

The Winston Churchill Memorial Trust Churchill Fellowship 2002

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Organic Grape and Wine Production in North America and Europe

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1. Acknowledgments

The purpose of this report is to provide details, including the rationale and findings, of the Churchill Fellowship provided in 2002 to investigate organic grape and wine production in North America and Europe. Specifically, the Fellowship study enabled me to visit a wide variety of sectors within the industry, from grape producers to winemakers, retailers and academic institutions to:

- Determine current practice and research being undertaken in organic viticulture in relation to:
 - weed, pest and disease control
 - cover crops
 - canopy management
 - water and nutrition management
- Identify techniques of wine production used to attain high quality, premium table wine
- Investigate the marketing of organic wines
- Establish a network of researchers and practitioners for future contact
- Identify appropriate resources (handbooks, guides, websites)

Strategies

- Site and field visits to vineyards and wineries
- Meetings/discussions with University and Agriculture Extension Staff and Researchers
- Attendance at an international organic viticulture conference
- Visits to retail and cellar sales outlets
- Discussions/meetings with wine distributors

This Fellowship came at, what turned out to be, a critical time in my life, and provided a very important mechanism for me to look to the future with a positive view. I am and will be eternally grateful for the opportunity provided by the Winston Churchill Memorial Trust.

I am also grateful to Supersorb - a local (Albany-based) company, specialising in the production of zeolite (a volcanic rock product) - who provided me with funding to cover the cost of registration at an international organic viticulture conference.

Mr Kim Clarke (Institute for Child Health Research), Mr John Elliot (Department of Agriculture of WA), Mr Michael Staniford (Alkoomi Wines, Frankland WA) all have my respect and admiration for their work and my gratitude for the significant part they played in my success in receiving the Churchill Fellowship.

My sincere thanks goes to the vast array of wine industry people in the countries visited, who gave up their precious time and provided me with information.

My husband, Murray Gomm, deserves a gold medal for his solid support prior to, during, and following the Fellowship visit, and I thank him for always being such a wonderful human being.

2. Executive Summary

Personal profile

<ul style="list-style-type: none">• Name: Pamela Jane Lincoln• Position: Co-proprietor, Lincoln & Gomm Wines (<i>Formerly</i>) Research Officer, University of Western Australia• Address: Lot 6 Link Road, Albany Western Australia 6330• Contact: 08 9842 5175 (H) gommlinc@inet.net.au (E)	
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- ***Fellowship Aim***

To investigate methods of practice in organic viticulture and organic premium wine production in North America and Europe and report back to the Western Australian community.

- ***Fellowship highlights***

- **Vineyard Visits in California & Oregon** – Although the number of excellent visits is almost too great to name, as the Pacific North-west is an outstanding wine region, the Fetzer – Bonterra premise was superb, and the gravity-feed wineries of Lemelson and Willakenzie in Oregon demonstrated high level, state-of-the-art design
- **Copia: Food, wine and arts centre, California** – this very new icon in the Napa Valley is a great shrine to wine, and incorporates 5 acres of organic interpretive garden
- **International Organic Viticulture Conference in Canada** – a three-day conference brought organic researchers and producers together from a number of different countries. Established contact with two key research agencies in Europe – FiBL (Research Institute of Organic Agriculture) in Germany and AIB (Associazione Italiana Agricoltura Biologica) Italy
- **Visits to ‘Whole Foods’ and ‘Thrifty’** supermarket chains with a focus on organic and sustainable food products and wines.
- **Vineyard & Winery Visits in Alsace, France** – the Maison du Alsace (the wine industry association based in Colmar) presented an excellent introduction to the wines produced in the region, and organised a program of visits to (mostly) English-speaking organic and biodynamic vigneron in the region. These people all turned out to be very hospitable hosts and great sources of information.
- **Assoc. Professor Andrea Pardini, University of Florence, Italy** – Dr Pardini organised an extremely busy and varied program in the Tuscan region that included vineyard and winery visits, discussions with researchers at both the university and a number of research institutes.

- **Findings**

Organic grape and wine production is becoming 'mainstream' in the USA, and is increasing at a dramatic rate in Europe. Although many of the regions in the USA that have adopted organic production widely have very helpful climates, making production relatively easy, there are other regions in the Pacific North-west (USA) and in Europe where climatic conditions are less than desirable, yet still organic wine-grape production prospers. This suggests that there is much scope for organic grape and wine production in many, if not all, parts of Australia. Increased production of wine-grapes using organic principles and methods has the potential to;

- Improve the quality of grapes
- Increase the market-share of Australian wine in other countries
- Increase the sustainability of the Australian viticulture industry
- Reduce consumer concern about the environmental impact of wine-grape production

- **Reporting**

After returning from the fellowship study tour, the following means will be used to disseminate the findings to the Australian community:

i) **Seminars**

Seminars to the general public and the local wine industry are planned for November, 2002. Charles Sturt University has indicated that they will host me to speak to final year students in 2003. The following conferences will be targeted as potential audiences for a presentation: the Margaret River Field Day Seminar May 2003; the WA Wine Industry Outlook Conference, 2003; the Australian Wine Technical Conference, 2004. Other opportunities to provide presentations to the wine industry will be taken as they arise. Brief summaries will be given to wine appreciation classes conducted by me in the Great Southern region of WA.

