New grape varieties for premium wines

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The quantity and style of wine consumed in Australia has changed dramatically since the 1960s. Besides the increase in consumption from 9 to 19.9 litres per head in the past 10 years, the major changes have been the greater importance of table wine, particularly white table wine, and the more exacting standards set by consumers and wine producers. Also more importance has been placed on distinctive regional and varietal wines and the role of premium varieties.

Background
In Western Australia these changes have been clearly demonstrated. Table 1 shows the dramatic swing towards unfortified wine production and away from distillation and fortified wine. Table 2 demonstrates the decreasing popularity of varieties used primarily for the production of distillation spirit and fortified wines. This includes varieties such as Muscat Gordo Blanco, Pedro Ximenez, Grenache and Mataro.

Some grape varieties are suited to the production of particular wine styles. Standard red varieties such as Grenache can be used to produce rose, fortified wine and grape spirit, whereas Cabernet Sauvignon, a premium variety, is used mainly for making high quality red table wine.

Most premium white varieties such as Chardonnay, Semillon and Riesling are used to make wines in which the varietal character is emphasised.

Changes
The traditional wine producing area in Western Australia is centred on the Swan Valley. This is one of the warmest wine-making areas in the world. The climate favours the production of unique fortified wines and full bodied table wines. Much of the wine was once sold in bulk or in flagons ex-cellars.
Sauvignon Blanc produces wine with the aroma of 'fresh-cut hay'.

Merlot is either kept separate or blended with Cabernet Sauvignon.

Traminer is valued for its highly aromatic character in white wine.

Chardonnay produces high quality wines of distinctive varietal character.

The Swan Valley and other traditional wine producing areas (many since gone) grew a wide range of varieties, some specifically for the production of fortified wines (sheries and ports), while others such as Shiraz and Chenin Blanc were used for table wines.

The dramatic changes in wine consumption, together with developments in technology and changes in cost of production, have seen major shifts in production centres.

Major Eastern States wine companies have had a significant impact on the production and distribution of commercial grade wine in Australia. Many see Western Australia as an important outlet, and little effort has been spared to gain a market share in our State with reasonably priced (often discounted) flagon and cask wines.

The sale of this wine, with its low profit margins, has reduced the demand for local wine sold in containers greater than 750 millilitres. No local producer sells wine in casks while many others have gone out of the flagon trade. Most realise that the market they can best serve requires distinctive regional or varietal wines of premium quality presented in 375 or 750 ml bottles.

The establishment of premium wine producing areas near Margaret River and Mt Barker has helped to develop the State's reputation for regional and varietal wines.

Plantings in the new viticultural areas have been mainly with acknowledged premium varieties such as Riesling, Semillon, Chardonnay (white varieties) and Cabernet Sauvignon (red variety). Table 2 shows the impact these varieties have already had on our industry.

There are smaller plantings of other premium varieties (Sauvignon Blanc, Chenin Blanc, Cabernet Franc, Merlot, Pinot Noir) and those of special interest such as Traminer, Verdelho, Muller Thurgau and Zinfandel. Several of these varieties may have a more important role in the development of the State's wine industry.

Varieties

In the past 25 years much new vine material has become available to local vigneron, either as new varieties or improved clones.

In 1957 the first virus-tested vine material was imported into Western Australia from California. The variety was Chardonnay, the famous white grape of the Burgundy, Champagne and Chablis regions of France. This variety was later shown to have a mild infection of leaf roll virus. It also suffered from a problem called 'hen and chicken' in which many of the berries do not develop.

Chardonnay is normally grown in cool areas where it produces high quality wines of distinctive varietal character. Although this clone has performed inconsistently, it has been
Pinot Noir, a very old and variable variety, makes the famous red wine of Burgundy, France.

Table 1. Wine production in Western Australia.

<table>
<thead>
<tr>
<th>Wine type</th>
<th>1962 (litres)</th>
<th>Year</th>
<th>1972 (litres)</th>
<th>1982 (litres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unfortified</td>
<td>1,341,414 (30.2%)</td>
<td>2,344,700 (62.0%)</td>
<td>4,425,100 (91.4%)</td>
<td></td>
</tr>
<tr>
<td>Fortified</td>
<td>1,161,446 (26.2%)</td>
<td>919,600 (24.3%)</td>
<td>417,600 (8.6%)</td>
<td></td>
</tr>
<tr>
<td>Distillation</td>
<td>1,933,241 (43.6%)</td>
<td>520,500 (13.7%)</td>
<td>Nil (1980 = 414,500)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4,436,100 (100%)</td>
<td>3,784,800 (100%)</td>
<td>4,842,700 (100%)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Australian Bureau of Statistics.

Table 2. Production of major wine-grape varieties in Western Australia.

