inside Russia is now estimated to be 70,000ha. While limited specific varietal planting detail is available, popular Russian varieties include Dostoiny and Viaricha, Magarach (a Ukrainian white), Saperavi (red) and other familiar varieties including Cabernet Sauvignon, Merlot and Riesling.

Wine Production

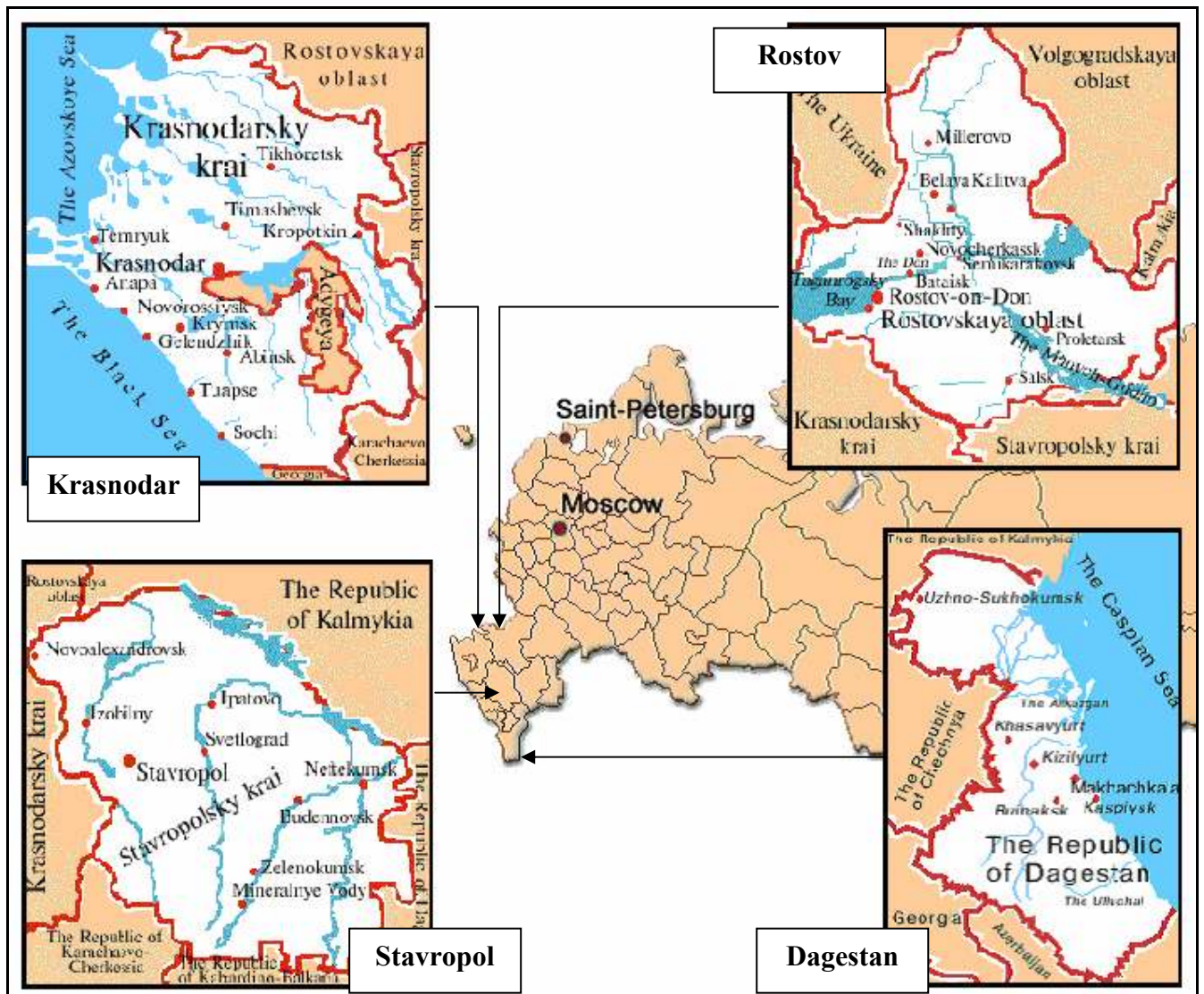
- 2.1.10 Russia has a consolidated wine company structure with about 120 wineries/grapegrowers. While these vary in capacity, they are generally comparable to Australian 'medium-sized' producers. The SVVR President's company (Mr Loginov) has plans for a new winery with an annual capacity of up to 14,000 tonnes. In addition to wine production facilities, the Russian industry comprises about 300 companies that specifically bottle and/or blend imported bulk wine. They may also be involved in all, or some, of the distribution chain responsibilities.
- 2.1.11 Australia has an estimated 2008 wineries¹², with 502 of these in South Australia, about 25% of the nation's total. More significantly, South Australian wineries are on average much larger facilities, being responsible for about 60% of Australia's total winemaking 'activity', including bottling and storage. The five major Australian wine companies; Pernod Ricard (French-owned), Constellation Wines (US), Fosters (Australian), McGuigan-Simeon (Australian)

¹⁰ Economist Intelligence Unit Corporate Network (2006)

¹¹ *The Oxford Companion to Wine*. Jancis Robinson (1994)

¹² *Australian and New Zealand Wine Industry Directory* (2006)

and Casella Wines (Australian) are responsible for 65% of the total winegrape intake.



Map 1: Russian winegrape production is consolidated to three key regions in the south of the country, Krasnodar, Dagestan and Stavropol. Rostov used to be a major winegrowing region but its vineyard area has fallen from 12,700ha (1990) to just 4800ha in 2005.

Wine consumption and exports

2.1.12 Unlike Australia which is a majority exporter of wine, Russia cannot meet its domestic demand. This unique situation has been caused by several factors including reduced production due to seasonal variations, previous socio-political campaigns and increased demand due to rising disposable incomes and a growing per capita consumption rate. During the past three years, Austrade suggests total Russian consumption has grown by an estimated 100mL – or nearly 15%.

2.1.13 Domestic demand was further impacted in March 2006 when the Russian Federation’s Chief Sanitary Inspector banned the importation of Moldovan and Georgian wines, two former Soviet states, due to health concerns.

2.1.14 In 2005, wine from these two countries accounted for some 60% of sales in the Russian market. According to Austrade (Moscow) since this action there has been considerable redistribution of the retail market with Chilean, Argentinean and Greek producers active in replacing the share previously held by Moldova and Georgia.



Picture 2: Aromatic World Boutique, a Russian wine store.

