

Shades of Australia in vineyards of Mendoza

THE ANDES form a magnificent backdrop to the vineyards of Mendoza. But, in many other respects, the landscape has similarities with the inland regions of Australia adjacent to the River Murray. Mendoza province produces more than 70% of Argentina's wine. Since 1990 the vineyard area has remained relatively constant (around 144,000 ha), but 20 years ago the area was much larger (255,000 ha). The reduction was the result of a government-sponsored 'vine pull' scheme. In 1999 Mendoza produced 1.56 million tonnes of grapes. There is a strong Italian influence in the wine industry and this is the result of several waves of immigration over the past 150 years. In Argentina as a whole, less than 10% of vineyard area comprises vines younger than eight years and more than 50% of the area is 25 years or older: this is indicative of the lack of new vineyard development in recent times.

The city of Mendoza is located 1,040 kilometres west of Buenos Aires at 32.48 latitude. It is a very pleasant city with wide, tree-lined streets, large plazas and a distinctly European feel. The city was founded in 1561, but irrigated agriculture practised by the Huarpe Indians predates that by many centuries. The highest mountain in South America, Mt Aconcagua (7,021 metres), lies to the west of the city.

The province has five distinct wine regions¹, each with



many sub-regions. North, East and Central regions are the warmest with 2,000 to 2,220 growing-season day degrees². The North region (altitude 550–750 metres) includes the sub-regions of Las Heras and Lavalle. The East region (640 to 750 metres) contains the highest yielding vineyards: sub-regions include San Martín, Junín, Rivadavia, Santa Rosa and La Paz. The Central region (750–1,060 metres) includes Luján de Cuyo, Maipú, Godoy Cruz and Guaymallén. The South region (450–800 metres), including San Rafael and General Alvear, is intermediate with respect to temperature (1,980 growing season day degrees). The Uco Valley, which includes Tupungato, Tunuyán and San Carlos, is

the coolest region (1,776 growing season day degrees) with the highest vineyards (900 to 1,200 metres). The East region is the largest with 41% of the vineyard area followed by Central (22%), South (20%), North (11%) and Uco (6%).

The climate is dominated by the presence of the Andes which create a very pronounced rain shadow on their eastern side. Average annual rainfall is only 200 mm, with most rain falling in summer. However, there is some variation between regions: for example, North and East have the lowest rainfall (133–152 mm) with the South and Uco Valley having the highest (350 mm). The climate is very continental, with hot summers (days up to 40°C) and cold winters. Sunshine hours are high and relative humidity is low. Temperature differences between regions and sub-regions are mainly a consequence of altitudinal variation. The risk of fungal diseases is relatively low due to lack of growing season rainfall. Frost risk is also relatively low. The main hazard to economic viticulture is hail: thunderstorms formed over the Andes in summer can drop golf-ball sized hailstones. As a result, hail nets are used extensively and many vineyards have large permanent structures to support the hail nets. Typical growing season length (budburst to harvest) is five months. Most vineyards are found on flat land.

Evapotranspiration is very high and consequently vineyards must be irrigated. Water is sourced either from rivers or bores. The latter are only 60 to 200 metres deep and many are artesian. Water quality from bores is good. Irrigation in the region is mostly flood or furrow (95% of the



Parral with furrow irrigation (Santa Rosa)

Vineyards of the World

MENDOZA, ARGENTINA



Peter Dry



New vineyard in Tupungato

area): this system is very labour intensive and is said to account for 60% of the vineyard labour costs. Many of the new vineyards, particularly in the Tupungato sub-region, are using drip irrigation.

Phylloxera is present in the province but a high proportion of vines are grown on their own roots—it is said that the deep light-textured soils plus the flood irrigation reduces the potential impact of the pest. The main rootstocks currently used in new vineyards are 110 Richter, 1103 Paulsen, and SO4 with lesser amounts of 101.14, 3309 and 420A.

Approximately 50% of winegrape production comprises pink-skinned varieties (Criolla Grande and Cereza) used for bulk wine and distillation; this proportion is declining. The proportion of red grapes (currently 30%) is on the increase: the main varieties in order of production are Bonarda (this may be the same as Charbono of California), Malbec, Tempranillo (called Tempranilla here), Cabernet Sauvignon, Sangiovese, Merlot, and Shiraz (Syrah). The remainder are white winegrapes: Pedro Giménez (not the same as Pedro Ximenez), Torrontés³, Chenin Blanc, Trebbiano (called Ugni Blanc here), Chardonnay, Semillon and Tocai Fruilano in order of production. The area of Chardonnay is increasing, particularly in Tupungato. Ninety per cent of Argentina's Malbec is grown in Mendoza.