<table>
<thead>
<tr>
<th>Variety</th>
<th>1962 (tonnes)</th>
<th>1972 (tonnes)</th>
<th>1982 (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>White varieties</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chardonnay</td>
<td>N/R</td>
<td>N/R</td>
<td>70</td>
</tr>
<tr>
<td>Chenin Blanc</td>
<td>309</td>
<td>485</td>
<td>1,274</td>
</tr>
<tr>
<td>Muscat Gordo Blanco</td>
<td>561</td>
<td>1,258</td>
<td>492</td>
</tr>
<tr>
<td>Pedro Ximenez</td>
<td>371</td>
<td>539</td>
<td>312</td>
</tr>
<tr>
<td>Riesling</td>
<td>N/R</td>
<td>53</td>
<td>1,001</td>
</tr>
<tr>
<td>Semillon</td>
<td>N/R</td>
<td>312</td>
<td>213</td>
</tr>
<tr>
<td>Sultana</td>
<td>403</td>
<td>127</td>
<td>2</td>
</tr>
<tr>
<td>Verdelho</td>
<td>8</td>
<td>23</td>
<td>286</td>
</tr>
<tr>
<td><strong>Red varieties</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cabernet Sauvignon</td>
<td>N/R</td>
<td>46</td>
<td>1,232</td>
</tr>
<tr>
<td>Grenache</td>
<td>879</td>
<td>1,983</td>
<td>1,120</td>
</tr>
<tr>
<td>Mataro (incl. Burgundy)</td>
<td>189</td>
<td>83</td>
<td>20</td>
</tr>
<tr>
<td>Shiraz</td>
<td>522</td>
<td>1,004</td>
<td>965</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4,977</td>
<td>5,444</td>
<td>7,942</td>
</tr>
</tbody>
</table>

Source: Australian Bureau of Statistics.

The production of white wines is dominated by the Chardonnay, with substantial production of Chenin Blanc. The moderate wines from Cardonnay and Chenin Blanc are consumed in Western Australia and exported to England as well as being made into fortified wines.

The production of red wines is dominated by Shiraz. The bulk of this variety is used in the production of fortified wines. These wines are consumed as table wines and are a major export item.

Columbard, also imported in 1957, is a white grape from Cognac, France, used primarily for making the wine of that name. It was imported for planting in warm areas as the fruit retains acid. It is a neutral variety, lacking flavour and character, and has created little interest.

The Spanish variety Carignan was imported in 1961. It has had limited success in France, Spain and California as a producer of moderate quality wines of fair colour, good tannin and no pronounced varietal character. Probably more grapes are produced from Carignan than any other variety in the world because of the big areas planted. None has been planted commercially in Western Australia.

Traminer, also imported in 1961, is a very old and variable variety close to the primitive wild grapes of Europe. It is valued for its highly aromatic (spicy) character, although there are large clonal differences. It is a specialised variety not generally planted over large areas. In Western Australia small areas have been planted along the west coast, in the south-west and southern regions. Although it produces white wines, the berries turn a distinct pink-orange when ripe.

The origin of Zinfandel, imported in 1963, is obscure. It is thought to be the Primitivo of Italy (similar to Mali Plavac of Yugoslavia) which makes it an important variety world-wide. It has been adopted in California and is second to Carignan in area planted.

Zinfandel is a difficult variety to manage because it ripens unevenly, overcrops, is prone to second and even third crops, is susceptible to splitting and bunch rot and liable to sunburn. The wines are a bright colour and have a distinct raspberry flavour. Although Western Australia was the first State to produce...
commercial wine from Zinfandel, most of the original plantings have been grafted to more popular varieties.

Chenin Blanc, Sylvaner and two clones of Pinot Noir were introduced in 1965.

Chenin Blanc was already the major premium white wine-grape grown in Western Australia, however it was known incorrectly as Semillon. It is the principal white grape of the Loire region in France and is also a major variety in California, South America and South Africa (where it is called Steen). It is used for producing dry white, sparkling and sweet white table wines. The variety retains its acid in warm climates and has a full, often passionfruit-like flavour.

Although limited areas have been planted in the State in recent years, the variety should become more prominent, particularly along the west coast and south-west.

Sylvaner is an Austrian variety grown widely in the cool climates of central and western Europe. It was particularly prominent in Germany, however much of it is now being replaced by Muller Thurgau. Under some circumstances it makes a fruity, distinctive wine; more often the wine is neutral and is suitable only for blending. Few commercial wines have been produced in Australia from this variety and its future in this State seems limited.

Pinot Noir makes the famous red wines of Burgundy, France, and is a major component of Champagne. It is a very old and variable variety. There are about 12 clones in Australia which show distinct differences in appearance. Their performance will probably vary with growing conditions.