With average low-end retail prices of less than 100 Rubles (A\$4.99) for popular tetrapak and cask wines, total Russian wine consumption has risen nearly 15% in the past three years.

2.2 Team and mission

2.2.1 The preliminary Russian wine industry assessment was conducted by a three-member team comprising two from the Government of South Australia (London and Adelaide) and one from Austrade (Moscow). The team brought together a balance of trade, education, viticulture and language skills. The team comprised:

- **Mr David Travers.** The Agent General (Acting) for South Australia (London). Mr Travers has responsibility for South Australia's European trade and investment agenda. A former journalist and founding editor of the Australian national viticulture magazine *GrapeGrowers*, Mr Travers' family first planted grapes in the Clare Valley of South Australia more than 150 years ago, he has his own vineyard at Spring Gully. Over the past eight years he has been an executive in a number of state agencies, including the Department of the Premier and Cabinet and the Department of Education, Training and Employment and has significant overseas trade experience.
- **Mr Vic Patrick.** A consulting viticulturist to the Department of Primary Industries and Resources South Australia (PIRSA) in Adelaide, Mr Patrick was, until his retirement last year, the Director of Viticulture for the global wine giant, the Fosters Group (a position he had held for 10 years). He lives in the Eden Valley region of South Australia and has extensive

vineyard management experience in Australia, Europe, the United States and South America.

- **Ms Nina Mitropolskaya.** As long-serving Senior Business Development Manager for Austrade's Russia/CIS team in Moscow, Ms Mitropolskaya is responsible for helping develop market opportunities for Australian wine producers as well as other parts of the food and beverage and agribusiness sectors. For more than a decade Ms Mitropolskaya has successfully assisted Australian wine companies enter the Russian market and expand their sales in this growing wine market.

2.3 Risk and methodology

- 2.3.1 This report does not seek to quantify or qualify the various risk exposures to parties beyond the Government of South Australia. Each commercial entity will need to make their own assessment based on their individual position and the nature of their interest.
- 2.3.2 For South Australian exporters the risk categories requiring consideration may include, but are not limited to: financial, trade, political, currency, banking, travel and language. In Australia, Russian representatives will note similar risks and others, including new political and trade conditions, bureaucracy, regulation and financial transaction requirements.
- 2.3.3 Russia is no different to most developing markets, meaning creating successful long-term relations requires considerable time and effort. A key hurdle for South Australian companies wishing to succeed in Russia is the primary cost of doing business. In a recent Mercer survey that measured the comparative cost of more than 200 cities, Moscow was ranked as the world's most expensive city, up from being the fourth most expensive in the previous year.¹³
- 2.3.4 While Russian is the fourth most spoken language in the world, communication remains a major barrier to successful market entry. English is spoken in parts of Moscow and St Petersburg, however it is not commonly spoken outside the major cities. South Australian companies looking to establish and maintain relationships are likely to require a translator while working in Russia and will need to consider engaging a local agent or partner. These additional costs should not be underestimated, particularly in the early stages of negotiations. Austrade (Moscow) is a good source of support and they have a number of experienced Russian business development managers with a strong track record of assisting South Australian companies enter the Russian market.

¹³ World's Most Expensive Cities, 2006 <http://www.infoplease.com/ipa/A0933749.html>

3. Discussion and analysis

3.1 Economic issues

Vineyard investment

- 3.1.1 The matter of investment capital is an interesting proposition for the Russian industry. Significant off-farm investment, particularly from Russia's resources sector, is fuelling demand activity.
- 3.1.2 A defining difference between Russia and Australia's wine industries is the impact corporate investment has had on the total number of individual grapegrowers. Australia has an estimated 8000 growers, Russia an estimated 120.
- 3.1.3 In Australia growers range from small private farmers, with 1-5 hectares of vineyard, to very large vineyard owners, such as Fosters, which owns 11,853ha in Australia.¹⁴ While the Russian grape industry also consists of holdings of various sizes the industry is characterised by a much smaller total number of holders primarily by larger corporate growers, the largest being 1,200ha and headed by the SVVR President Mr Valeriy Loginov. This is one of about 40 estates in the Krasnodar region.
- 3.1.4 Russia has many unique viticultural practices, partly a factor of climate and partly a factor of low labour costs. These specific technical practices are discussed in more detail in Section 3.2. For example, sub zero winter temperatures of -30C require some vines in the Stavropol region to be removed from their cordon wire and laid on the ground and covered with earth to survive the sub-zero temperatures.
- 3.1.5 Due to increasing consumer demand, Russian wine producers are looking to increase both the total area of planted grapevines and the average yield per hectare. Two further factors additionally encourage this expansion of vineyard area, firstly regional government-funded establishment subsidies of 50% of production costs for the first four years and secondly, a significant cold snap (which saw temperatures sit below -30°C for three weeks in southern Russia) in January and February 2006 which killed an estimated total of 11,100 hectares of vineyard across all regions.
- 3.1.6 Krasnodar was the hardest hit with 8690 hectares killed, while the Republic of Dagestan lost 900 hectares. French and some Italian nurseries are currently supplying much of the replanting demand, though there is some dissatisfaction with the quality of this material.

¹⁴ Compiled by Winetitles based on information supplied by wine companies. www.winebiz.com.au



Picture 3: Vines in Stavropol in the process of being removed from their cordon.

Each year after harvest vines are laid on the ground and covered with soil, an attempt to ensure they survive temperatures of -30°C. They are manually put back on the fruiting wire each spring.

- 3.1.7 Russia has a number of interests in vineyard investment. The sourcing of planting material is a key priority following the extensive vine death caused by freezing conditions in January and February 2006. While Australian nurseries may have capacity to meet some of this demand the price, availability and suitability of clones will be important factors for any successful commercial agreement. The prevalence of phylloxera in all regions means the opportunity is naturally constrained to rootstocks material. The extreme cold provides an ongoing challenge to Russian grapegrowers, though research to develop new clones and rootstocks capable of withstanding temperatures of up to -30°C has been occurring.
- 3.1.8 Russian grapegrowers have suggested they have sourced grafted rootstocks from France at unit prices of about €1.00 (about A\$1.70). This is likely to be well below the cost of production for South Australian nurseries, though quality and transport are likely to be major factors in the French estimates. In any case, there is clearly currently unmet demand and the ability of (South) Australian vine nurseries to supply this demand should be properly tested during the proposed visit to South Australia in March 2007.
- 3.1.9 While Australian vineyard plantings are dominated by French varieties, in particular Shiraz, Cabernet Sauvignon, Merlot, Chardonnay, Sauvignon Blanc and the multipurpose Sultana, Russian vineyards include a combination of familiar French (especially Cabernet Sauvignon) and German (Riesling) varieties though the predominant plantings are Russian varieties including: Saperavi, Rkaziteli, Severny, Sepniak and Levakumsky.