ii) **Publications**

An article will be prepared for publication in one of the wine industry's journals, detailing key findings and the implications for the Australian wine industry. Smaller articles and a copy of this report will be forwarded to the WA Department of Agriculture, the Wine Industry Association of WA, and other key wine industry agencies in Australia. Articles will also be provided to organic organisations such as NASAA and BFA, and publications such as Earth Garden, the ABC's Organic Gardner magazine, Slowfood Perth newsletter. RIRDC Organic Newsletter

iii) **Other**

My existing website will be upgraded with the full report plus additional information. I am also a willing contributor to any book to be written in Australia about organic wine production.

Implications for Research

Although much research is currently underway in institutions across the world, there is a clear and obvious need for experimental research to demonstrate the efficacy of some widely used preparations such as compost tea to be trialled in the Australian environment.

Definitions:

Organic

The organic movement can be seen as a *producer* movement centred upon healthy, productive soil, or it can be seen as a *consumer* movement centred around the fear of chemicals. It is the latter that has driven the demand for organic produce over the past few decades. However, it has been said that the main issue with conventional agriculture isn't what it does to the food, it is what it does to the land. There is little evidence that chemicals used end up in the food consumed. Moreover, many of the chemicals stay on the land, or leach into waterways poisoning the environment and the farmers who use the chemicals.

Consumers usually understand organic agriculture as production without the use of synthetic chemicals. However, there is more to organic agriculture than just doing away with artificial substances.

Organic farming does aim to minimise inputs to create a closed agricultural system, or one as near as possible to a self-sustaining system. However, because some nutrients are removed when the crop is harvested, some inputs in the form of green manure crops and composts are added to replace these nutrients. Other natural substances are often added to stimulate biological activity in the soil. Moreover, organic production is typically a holistic approach, with consideration being given to the interaction of all the living animals, plants and organisms in the system, their relationship to one another and their reliance on each other. The approach attempts to mirror as much as possible the interactions of self-sustaining systems such as forests.

Techniques include the creation of a stable soil structure, a high root density, harmonious vine nutrition, a mix of green cover crops and biodiversity measures around the vineyards to balance pests and predators. Chemical fertilisers (those made from base materials, treated to change them make them soluble in water and into a form easily taken up by plants) are replaced with fertilisers that benefit both the plant and the other organisms in the system. Instead of destroying microorganisms (like rhizobium bacteria of legumes, which form beneficial symbiotic relationships with legumes) and leaching away from the rootzone of plants, organic fertilisers create biologically active soils that chelate nutrients, and hence act as 'slow release' fertilisers. Plant resistance to pests and diseases is encouraged by the techniques so that only weak, non-synthetic pesticides and fungicides are required to control outbreaks.

Organic producers are "certified" to demonstrate that they are conforming to the various rules developed to maximise sustainability.

Biodynamic agriculture

Biodynamics is a method of organic agriculture that is based on the teachings developed by Rudolph Steiner in the early part of the last century. Biodynamic practitioners view the world as interrelated organisms with a spiritual dimension. The farm is seen as a living organism. The farmer is a conscious part of the organism, guiding its development as a steward intent on maintaining an ecological balance. The farmer is in intimate communication with the life forces that create the farm. The steps emphasise building soil fertility, and are carefully tailored to the particular property. They include :

- Use of biodynamic sprays to stimulate biological activity in the soil, and improve retention of nutrients, such as animal wastes.

- Stocking with several different animal species to vary grazing patterns and reduce pasture borne parasites
- Widening the range of pasture species
- Planting trees for multiple purposes
- Crop rotation designs to enhance soil fertility and control weeds and plant pests
- Recycling of organic wastes where possible, by large scale composting
- Changing from chemical pest control to prevention strategies based on good plant and animal nutrition
- The use of solar and lunar tables to guide activities

Hence, although some practices in Biodynamic agriculture are similar to those in organic agriculture, Biodynamics is founded on a different paradigm or philosophy.

Note: This Churchill Fellowship study tour did not seek out Biodynamic practitioners in particular, but many organic wine producers were using some Biodynamic principles in addition to organic practices and principles.

3. Program Itinerary

- **USA & Canada**

July 24 to August 8 Northern California

- Various vineyards & wineries in the Sonoma, Napa & Mendocino counties/regions
- Copia centre for food, wine and arts, Napa
- Culinary Institute of America – Greystone
- Richard Hoenisch: University of California, Davis
- Amigo Cantisano, Organic Consultant

August 9 to 14 Oregon

- Various wineries & vineyards in the Willamette Valley and Columbia River regions, particularly those with gravity feed (GF) wineries
- Farmers markets

August 15 to 20 Washington

- Various vineyards and wineries,
- Retail visits

August 21 to 28 British Columbia (Canada)

- Organic Viticulture Conference, hosted by IFOAM
 - Including organic wine tasting
- Organic World Expo, hosted by IFOAM
- Prof Uwe Hoffman, Organic Consultant (Germany)
- Various vineyards and wineries on Vancouver Island