The two clones imported in 1965 (one incorrectly called Gamay Beaujolais) have different growth habits; one has droopy canes, the other erect canes. Both produce good crops under most conditions in Western Australia. Pinot Noir is not a vigorous variety and takes some years to develop vines of a reasonable size. Even with selected clones, yields are usually only moderate.

The colour of Pinot Noir wine is rarely intense and when grown in hot areas makes uninteresting wine lacking colour and flavour. In cooler areas the wine has a distinctive varietal flavour which is highly esteemed. Less than 100 hectares is planted to Pinot Noir in Western Australia, and future plantings will be moderate.

A closer examination of the wine-making techniques applied to this variety may be needed before high quality wines are made consistently.

In 1967 an important variety, Semillon, was imported into Western Australia. Chenin Blanc, our major white variety at the time, was incorrectly called Semillon. There was only a small patch of true Semillon in the State and it was from an unknown source. Semillon is the major white variety of the Bordeaux region of France and is that country's second-most planted variety. The largest Australian plantings of Semillon are in New South Wales where it is incorrectly called Hunter River Riesling.

Semillon is a vigorous variety. In Australia it is normally used to make dry white wine, the better examples exhibiting a distinctive varietal character which becomes 'honeyed' with age. The variety can be affected by 'noble rot' and in this form makes the famous, luscious sweet wines of Sauternes and Barsac.

There are about 220 hectares of Semillon planted in Western Australia, mostly in the southern areas. The future of the variety, particularly near Margaret River, seems bright.

Merlot, an important black variety of the Bordeaux region of France, was also introduced in 1967. This variety is finding favour throughout the world. It is characterised by an early bud burst, is vigorous and productive, producing twice the yield of the Cabernet varieties in Bordeaux.

Merlot is considered by some to be related to the Cabernets. The wine has a distinctive varietal character, good colour and softness and ages more rapidly than Cabernet. It is either kept separate or blended with Cabernet to add softness and complexity. It has been planted in many southern vineyards where the fruit will be used mainly for blending.

Ruby Cabernet, a cross produced by Professor H. Olmo of California, was introduced in 1971. Its parents are Carignan and Cabernet Sauvignon and it is said to show some of the characteristics of each. In good soils it is vigorous, however it grows very weakly on poor soils, exposing the fruit to sunburn. It is susceptible to fungal attack and its woody bunch stems make it difficult to harvest.

Ruby Cabernet was designed to produce quality red wines in hot areas where Cabernet Sauvignon is unsuitable. Local growers have shown no interest in it because Cabernet Sauvignon has produced a high quality wine in all our areas.

**Southern influence**

With the establishment of vineyards in the southern areas of Western Australia and the production of the first wines in the early 1970s, vigneron showed considerable interest in new varieties and improved clones not grown in the State.

In 1972 four new clones of Chardonnay were introduced. Two of these have shown great promise and are recommended for all viticultural areas.

Sauvignon Blanc, a vigorous and rather upright variety grown in the Bordeaux and Loire regions of France, was also introduced in 1972. It has a strong varietal character often described as
herbaceous (fresh-cut hay). The wines are fresh and acidic. It is a major component (with Semillon) of the famous Sauternes. This variety could have an important role in our State, either as a varietal wine or in blends with Semillon.

Barbera, the major wine-grape variety of Italy, was imported for planting in warmer areas. It is a reasonably vigorous variety which retains acid even in the hottest conditions. The wines have good colour and tannin and a distinctive varietal character. It has not been planted commercially in this State.

Sangiovese was also imported under a similar pretext and has suffered the same fate as Barbera. The lack of interest is probably due to the significant reduction in the planting of red varieties in the Swan Valley and the impact of Cabernet Sauvignon in all areas of the State.

Muller Thurgau is one of the industry’s few successful crossbred varieties. It is the major wine-grape variety of Germany. It is vigorous, productive and matures in regions where the ripening of Riesling is uncertain. The variety is unfortunately very susceptible to Botrytis cinerea (grey rot), making it difficult to handle in areas with rain or humid weather at harvest. It is believed to be either a cross between Riesling and Sylvaner or between two Riesling clones. The wine contains less acid and lacks the distinctive bouquet of Riesling. Only a very small area of Muller Thurgau has been planted in Western Australia as Riesling has ripened successfully in even our coolest seasons.

Four additional clones of Pinot Noir were imported in 1972, although two were incorrectly called Gamay Beaujolais. Local growers have leaned towards various clones, however an erect growing and very fruitful clone seems most favoured. A more rigorous evaluation of Pinot Noir clones should be made throughout the State over the next few years.