3.1.10 In comparison, Australia's current vineyard planting is dominated by the varieties described in Table 3.

Grape variety	2005 ha	2006 ha	2005 vintage (tonnes)	2006 vintage (tonnes)
Shiraz	40,508		415,421	
Cabernet Sauvignon	28,621		284,063	
Merlot	10,816		132,586	
Pinot Noir	4231		36,886	
Grenache	2097		25,417	
Other red grapes	11,760		142,119	
Total red grapes	98,033		1,036,492	
Chardonnay	30,507		378,286	
Sultana	7286		169,990	
Semillon	6282		96,726	
Riesling	4326		41,237	
Sauvignon Blanc	4152		38,355	
Other white grapes	16,079		162,914	
Total white grapes	68,632		887,508	
TOTAL	166,665 ha	164,530ha*	1,924,000t	2,000,000t*

Table 3. Australian vineyard and winegrape production by variety. 2004-05.
Source: ABS Vineyard Survey. *Preliminary data, final report available January 2007. [Note: table excludes table and dried fruit production.]

3.1.11 Some Russian interest has been expressed in either joint-venture operations or Australian capital investment in Russian wine companies. While this proposal is clearly something for individual Australian companies to consider, the Russian wine companies which raised the concept suggest a reciprocal benefit – they get access to critical Australian knowledge, capability, skills and technology, while the Australian partner would gain direct market access to the Russian company's distribution network for the supply of Australian wine.

Russian wine retail market

3.1.12 Like the United Kingdom, substantial Russian consumer wine purchases are made through supermarkets. Specialised wine shops also operate and the total retail market is currently very active following a number of significant events during 2006 (including the bans on wine from Moldova and Georgia).

3.1.13 Perhaps the most significant event though was new legislation regulating the Russian alcohol market that came into effect on 1 January 2006. This legislation covers regulation of both domestically produced and imported alcohol products. Fundamental to the new system is the requirement that all producers and importers must notify taxation authorities about production and unit movement from importer to retailer.¹⁵ A primary tool in this system is for the application of excise taxation stamps in the form of a 'banderol', a small label across the bottle's closure. The introduction of this law in January significantly limited real 'market' activity in Russia in the first four months of

¹⁵ *Russian Wine Market Update: July 2006*. Nina Mitropolskaya, Austrade, Moscow (2006)

this year, though Austrade reported that by May 2006 the majority of importers had installed the necessary labelling equipment and that imports of larger quantities of bottled wine had recommenced. However, supplies to supermarket shelves remained noticeably patchy throughout the second half of 2006.

3.1.14 The second significant event was the Russian Federation's banning of Moldovan and Georgian wine imports in March 2006. In 2005, Russia imported 230mL of wine from these two countries so this action had a profound effect on the retail scene. Retailers that had specialised only in Moldovan and Georgian wines have been urgently looking to diversify the product lines that they carry.¹⁶



Picture 4: Imported bulk juice concentrate from Argentina.

Since the Russian Government banned Moldovan and Georgian wine in March 2006, Russian alcohol companies have increased bulk wine and juice concentrate imports, particularly from low cost bulk producers such as Argentina.

3.1.15 Austrade predicts these two actions will result in a consolidation of alcohol companies from 2,600 at the start of this year to perhaps 600-700 by the end of 2006. Following these developments wine is increasingly being sourced from Argentina, Chile, Spain, Greece and Bulgaria with France supplying additional quantities of low quality product.

3.1.16 The inability to supply its domestic market is an important motivator for Russian provincial governments to subsidise new vineyard plantings and encourage increased wine production from existing wineries. Russian domestic wine consumption – with a preference for sweeter white wines – has been growing steadily in recent years, a result of greater disposable incomes,

¹⁶ *Russian Wine Market Update: July 2006*. Nina Mitropolskaya, Austrade, Moscow (2006)

increasingly western lifestyles and Russian government policies to reduce the consumption (abuse) of hard alcohols (such as vodka and moonshine, which is legally produced in Russia). In 2002, Russia was ranked 9th in the world for total wine consumption (703mL), just behind the UK (8th place at 1,005mL). In comparison France was ranked 1st at 3,358mL.¹⁷ Total Russian consumption has grown by an estimated 100mL – or nearly 15% – in the past three years, however per capita consumption is still relatively low at 3.7 litres. The white to red sales ratio is about 60:40.

3.1.17 Australian wine exports to Russia increased by almost 100% between 2004 and 2005, though the total volume is small (Table 4). Wine exports to Russia in 2005/06 were valued at A\$878,000.

Year	Russian imports of Australian wine (litres)
2003	445,415
2004	362,204 *
2005	697,857
2006 (to 30 June)	364,890

Table 4. Russian imports of Australian wine. Notes: Table includes estimated re-exportation of wine from other European destinations. *Excludes single bulk transaction of 2 million litres. Source: Cistall-Lefortavo, wine importers. Moscow.

3.1.18 The annual value of South Australian wine exports to Russia remains small and in 2005-06 was just A\$878,307 – this is dwarfed by the State’s major wine export market, the UK, which at \$654.0m, is more than 800 times the size of the Russian share.¹⁸ Despite this significant inequity, several McLaren Vale and Barossa wine companies are currently present in the Russian market.

3.1.19 Like all global wine markets, the Russian consumer market is dominated by low cost products. In general the Russian retail market is described as having four segments. These are described in Table 5. The major challenge for Australian premium wine producers is the fact there is a clear discrepancy between what the Russians regard as “premium” and what the accepted definition of that term may mean to the majority of winemakers.

Segment	Estimated share of total vol ¹⁹	Retail value			Australian product examples in Russian retailers
		Rubles	AUD	GBP	
Super-premium	1%	>500	>\$25	>£10	2002 Peter Lehmann Wines Cabernet Sauvignon – R1120; 2003 Jacobs Creek (Reserve Shiraz) R705; Lindemann’s Bin 45 Cabernet Sauvignon R525
Premium	4%	200-499	\$10-24.99	£4-9.99	2004 Yellowtail Merlot R344; 2005 de Bortoli Merlot R339
Popular	35%	100-199	\$5-9.99	£2-3.99	None known
Commercial	60%	<100	<\$4.99	<£2.00	None known

Table 5. Russian retail wine market price points. Source: Retail survey, 29 October 2006

Note approximate currency conversions only: AUD\$5.00 = GBP£2.00 = 100 Rubles

¹⁷ Situation Report and Statistics for the World Vitivinicultural Sector in 2002 (OIV).