The traditional trellis system of the province is a type of pergola up to two metres high called parral. More than 50% of the vineyard area currently uses this system. It has the advantage that it is easy to hand harvest, provides some



Permanent hail nets (Luján de Cuyo)

frost protection and is high yielding (30 to 40 t/ha). Vine density is 1,600 to 2,000 vines per hectare. Both cane and spur pruning are used according to the variety, e.g. Bonarda is typically pruned to 100 nodes per vine with four canes and four spurs. Most other varieties are spur-pruned. For higher quality wines the yield will typically be lower, e.g. 12 t/ha for Cabernet Sauvignon. There is almost no mechanisation of pruning or harvest at the present time. The cost of hand labour is very low.

The Luján de Cuyo sub-region is located on the Mendoza river, just to the south of Mendoza city. It was the first in Argentina to have controlled appellation status (1993). Vineyards are found on flat land at an altitude of 800 to 1,100 metres. Soils are friable loams of alluvial origin, often

with a high stone content. This sub-region has the reputation for producing the best Malbec wine in Argentina. Malbec has been grown in Argentina for centuries and it is the most important variety in Argentina, from the point of view of wine quality. It is certainly the most recognisable variety in the export market.

In recent times Malbec has been through a similar history to that of Shiraz in Australia: low prices in the 1970s and 1980s saw the planted area of Malbec in Argentina decrease from 50,000 ha to 10,000 ha in 1990, just as the potential of the variety in the export market was becoming apparent. Although they probably have some of the best genetic material of this variety in the world, only mass selection has been used until now. A new program on clonal selection has recently been started in this region by INTA (the government research organisation).

The best Malbec vineyards have the espaldera trellis: this is a vertical system with a single fruiting wire at 0.6 to 0.9 metres, and three to four fixed foliage wires up to 1.8 metres. Shoots are manually tucked between foliage wires. Cane pruning with 2, 6 to 8 node canes plus replacement spurs is most common: canes are slightly arched. Row x vine spacing is 1.8 x 1.2 metres. If warranted, summer pruning is carried out in November and December. Malbec is typically harvested in late March at 24° Brix.

The Tupungato sub-region is located approximately 70

kilometres south of Mendoza city. Many of the vineyards are recent developments and there is a large amount of foreign investment. Altitude ranges from 900 to 1,400 metres. Climatically it is cooler than Luján de Cuyo with greater diurnal variation. The main varieties are Chardonnay, Semillon and Chenin Blanc for white wines and Malbec, Cabernet Sauvignon, Tempranillo, Merlot, Barbera and Sangiovese for reds. A new large vineyard development has planted mainly Chardonnay, Malbec and Cabernet Sauvignon on a VSP trellis with 1.8 metre rows and drip irrigation.

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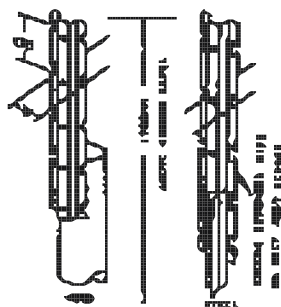
ACKNOWLEDGMENT

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REFERENCES

- 1 Foix, A. and Buzzi, F.V. (2000). Argentina: Vineyards, Wineries and Wines. Morgain International Ltd.
- 2 These are day degrees (base 10°C)—at the time of writing, this was the only temperature index available.
- 3 This variety appears to be unique to Argentina. There are several variants, some with an aromatic character similar to Muscat. It does not appear to be the variety with the same name from Galicia, Spain.

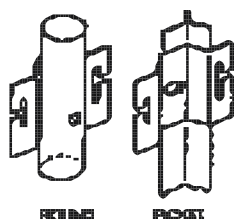
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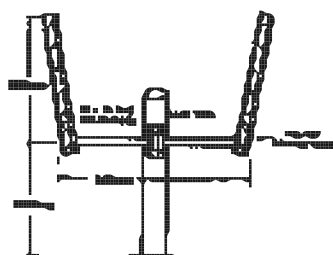
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