Cabernet Franc and Verdot were imported to supplement our other Bordeaux varieties Cabernet Sauvignon and Merlot. In some areas Cabernet Franc has achieved as much recognition as Cabernet Sauvignon, often called the ‘prince of red grapes.’ It is vigorous, tolerant of salinity and amenable to spur pruning. The wine has a strong varietal flavour, good tannin and colour and ages well. It has been planted in several southern vineyards and in most cases will be blended with Cabernet Sauvignon.

Verdot has grown vigorously in experimental plots at the Department of Agriculture’s Swan Research Station, but has produced poor crops. There has been little interest in the variety from local growers.

**CSIRO crossbreds**

In 1975, three CSIRO crossbred wine-grape varieties were imported into Western Australia. They resulted from a programme aimed at producing varieties well adapted to hot inland irrigation areas.

Goyura, a cross between Muscat Gordo Blanco and Sultana, yields well, produces satisfactory sugar and acid levels and a low pH in the juice. The fruit has a mild muscat flavour which is not very evident in the wine. Generally, the wine is fresh and crisp.

Tarrango, a late maturing cross between Touriga and Sultana, produces fruit with a low pH and acceptable acidity. It makes a fresh, distinctive wine which is an attractive bright cherry-red. The wine is pleasant to drink as soon as three months after harvest.

Tullilah, a cross between Macabeo and Sultana, also yields well. The fruit remains in good condition on the vine and has acceptable acidity and low pH. It gives a neutral white wine which can be considered fresh and well balanced, but which is probably better suited to blending with highly flavoured varieties or as a base for sparkling wines.

So far there has been little commercial interest in these varieties in Australia and even less in Western Australia. It is difficult to see this situation changing considering the availability of premium varieties suited to local conditions.

**Fortified wines**

Although Western Australia has a reputation for the production of fine ports and other fortified wines, many of them have been made from varieties not grown specifically for these styles.
This situation may change with the recent introduction of a range of Portuguese port varieties including Alverelhao, Bastardo, Souzao, Touriga, Tinta Amarela, Tinta Cao and Tinta Madeira and the French variety Brown Muscat.

The port varieties are traditionally blended because of their considerable variation in character. Colours vary from pale to deep robust red. Most varieties can ripen to a very high sugar content and develop intense flavours. This allows the production of complex and highly flavoured wines showing considerable elegance.

Unfortunately the decline in the port market has seen little planting of these varieties in Australia. Future plantings will probably be by small vineyards aiming to specialise.

Brown Muscat or Muscat à Petits Grains has a number of colour forms ranging from white, rosé and red. They readily mutate. The coloured form is particularly popular in north-eastern Victoria where it produces the famous (and unique) fortified muscats of that region. The fruit can reach a very high sugar content at maturity and an intense flavour which is passed on to the wine.

Although local vignerons produce excellent fortified muscats, it will be interesting to see the results achieved using this variety. Trial plantings at Swan Research Station have produced fruit of intense character. The variety is also used for adding flavour to table wines and as a base for 'Asti Spumante' type sparkling wines.

**Recent introductions**

The most recent wine-grape introductions to the State are Voignier, Nebbiolo and Chambourcin. Voignier is a traditional white variety from the Rhone Valley in France. It is often used in blending with both red and white grapes. The grapes are flavoursome, however they tend to lose acid very readily with maturity. It is of low vigour and low yielding.

Nebbiolo is one of Italy's best red wine grapes. It produces many of the famous dry red wines of the north-east region (Piedmont) including the Barolo and Barbaresco. It is also used to produce sweet wines.

Chambourcin is a black hybrid variety imported from British Columbia. It is characterised by vigorous growth and production and resistance to powdery mildew, downy mildew and phylloxera. The wine has an intense colour and a most distinctive flavour. A small quantity of experimental wine made from Chambourcin was most distinctive.

These three varieties have not yet been released to growers, but will probably be of limited interest.

**The future**

Local vignerons have at least as good a selection of premium wine-grape varieties from which to choose as their Eastern States counterparts. The desire in this State to produce high quality distinctive wines has influenced local vignerons to seek new and improved planting material.

However, as with the rest of Australia's viticultural areas, there is still considerable work to do in matching variety to region. This task is in its infancy in this State, but indications are that a range of premium varieties show promise in most of our viticultural areas. Given the inherent characteristics of these grape varieties, the reputation of locally produced wines should be further enhanced in years to come.

**Further reading**

Some wine-grape varieties for Australia. A. J. Antcliff, CSIRO Division of Horticultural Research, Merbein, Victoria.

Major wine-grape varieties of Australia. A. J. Antcliff, CSIRO Division of Horticultural Research, Merbein, Victoria.

Minor wine-grape varieties of Australia. A. J. Antcliff, CSIRO Division of Horticultural Research, Merbein, Victoria.