¹⁸ *Country Brief*, Department of Trade and Economic Development (21 November 2006)

¹⁹ Cistall-Lefortavo, wine importers. Moscow.

- 3.1.20 For example, *Seventh Continent*, a Moscow supermarket (similar to Coles in Australia), is selling a single 750mL bottle of 2005 de Bortoli Merlot for R339 (A\$16.50).²⁰ While this price obviously includes transport and handling costs, according to Andrei Moskowsky, Import Manager for Cristall-Lefortovo, the de Bortoli is competing for attention in the ‘premium’ price bracket, according to Russian consumers’ standards. While this is clearly a different description of ‘premium’ to the interpretation in which giant UK supermarket chains such as Tesco and Sainsbury considers ‘premium’, it nonetheless provides insight into the buying options of the average Russian consumer. In a specialist Moscow wine store, *Aromatic World Boutique*, an identical de Bortoli Merlot (2005) was selling on the same day for R319 (A\$15.55).
- 3.1.21 Perhaps rather than suggesting the de Bortoli Merlot is overpriced, what it may indicate is the potential for a new approach to Australian marketing – a positive shift away from the fast moving consumer good (FMCG) approach which dominates the wine company cost accountants’ thinking in the saturated, low-cost, high volume UK and US supermarket scenes. Russia presents unquantified potential to bring popular premium and commercial brands into higher price points.
- 3.1.22 This is especially true where meaningful partnerships – or joint ventures – can be developed with Russian alcohol companies. Of course the size of this market segment is naturally much smaller than the other points, but consumer confidence is growing. The commercial segment, at less than R100 (A\$4.99), is unlikely to offer any real ongoing opportunity, even for the most efficient of Australia’s low cost producers, though there may be producers prepared to consider one-off sales as an inventory reducing measure, perhaps for rebottling under Russian labels.
- 3.1.23 The pricing trend on familiar Australian brands was similarly true in *Stockmann* (an upmarket Russian supermarket, like David Jones’ food court) where Lindemann’s Bin 45 Cabernet Sauvignon sells for R525 (A\$25.61) and the 2002 Peter Lehmann Cabernet Sauvignon retails for R1120 (A\$54.61).

Wine tourism

- 3.1.24 Russia’s interest in developing wine tourism within its regions warrants further examination but in preliminary terms there is clearly substantial domestic tourism visitations to the Black Sea and Caspian Sea regions, which provides an important base of existing tourism numbers.
- 3.1.25 Conversely, Australia’s small population naturally means wine tourism has a distinct international focus. Tourism Australia estimates that in 2004-05, some 611,000 – or about 12% of all international visitors to Australia – visited a winery at *some* time in their stay. South Australia has the greatest share of this total market with 18%.²¹

²⁰ *Seventh Continent*. Monday 29 October 2006.

²¹ <http://www.tourism.sa.gov.au/publications/pubs.asp?archive=0&PubCatID=2>

- 3.1.26 Domestic tourism though remains an important market with 1.515m intrastate overnight visits in wine regions during 2004-05, and a further 732,000 overnight visits interstate.
- 3.1.27 Australia and South Australia have built a reputable wine tourism market by developing high quality overnight accommodation, unique winery experiences, cellar doors, varied restaurant choice and regular transport services to regions. Importantly, many wine regions are within one hour's drive of the capital city.
- 3.1.28 Wine tourism is an important market for South Australia, with 34% of all international visitors to the State having visited a winery as part of a day trip. Not surprisingly, South Australia has found the wine tourism market is also a valuable spend, with unit returns higher than most other tourist segments.

3.2 Technical issues

Appropriateness of Russian vineyard plantings

- 3.2.1 The North Caucasus, some 1,500km south of Moscow, is home to more than 90% of Russia's vineyards. Despite growing grapes for almost 2000 years, Russia has only small areas that could be deemed suitable for modern viticultural activity. The principal limiting factors are centred around a short vegetation period (growing season) and extreme winter temperatures, ranging from -15°C during mild winters to -30°C in extreme cases. The most favourable soil and climate conditions are in the Krasnodar and Dagestan (not visited) regions with temperature summation of 3600°-4000°C day degrees and warmer winters allowing grapegrowers to avoid expensive vine protection measures.
- 3.2.2 The Russian vineyard growing areas' annual rainfall is also a limiting factor on grapevine yields, varying from a low of 100mm in the eastern parts of Stavropol to a high of 800mm in Krasnodar. Irrigation appears to play a major role with about 50% of vineyards in Stavropol and 70% of vineyards in Krasnodar irrigated with furrow systems. However, irrigation supply also appears to be a limiting factor for viticultural expansion because of high ground water salinity in regions close to the sea, limited supplies from rivers and a lack of modern technology such as undervine drippers and microsprinklers.
- 3.2.3 Relative humidity in the summer months appears to be high, resulting in disease pressure from oidium (powdery mildew), plasmopara viticola (downy mildew) and botrytis cinerea (grey mould). Leaf roller appears to be the major insect pest. Russian vineyard managers advise of spray programs which include 10-12 chemical applications per year, a very high number where improved sprayer calibration and machinery operating training could save considerable time and money.



Picture 5: Relative humidity in the summer months appears to be high, resulting in disease pressure from botrytis cinerea (grey mould), such as on these Cabernet Sauvignon grapes in Krasnodar.

3.2.4 Over the years, Russia has had five principal zones of winegrape activity: Dagestan, Krasnodar, Stavropol, Rostov and Checheno-Ingushetia. The three main regions are described in more detail below.

Vineyard Areas	Annual rainfall (average, mm)	Vineyard area (ha) 1990	Vineyard area (ha) 2005
Krasnodar	400-800	48,800	31,700
Dagestan	300-400 (to 600 in pre mountain zone)	54,600	19,700
Stavropol	300-600	13,900	9300
Rostov	300-350; 450-500	12,700	4800
Chechenia	350-650	14,400	3800
Kabardino-Balkaria	N/A	1400	800
Total		146,700	71,300

Table 6. Major Russian vineyard regions.²²

3.2.5 **Krasnodar:** which can be further sub-divided into three zones (Anapa and Taman, Central Black Sea and South Black Sea) enjoys a relatively mild climate, however, strong winds can cause significant damage. It has an average annual rainfall of 400-800mm, average annual temperature of 11-15°C, with minimum winter temperatures falling to -15°C to -20°C on frequent occasions. Soils vary from deep mildly alkaline clays to podzols and chemozems (loamy loess) depending on proximity to the coast or Caucasus spine.

