

# Winemaking and Wine Growing

Brian Croser, AO



Dr A.C. Kelly,  
a pioneer terroir winegrower/vigneron  
of the Australian industry

## Author

**Brian Croser, AO**, began as a winemaker with Thomas Hardy and Sons in 1969. In the early 1970s Brian attended The University of California at Davis for a masters program and went on to establish the Wine Science program at Charles Sturt University. By 1976 Brian had established Petaluma and in 1978 gave it a home in the Piccadilly Valley, then in 1986 he established Argyle winery in Oregon. Brian served as Chairman of Adelaide, Canberra and Sydney wine shows and twice as President of the Winemakers Federation. For his service to industry he was awarded an Order of Australia, the Maurice O'Shea Award and was Decanter Man of the Year in 2004. Brian was Deputy Chancellor of University of Adelaide from 1999 to 2007 and was awarded the degree of Doctor of the University for his service. Brian still lives at the Tiers Vineyard in the Piccadilly Valley and is the winemaker for Tapanappa Wines.



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*‘Wine is one of the loveliest and most intricate of nature’s gifts to us, since its creation is unlocked by human interaction and it enables us to taste the landscapes and seasons of the natural world with extraordinary precision. To drink wine is to drink nature. This is why most of us love wine; it is also a kind of love for the world itself, for being alive and being here.’*

ANDREW JEFFORD

## 1 Introduction

This book is about the science and technology of winemaking summarised in the word oenology.

There have been many treatises written over centuries, particularly the last two, about oenology as there has been on the sibling discipline of viticulture. A natural first question to ask in addressing the discipline of oenology is, ‘where does viticulture end and winemaking begin?’

Another natural question is which discipline is more important to the quality and economy of the product wine, viticulture or oenology?

In commerce it is astonishing how enduring and polarised the division between winemaker and grapegrower remains. The negotiation of grape price based on supply and demand dominates industry politics and influences the allocation of resources to research and education. The question of who is more important in the production chain – the oenologist or the viticulturist – is often emotionally charged by the high public profile of successful winemakers in contrast to the relative obscurity of the viticulturist behind successful brands and wines.

The answer to these questions of course is that the vocations of viticulture and oenology comprise a continuum with significant overlap of responsibilities. In an ideal world the viticulturist understands and delivers exactly the grape composition and cost that the oenologist needs. Wine of all shades and qualities depends for its basic style and quality on the composition of the raw material grape.

Here I would introduce a distinction within the species wine between ‘branded commodity wine’ and ‘fine wine’ (Croser 2004).

Branded commodity wine is the mass-distributed, every-day-affordable, consistent-quality beverage, recognised by its brand and blended from ingredients from anywhere, often traded as a commodity between very large companies.

Fine wine is constrained in quantity and distribution by the size of the individual vineyard, region or producer and

is purchased for consumption on discriminating occasions, usually at a premium price because of the unique characteristics of the vineyard and or producer.

For fine wine production the winemaker or oenologist must control the operations in the vineyard and the quality of the grape as the optimal solution. Ideally the fine winemaker is both viticulturist and oenologist.

For commodity wine production the oenologist has to at least understand the compositional strengths and deficiencies of the raw material being delivered by the grower. This understanding enables the winemaking skills involved in amelioration and blending in order to achieve cost, style and quality objectives.

These areas of pure oenology, the quality control processes involved in the amelioration of must and wine, crushing and pressing, fermentation, maceration, maturation, wine stabilisation, fining, filtration and packaging are the main substance of this textbook.

It is appropriate that this introductory chapter explores the knowledge territory shared by viticulture and winemaking, the overlap if you like.

Unashamedly it will explore the role of the vineyard site and its management in the production of terroir-driven fine wine to a greater extent than the role of the vineyard in the production of branded commodity wine or the heavily ameliorated and often blended ‘hedonic fine wine’ style described later in this chapter.

The oenological techniques for the production of these latter two wine styles are the main substance of this book whereas the technology of the terroir-driven fine wine style probably belongs more appropriately in a book on viticulture. In essence this chapter becomes the viticulturally focused chapter of this oenology book.

It is helpful to establish a framework in which to examine the different responsibilities and challenges facing winemakers of fine wine and commodity wine in the area of viticulture and oenology overlap.

The responsibilities for the quality of the raw material

and winemaking responses of the oenologists in charge of Australia's extraordinarily successful and very large commodity wine brands are vastly different from those of a small producer depending on a single vineyard to deliver a unique fine wine which will attract a significant price premium in a very crowded and competitive fine wine market place.

Both of these styles of the vocation of winemaking are honourable, challenging and rewarding. Australian research and education institutions and their researchers and graduates have earned international reputations for technical excellence and generated a global demand for their skills both in the manufacture of branded commodity wine and as the crafters of fine wine.

The aim of this chapter is to elucidate the range of knowledge and skills required of the winemakers in the production of branded commodity wine and in the crafting of fine wine and in particular where the winemaker is required to be involved in the viticultural process.

## 2 Branded commodity wine production

The demands of the market place shape the cost, style and quality of the vast and growing quantity of branded commodity wine consumed globally on a day-to-day basis as part of modern lifestyle and usually in conjunction with food. For this wine product, brand is the most important recognition factor. A brand has to earn its place on the retail shelf and its consumer attraction through a combination of ready availability, competitive pricing, distinctive recognisable packaging and – most importantly – a satisfactory, consistent wine quality.

Packaging design and wine style and quality are tested

rigorously against consumer preference.