²² *The Oxford Companion to Wine*. Jancis Robinson (1994); SVVR (2006)



Picture 6: A dry grown vineyard in Krasnodar.

The region's average annual rainfall ranges from 400-800mm and soils vary from deep mildly alkaline clays to podsoles and chemozems (loamy loess) depending on proximity to the coast or Caucasus spine.

- 3.2.6 **Dagestan:** (not visited) Located in the east part of the North Caucasus, this area has a moderately warm, arid, continental climate. It has frost free periods of 120-160 days in the north and 230-240 days in the south. Average summer (July) temperatures are 24°C, while January temperatures of 1°-3°C are experienced on the flats falling to -5°C to -11°C at higher altitudes. Annual rainfall is 300-600mm. It was not possible to visit Dagestan because of Australian Government travel warnings recommending against visiting this region of Russia. The current security situation is likely to present practical difficulties that would limit direct Australian involvement in Dagestan.
- 3.2.7 **Stavropol:** The climate in the Central Stavropol region is continental, with a temperature summation of 2600-3300°C. Annual rainfall is 300-600mm, contributing to severe winters where minimum temperatures range from -15°C to -20°C. Extreme lows of -25°C to -30°C have also been experienced. The majority of vineyards are winter protected (covered with soil). Vineyards in river valleys are furrow irrigated.

Varietal Composition

- 3.2.8 The Russian grape industry comprises about 120 varieties – some 40 tablegrape varieties and 80 varieties of winegrapes. Major European winegrape varieties include Aligote, Riesling, Cabernet Sauvignon, Merlot, Sauvignon Blanc, Chardonnay, Pinot Blanc, Pinot Gris, Sylvaner and Pinot

Franc. Local varieties include Rkaziteli (white) and Severny (northern), Cabernet Severny, Stepniak, Fioletowy, Ranni and Lukomsky have improved resistance to frost and fungal diseases. New varieties have allowed for significant expansion of non-protected viticulture. Climatic data suggests that the most suitable European varieties are those with relatively good, cold resistance and late maturity.

Russian vineyard management practices

- 3.2.9 Both phylloxera and nematodes are present in Russian vineyards. The major rootstocks currently in use are Kober 5BB, 100 –14 and Fercal. Phylloxera resistance appears to be the main criteria for rootstock selection however cold resistance, drought resistance, adaptation to calcareous soils and compatibility with scions should be considered in all development exercises.
- 3.2.10 General observations of only a limited number of sites, over a short period combined with limited climatic and soil data makes detailed and valuable analysis of current management practices difficult. However, in vineyards visited (those not requiring winter soil covering protection) they appear to be of considerable size (200–700ha) and have a standard trellis system. There is real potential to significantly increase the use of mechanisation and realise greater scales of economy.

Future site selection

- 3.2.11 The Russian wine industry has an ambitious expansion objective. Government planting subsidies of 50% of expenses will generate considerable interest in vineyard development. Russian grapegrowers should ensure site selection criteria is not compromised in the rush to increase production (as was the Australian experience mid-1990s when the Australian Government introduced accelerated depreciation taxation rebates).
- 3.2.12 Many vineyard developments fail due to inadequate site selection. In a globally competitive industry proper attention to site selection is paramount to the ongoing financial sustainability of the project. The attributes of the site will also determine variety and allow proper rootstock selection. The following table is intended to provide Russian context for the future development of vineyards.
- 3.2.13 With respect to new vineyards, the following table describes the key points of consideration for Russian expansion.

Development issue	Matters for Russian consideration
Soils – assessment of suitability	Consider the increased use of soil landscape maps – if available – to aid proper site selection. Pedologist report on soil plant relationships. Rank soil according to ease of management. Map soil topographic units Identify - raw values (moisture availability)

	<ul style="list-style-type: none"> - drainage and aeration potential - physical properties surface and sub surface profiles - identify physical and chemical impeding layers from a chemical viewpoint nutrient elements, saline, sodic or high soft carbonates • Nutrient deficiencies rarely limit soil use • Toxicities aluminium, manganese in acid soils can be serious limitations • Satisfactory water and oxygen supplies at depth are important • Physical Survey 50–70m grid pattern develop soil maps to establish criteria for rootstock selection.
Climatic Variables	Vine growth and development is influenced by temperature, rainfall, hail, wind and sunshine. This influence can be profound and will be a critical factor in determining the use and value of the grapes that are produced.
High Temperatures	Burn occurs when summer and autumn temperatures reach 35°-40°C
Frost Incidence	Avoid low-lying pockets and choose appropriate (late budding) varieties, e.g. Cabernet Sauvignon before Chardonnay in frost prone regions (two weeks delay in budding). Avoid sites where autumn frosts will interfere with the ripening process.
Winter temperatures	If the mean temperature of the coldest month is below -1°C the likelihood of winter's injury is too high. Physical damage induced by cold temperatures is often followed by the disease organisms Crown Gall (<i>Acrobacterium tumefaciens</i>)
Soil Temperatures	Warm soil temperatures induce more rapid vegetative growth and can improve fruit set >10°C at budburst desirable.
Rainfall	Low rainfall reduces the length of the vegetative growing season, induces early leaf senescence and reduces yield. Some stress will improve quality, severe stress will lower quality. High rainfall – increases likelihood of disease above and below ground. Heavy rain between veraison and harvest = splitting Heavy rain at harvest = dilution and quality loss Rain at flowering reduces number of fertilised berries = yield loss Hail results in reduced leaf area, berry damage, yield and quality loss
Wind	Constant exposure to high and moderate velocity winds has large and general effects on vine growth and productivity. Wind speeds greater than three m/sec significantly reduce stomatal conductance and photosynthetic activity.
Length of Growing Season	A minimum of 180 frost-free days are required, except for the earliest maturing varieties. Mean temperature of warmest month requirement 18.7°C for European varieties, thus site selection is vitally important.
Soil Management	Soil management systems should provide as near as possible the ideal environment for root growth. Soil management systems should be designed to maximise the volume of soil available for plant roots and maximise the concentration of roots in that given volume. Pre-planting treatments should include deep ripping when the soil is dry to fracture “tight” subsoil layers. “Slotting” 15cm wide up to 80cm deep and 1m apart may also be beneficial. Incorporate soil amendments prior to planting. Vehicle traffic between soil preparation and planting should be minimal to prevent compaction. Perennial weed problems should be controlled with herbicides prior to planting.

Existing vineyards

- 3.2.14 Vineyards which were considered during the *Russia Wine Project* visit appeared to rely on significant soil movements to:
1. control weeds mechanically
 2. cover vines for winter protection
 3. establish irrigation furrows
- 3.2.15 It is suggested that vineyard managers should seek to introduce new approaches to reduce the level of soil movement activity. Improvements in this area have the potential to significantly reduce cost, while additionally providing greater longer term environmental benefits.
- 3.2.16 An immediate way Australian technology could be incorporated in this way is in the application of herbicide. The use of selective and ultra low volume (ULV) herbicide in Australian vineyards has resulted in longer-term weed control with better conservation of soil structure and less vine root destruction than cultivation. Characteristics and application rates of the main herbicide currently registered and used in Australian vineyards – particularly in many cool climate applications – would be generally suitable for the heavy soil types seen in Russia.
- 3.2.17 South Australia has a number of manufacturers of herbicide application systems and equipment varying from high volume to ultra low volume that could be applied in a low cost and efficient manner. In particular use of four-wheel all terrain motorbikes are in wide use in South Australia and would be suitable for the heavy vineyard conditions encountered in Russia, particularly during deep winters. Photosynthetic activated appliances are currently in use in South Australia.
- 3.2.18 The soil movement required for irrigation by furrow in Russia is antiquated for both soil and water conservation reasons. Modern Australian vineyards operate in similarly dry (summer) climates however, moisture monitoring systems, above and below ground trickle irrigation systems are well developed.
- 3.2.19 A number of manufacturers are based in South Australia and provided water storage issues capacities could be developed, these applications have considerable potential in Russian vineyards. It is recommended that alternatives to furrow irrigation be immediately and thoroughly investigated to reduce soil deterioration and maximise the benefits of finite quality water resources.

Winter pruning

- 3.2.20 Perhaps the most significant challenge facing the Russian wine industry is the incorporation of greater levels of mechanisation within the existing vineyard management operation. Existing pruning preferences and vine structures could be adapted to allow for greater uses of winter pruning, prior to the introduction of widespread mechanical activity. Pruning is the most

significant labour activity in Australian vineyards. The aims of winter pruning should be to:

1. maintain a manageable vine form;
2. produce fruit of desired quality;
3. select fruitful shoots; and
4. regulate bunch number and size.

3.2.21 In Australian mechanised vineyards, most large scale grapegrowers target about 110 labour hours/hectare as a target figure. Winter pruning accounts for up to 50% of this total amount. Average pruning costs and time for a typical large scale vineyard are outlined in the following table that is provided as a guide for the types of scale objectives being achieved in a heavily mechanised vineyard system, such as Australia.

Pruning	Relative cost/ha A\$	Hours/ha
Hand spur	1900	95
Hand cane	2600	130
Mechanical	400	20
Minimal	200	10

3.2.22 Pruning systems adopted in the Russian vineyards were similar to those practised in Australia. Australian grapegrowers introduced mechanised pruning in the late 1970s due to labour shortages and increasing labour costs. There is potential for significant labour savings in winter pruning in the Russian vineyards. South Australia is home to a number of manufacturers of mechanical winter pruning systems.

3.2.23 In addition to winter pruning, mechanical pruning equipment has added value by allowing shoot topping and tipping during the summer and autumn. It appeared that the nutrient rich Russian soils provided considerable vine vigour and foliage development – which, when left unchecked, can reduce the quality of fruit being grown. Canopies can be manipulated in other ways to improve fruit colouration, quality, reduce disease and improve accessibility.

3.2.24 Manual foliage management in South Australia has been replaced by mechanical methods due to the high labour costs involved in manual operations. Much of the machinery serves a dual-purpose role in winter pruning and spring canopy management.

Fungicide management

3.2.25 Some Russian vineyards have adopted intensive pest and disease spray program of 10-12 applications/season. This may be necessary due to humid conditions in spring and summer, however it is still a very significant number (in comparison Australian vineyards apply 3-7 sprays/year). Improved spray machinery calibration and maintenance should allow immediate reductions in this number of applications. This is important as the greatest potential impediment to wine quality potential is chemical residues.

- 3.2.26 It is recommended that the overall Russian wine industry would benefit from the development of its own integrated pest management program. This should include the use of registered chemicals, agrochemical spray declarations, Viticulture and Wine Research Institutes developing recommended application procedures, in cooperation with industry, the use of international standards, such as ISO 18000 and Eurapgap.
- 3.2.27 The Australian Wine Research Institute (based in Adelaide) and the Primary Industries and Resources South Australia (PIRSA, the State's Department of Agriculture) may be able to assist with the development of these programs. PIRSA also has well-developed pest and disease prediction and monitoring systems. A visit to these facilities could be included on the itinerary of any future visit to South Australia.

Vineyard scorecard for assessing yield

- 3.2.28 The importance of accurately assessing vineyard yield is an important skill as significant vineyard development occurs. Several useful systems have been developed to aid this assessment. Knowing likely yield is important as wineries strive to control and manage inventories. Some major Australian wineries now assess grape quality and payment in the field prior to crushing. Other companies use a system of pre-vintage field assessment and final wine quality to establish price. In each instance vineyard assessment is assuming greater importance. Systems have been developed in South Australia to meet these needs.
- 3.2.29 Grape sampling and testing to gauge fruit composition is becoming increasingly important to the global industry. Sampling techniques have been developed to minimise variability between vines, bunches and berries.
- 3.2.30 Sampling procedures should be standardised to minimise variation. The optimal sampling scheme includes an assessment of variation within each component of vine variability. Sampling methods used in Australia include:
- Bunch – whole bunches;
 - Sprig – a segment of bunch stem;
 - Berry – individual berry from each selected bunch.
- 3.2.31 To achieve sampling accuracy in large vineyards, with little variation in vine vigour, every 10th pair of rows should be traversed with every 10th vine sampled from alternate sides. The key to successful sampling is to standardise a method, apply it throughout the ripening period and check the harvest sample with that of the crushed must. For best results a rigorous process should be established including: sample at the same time of day, store samples in plastic bags at 2°-4°C and process within 24 hours. A system of pre-vintage grape sampling at least once a week is required by all Australian processors.
- 3.2.32 Particular attention should be paid to 'chemical withholding periods'. Wine processors in Australia now insist on complete chemical spray diaries to check withholding periods and potential residues prior to harvest.