Retailers, of whom the large oligopolistic grocery chains are the most important, make testing demands of product availability, purity, consistency and cost. Increasingly these powerful purchasers of wine also demand conformance to ethical criteria such as the measurement and declaration of the carbon footprint of production and distribution and the recyclability of packaging, termed 'product life cycle analysis' extending even to employment conditions for labour in poorer winemaking countries.

Governments demand appropriate product health warnings to consumers for alcohol content and allergenic additives and finings, absence of ingredients from 'genetically modified' organisms, ingredient labelling, conformance to occupational health and safety principles and truth in labelling. These are all factors that have to be quality controlled in the modern branded commodity wine business and much of the responsibility lies with the oenologist. Many of these demands are also made of fine wine producers.

The consumers of branded commodity wine generally feel safe and satisfied with their chosen brand and expect these criteria to be fulfilled when purchasing their favourite wine.

For consumers the selection of a preferred wine style is either influenced by the consumption circumstance or is just dictated by personal taste. The choice of wine style logically precedes the choice of the brand to deliver that style.

Varietal labelling of new world branded commodity wine has provided the most effective communication of the style of wine in the bottle.

Globally Riesling is recognised as slightly sweet, delicate aromatic white wine. Consumer expectations are that



Figure 1. A very large Australian broadacre vineyard that has been so successful at producing 'commodity' wine. [Paringa, South Australian Riverland]





Figure 2. Well managed intermediate size vineyards suitable for producing hedonic fine wine, and interspersed with 'exceptional site' vineyards. [Barossa Valley]

Sauvignon Blanc is crisp, dry and savoury with herbal aromatics and Chardonnay is full, rich and ripe fruit flavoured with significant texture and a soft finish.

Pinot Noir is globally recognised as a lighter-coloured and medium-bodied, soft and aromatic red wine and Cabernet Sauvignon is expected to be deeply coloured, strong and earthy flavoured red wine with significant tannins. Shiraz is expected to be deeply coloured, with rich ripe fruit aromas, sweet fruit flavours and a soft finish.

These are arguable stereotype descriptions of some of the globally recognised varietal wine styles and there are significant exceptions, such as Australian consumers' preference for dry Riesling.

It is, however, undeniable that variety has become a simple global code for the style of wine in the bottle and new world varietally labelled branded commodity wine has replaced the old world equivalent on grocery chain shelves. The old world commodity wine equivalent relied on the much more complex and consumer unfriendly system of regional appellation (e.g. Burgundy, Chablis, etc.) as the code for wine style. The old world is at last recognising its disadvantage and has begun changing its complex and arcane regulatory system to allow varietal labelling.

Varietal character is a very important attribute within the quality control responsibilities of an oenologist making varietally labelled branded commodity wine. The

winemaker needs to maximise the varietal character as a quality factor and to ensure the conformation of the wine style to the consumer expectation of that variety.

Branded commodity wine grapes are grown in large vineyards with high yields, low climatic and disease risks and where mechanisation is facilitated. The economic reality of branded commodity wine production is that the lowest cost producer eventually wins.

The hot, irrigation-dependent vineyards of flat, inland, alluvial soil river valleys best meet the cost criteria but are unfavourable environments for the production of varietal character in the grape. Fruit from these economical vineyards is mostly low in varietal character, low in phenol, high in potential alcohol, high in pH and low in acid. To meet the consumer expectation of varietal wine style requires significant amelioration, including enhancement of varietal character, reduction of alcohol, addition of acid, reduction of pH and addition of tannin and colour.

Some of the style and quality objectives of commodity wine production have been met by cross-regional blending, but technology in the hot, inland river valley, irrigation-dependent vineyards is improving both productivity and grape composition, and technology in the winery is allowing cost effective amelioration.

The technical challenges and potential solutions for the branded commodity winemaker are addressed in this book.

The established regions that became the refuge of the fortified winemakers after the pioneering era in the first 50 years of the twentieth century have made successful transitions to fine table wine. Particularly the Barossa Valley and McLaren Vale and to a lesser extent the Clare Valley, Swan Valley, Rutherglen and the Hunter Valley have been internationally successful with Shiraz and have so embraced the terroir model that they are researching and promoting subregions based on nuances of climate, soil and geology.

The industry has turned full cycle from the pioneering vigneron and their special sites of the nineteenth century to the war- and depression-driven fortified wine era, to the renaissance winemakers using the old vines and sites of the pioneers to rediscover Australia's table wine heritage in the 1940s and 1950s, to the supercharged branded commodity growth from 1986 in parallel with the proliferation of new regions and producers of the modern age based on the same belief in region and special site differentiation that drove the pioneers to plant vines.

We are by the number of regions and vigneron and fine wine reputation a *terroir–vigneron* dominated industry.

We also have a very viable and large branded commodity winemaking dimension driven by a few very

large producers that has tended to dominate the image of Australian wine commerce, especially in export.

The reality of the investment in Australia's unique and very high quality regions and terroirs, the deployment of capital and skilled people to this type of enterprise and the increasing recognition of Australian terroir-driven fine wine is happening, but not quickly enough.

We need in the oft-quoted words of the great pioneer vigneron Dr A.C. Kelly of McLaren Vale, from *Wine-Growing in Australia* published in 1867:

*The time has now arrived when the wine-growers of this colony must bestir themselves and boldly face the difficulties before them. They must be prepared to take their stand on ground already occupied by the experienced wine-growers of Europe who have a name and a prestige of centuries in their favour ... All have a direct interest in each other's success: for according to the quality of the wines produced for export will be our status as a wine-growing country. No petty jealousies need stand in the way of that friendly rivalry to produce the best wine which ought to be the endeavour of each wine-grower.*

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