Pre-harvest

3.2.33 Wine quality depends on grape composition which changes as grapes ripen. It is profitable to choose a harvest date that gives an optimum mix of compounds for winemaking. Specification of ripeness will vary from 14° Brix for sparkling wine through to 25° Brix for fortified material. The following are some harvest indices for maximising quality:

- **Total soluble solids:** T.S.S. 18 – 24% = 10.0 – 13.5% alcohol. Most yeasts cannot survive in alcohol levels greater than 14%.
- **Acid:** Acidity makes an important contribution to wine palatability. Low acid wine is flat and uninteresting, high acid wine is sharp and indigestible. Titratable acidity (TA) targets in Australia range from 7-10g per L.
- **pH:** High pHs (greater than 3.7) have a detrimental effect on the quality of red wine. Acid addition and ion exchange procedures can correct the problems but are costly. Natural acidity is preferred.
- **Sugar – Acid Indices**
- **Phenol and Colour**

Harvest

3.2.34 Mechanical harvesting has developed in response to Australian labour shortages, high labour costs and the need for timely harvesting at optimal ripeness. About 95% of the Australian crop is now harvested mechanically.

3.2.35 Mechanical harvesting is up to 50 times faster than hand harvesting and can be completed for a cost of A\$20 – A\$40/tonne depending on yield. Australian hand harvesting costs of A\$400-600/tonne are common. Any Russian decision to mechanically harvest should be based on utilisation of at least 400 hours/year 250ha due to a machine's capital and operating costs.

3.2.36 Russian vineyards visited appeared to have a suitable geometric configuration to allow the mechanisation of harvest, however trellis systems would require strengthening and the ongoing capacity to maintain and service the harvesting equipment would need to be fully understood.



Picture 7: Vic Patrick shows narrow French-like row spacing in Stavropol.

Russian row widths vary from this 1.5m spacing to the more common 3m and 3.3m widths. Russian vineyards have a suitable geometric configuration to allow the mechanisation of harvest, however the majority of trellis systems would require strengthening.

Post harvest vineyard management

- 3.2.37 Post harvest machine maintenance is vital to prevent corrosive action of grape acids. Post harvest disease management, irrigation, bud damage assessments and fertilisation programs should also be considered.
- 3.2.38 The University of Adelaide, South Australian Department of Primary Industries, TAFE and various commercial companies have the capacity to provide detailed technical advice, management systems and equipment to modify labour intensive Russian vineyards into highly mechanised operations with a high level of technology.

Russian winemaking processes

- 3.2.39 In general Russian winemakers appear to be producing structurally sound wine, under difficult and challenging conditions. With the exception of Chateau Le Grand Vostock, which was a relatively new and modern winery with high levels of new technology, the other wineries visited had varying challenges, from poor hygiene to old equipment and poor levels of occupational health and safety and low training of winery staff. Significant improvement in Russian wine quality is possible with immediate attention to winery hygiene.

3.2.40 The post-vintage timing of the initial visit meant it was not possible to accurately evaluate the quality of fruit in the transition phase between vineyard and winery, however factors essential to the production of premium wine include:

- comprehensive pre-vintage fruit assessment for quality, freedom from disease, freedom from contaminants, ripeness and trueness to type (variety);
- timely harvest based on potential flavour and chemical analysis;
- harvesting in moderate to cool temperatures;
- fruit protection from oxidation with post-picking vineyard sulphur application;
- immediate post-harvest transport to processing centre in sanitised or stainless steel containers;
- minimum processing delays at winery's grape receiving areas;
- analysis of fruit at receiving point (measuring sugar, acid, pH, colour, temperature, matter other than grapes (MoG)); and
- winemaker assessment of additions required, such as anti oxidants.

3.2.41 It was noted that many of the Russian wineries visited process fruit through a variety of heavy crushing facilities. Modern practices now favour the more gentle extraction of juice from grapes by lighter crushing or rolling during this phase. It is recommended that such technology is considered during future upgrades as a way of improving the treatment of existing fruit material.

De-stemming

3.2.42 Russian winemaking would notice immediate benefit from the removal of grape stems immediately prior to the fruit crushing operation. Grape stems contain tannin that can cause the resultant juice to taste bitter and astringent. De-stemming can also assist with improving a wine's colour and alcoholic strength.

Temperature control and yeast selection

3.2.43 Must chilling (refrigeration) delays the onset of fermentation until after pressing and helps prevent oxidation. Temperature and temperature control are of critical importance in the making of good quality wine. There were limited examples of the application of modern temperature control measures in Russian wineries. Given the widely varying temperatures likely to be experienced in southern Russia's continental climate, winery temperature control cannot be underestimated.

3.2.44 During fermentation, temperature control is especially critical as an appropriate balance must be achieved to ensure proper yeast functioning. At temperatures below 10°C, yeasts will act slowly or not at all, while at temperatures above 45°C they are damaged and finally killed. High fermentation temperatures create undesirable flavour compounds and volatilise desirable flavour compounds. The end result is a wine low in fruit characters and marked by 'hot' fermentation characters.

- 3.2.45 The ideal for white wine fermentation is to achieve temperatures of between 12°-17°C, which will allow the production of fruity well-balanced light coloured wines. For red winemaking, a fermentation temperature of between 23°-30°C should generally produce the best flavour and extraction.
- 3.2.46 Temperatures should also be monitored carefully during the storage period for white varieties and the malolactic fermentation period for reds. Storing wines in stainless steel tanks fitted with cooling coils is preferable to pumping wine through cooling devices.
- 3.2.47 The majority of new world winemakers now use pure culture or inoculated yeast to minimise fermentation risks. Selected yeasts have predictable behaviour allowing fermentation to be managed and ‘stuck’ fermentation prevented.

Draining and pressing

- 3.2.48 Prior to pressing, equolage (drainage) is now common practice and is recommended, particularly for white winemaking. The time of pressing depends on wine type. The great majority of Australian wine is now made by crushing and de-stemming prior to the pressing operation. In general grapes for white wines should be pressed immediately prior to fermentation, while grapes for red wines should be pressed either after, or during fermentation, when sufficient colour and tannin extraction from the skins has taken place.
- 3.2.49 Various designs of press are available, continuous presses are much harsher and extractive than batch presses. Traditional basket-style presses and tank presses are preferred for premium wine production. Continuous and screw presses are more common in the production of bulk commercial wines.

Fermentation and storage

- 3.2.50 Fermentation is closely monitored and controlled in all new world wineries. Monitoring involves measuring the density of a sample of fermenting juice (hydrometer). Temperature is the principal factor affecting the duration of fermentation. In general red wine fermentations are complete within 4-7 days. White wines, which are generally fermented at much lower temperatures, may require several weeks. Other factors which influence the course of fermentation include agrochemical residues, grape must health (nutrients) and chemical additions, such as sulphur (SO₂).
- 3.2.51 It was noted that a range of concrete and other open top fermenters are still in use in Russian wineries. Stainless steel has largely replaced wooden and concrete vats in the Australian industry. Stainless steel has the advantage that both cleaning and temperature control are easier than the more conventional containers. Limited use of stainless steel systems was noted particularly at Chateau Le Grand Vostock. Where Russian winemakers continue to use concrete and wooden fermenters, greater attention must be paid to cellar hygiene as the potential for disease is greater. A number of the Russian wines

tasted had evidence of contamination and disease, most likely introduced to the wines at this and/or the crushing stage.

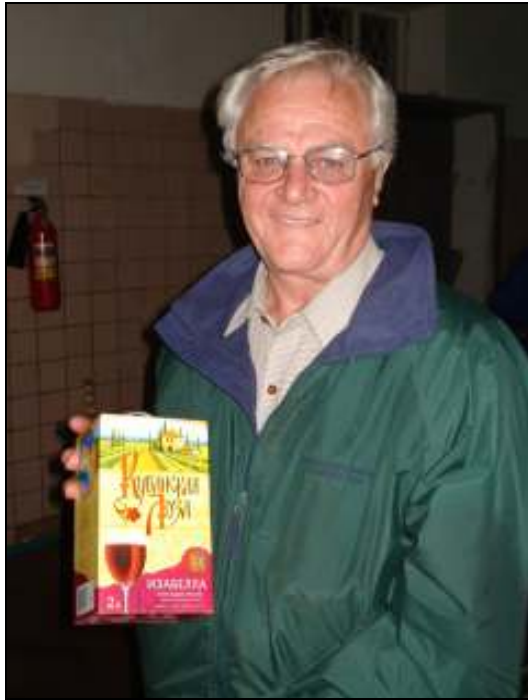
- 3.2.52 The period immediately after fermentation has been terminated is also a temperature-critical period. Care must be taken to avoid dramatic temperature fluctuations and constant relative humidity must be maintained. Stainless steel storage vessels should be regularly topped up and covered with inert gas.

Barrel maintenance

- 3.2.53 Russian cooperage appears to be of a good standard and a variety of French and local oak is in use. Naturally, it is important that barrels are prepared for use by washing, steaming and plugging leaks. Full barrels should be regularly topped up to prevent oxidation. Storage conditions for full barrels are ideally 10°-13°C and >70% humidity.
- 3.2.54 Barrel maturation has become increasingly popular in the production of 'premium' and 'super premium' new world wines, though the capital investment and maintenance costs are too high for this practice to be seriously contemplated in 'commercial' and 'popular premium' price segments.

Bottles and other packaging

- 3.2.55 For its relative size, the Russian wine industry appears to have a diverse range of bottling and packaging options. While the traditional 750mL bottle was in widespread use, casks ('bag-in-box') also had prevalence, while tetra-pak and plastic bottles (particularly inside cardboard) were also in widespread use. The application of this technology obviously varied greatly according to the producer's size, resources and the technical ability of staff.
- 3.2.56 Globally, producers of high quality wine use complicated and expensive equipment that subjects the wine to minimal aeration and agitation. Nitrogen and carbon dioxide are used to eliminate exposure to oxygen and glass bottles are filled slowly to minimise splashing and foaming; both applications worth considering for use in Russian systems.



Picture 8: Vic Patrick displays a 2-litre Russian tetrapak, a popular form of wine packaging.

3.2.57 Blending analysis and final filtration, together with bottling line sterilisation, are vital to the final preparation of wine for potential sale. Bottled wine can develop problems not previously apparent at this stage and care must be taken to ensure complete wine stabilisation occurs.

3.3 Education issues

3.3.1 Education is a major part of the South Australian wine industry. Wine education is built around three key levels of activity, founded by State Government legislation and structures.

3.3.2 There are two levels of accredited teaching – vocational and tertiary – while the third level is research. Vocational education is developed and delivered in the winegrowing regions of the State under the auspices of the State training agency (the Department of Further Education, Employment, Science and Technology). These courses are typically practical, hands-on courses ranging from hand pruning courses, to agricultural welding and vineyard weed identification and are delivered through Technical and Further Education (TAFE) colleges in each region. Courses range in length from a day to several weeks, or a semester.

3.3.3 Specific wine and grape tertiary education in South Australia is provided at the University of Adelaide’s Waite and Roseworthy campuses. Roseworthy is the oldest tertiary winemaking college in Australia and widely regarded as one of the best wine and viticulture clusters in the world.²³ The University of Adelaide has a series of bachelor degrees (usually four years full time, but possible to study part-time) in winemaking (oenology), viticulture and wine marketing.

²³ Harvard Business School, Harvard University (2003).

- 3.3.4 Undoubtedly the strength of Adelaide's winemaking education community is the high levels of collaboration which exist between the various national research and funding organisations. Co-located at the Waite Campus – about 20 minutes' drive from the centre of Adelaide – is the Cooperative Research Centre for Viticulture, the Australian Wine Research Institute (winemaking research and technical service to the industry), Primary Industries South Australia (State Government agency responsible for research and viticulture management advice) and the CSIRO (the Federal Government's science research institute).
- 3.3.5 It is recommended that a tour of the Waite Campus be an important part of the proposed March 2007 visit to Adelaide.

4. Summary

4.1 Next steps

4.1.1 To increase the potential for longer-term sustainable relations, including the successful development of the opportunities described at 1.2, this report makes three overarching suggestions for consideration by relevant Russian organisations (including regional governments) and the Government of South Australia. It is recommended that:

1. a Russian wine delegation visit South Australia in early March 2007 (during vintage) to directly explore the areas of potential commercial interest identified and to enable the SVVR delegation to consider the future of technical collaboration with South Australia;
2. an agreement between the Government of South Australian and Southern Federal District regions is developed which describes in more detail the various aims and objectives of a collective partnership; and;
3. bilateral exchanges and scholarships be considered between industry, government and education sectors, to further reinforce this partnership.

4.2 Appendices

- 4.2.1 Letter to SVVR, from Agent General for South Australia (28 September 2006) terms of reference
- 4.2.2 Wine Export Approval Report (October 2006), Australian Wine and Brandy Corporation