Winery/Vineyards Visited

Sonoma/Napa, CA

Benziger Winery
Beuna Vista Winery
Casa Nuestra
Davis Bynam Winery
Domaine Carneros*
Kenwood Vineyards
Mont St John Cellars
Madonna Estate
Napa Cellar Winery
Robert Sinskey

Mendocino, CA

Everett Ridge Winery
Fetzer - Bonterra
Frey
Lolonis
Topolos

OR

Abacela Winery
Amity Vineyards*
Archery Summit (GF)*
Cooper Mountain
Evesham
Lemelson Vineyards
Sokol Blosser Winery*
Willakenzie Estate (GF)

WA

Badger Mountain Winery
Columbia Gorge Winery
Columbia Winery
Hogue Cellars
L'Ecole No 41
Lopez Island Vineyard & Winery

BC

Venturi-Schulze Vineyards
Summerhill Estate

- **Europe**

August 29 to 30 London, UK

- Vinopolous: wine interpretive centre
- Retail visits

August 31 to September 1 time off at own expense

September 2 to 6 Champagne, France

- Various vineyards and wineries

September 7 to 11 Alsace, France

- Maison du Vin Alsace: Wine industry association of Alsace, Colmar with Laurence Wipff
- Various vineyards and wineries

September 12 to 13 Korb, Germany

- Various vineyards and wineries

September 14 to 20 Cote du Rhone, France

- Various vineyards and wineries
- Corkscrew museum

September 21 to 27 Bordeaux, France

- l'Ecole du Vin, du Conseil Interprofessionnel du Vin de Bordeaux: Mr Bruno Delmas
- Bordeaux Wine Centre
- Introductory course to Bordeaux wine
- Various vineyards and wineries

September 28 to 31 Hermitage, Rhone France

- Various vineyards and wineries

October 1 to 3 Piedmonte, Italy

- Various vineyards and wineries

October 4 - 10 time at own expense

October 11 to 18 Tuscany, Italy

- University of Florence, Department of Horticulture: Assoc. Prof. Andrea Pardini
- Various vineyards and wineries
- Research institutions

Champagne

Jose Ardinat
Andre Beaufort
Duoard
Serge Faust
Ariston Fils
Mercier

Alsace

Baumes-Buecher
Pierre Frick
Marc Kreydenweiss
Andre Kleinknecht
Rene Mure

Korb

Albrecht Schwegler
Hermann Schmalzried

CDR (Provence)

Chateau La Canorgue
Domaine de la Citadelle
Chateau la Verrerie
Chateau de Mille

Bordeaux

Chateau Brandeau
Domaine du Bourdieu
Chateau La Chappelle
Maillard
Chateau Le Peyrail

Hermitage

Chapoutier
Jacque Frelin
CDR Valreas, Grande
Bellane
cancelled

Tuscany

Canneta
Fattoria Casaloste
Concadoro
Podere Salicutti
Il Termine

- Demonstration blocks
- Florence University winery & vineyards

October, 19 to 20 **Liguria, Italy**

- Vineyards

October, 21 to 23 **Piedmonte, Italy**

- Various vineyards and wineries
- AIB

October 24 to 30 *time at own expense before returning home*
on 31st October, 2002.

Vairo (Finale Liguria)

Piedmonte

Bianchi di Paolo
Tealdi Aldo Mareno
Torelli Mario
Fratelli Rovero

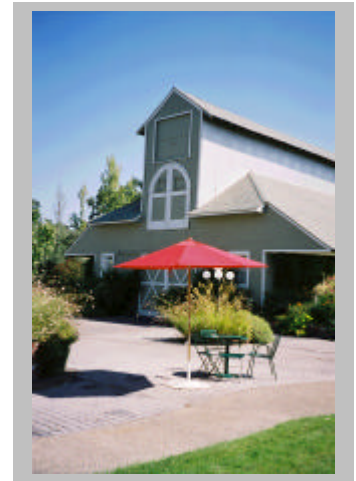
Summaries

California

The journey through the famed Sonoma and Napa regions in northern California revealed a wine region that excels in wine-tourism. The climate, a warm, temperate one provides wine producers with opportunity to grow a variety of premium varietal grapes that yield rich, fruit driven wines. It's proximity to the millions of residents in San Francisco, who like most Americans, love to drive, means that there is a constant stream of visitors. Californians in general, and San Franciscans in particular, are very interested in organic food and wine. Although on a percentage bases there are relatively few organic grape growers, by sheer numbers alone there are probably more organic vineyards in the Sonoma-Napa region than in Australia in its entirety. The producers do not have some of the problems that are common to wine producers in Australia, such as weevils, birds and grasshoppers. Neither do they have significant mildew pressure either due to the climate. Good quality water is readily available, and the soils are young and often volcanic, so require only minimal nutritional amelioration. These factors make growing grapes organically relatively easy. Most producers are easily able to control powdery mildew with sulphur sprays and organic producers only occasionally use some other organic products, such as Serenade. The main problem common to both the Sonoma-Napa region and to us in Australia is weed control. The majority of organic producers use mechanical weed controllers, such as "sunflowers" and "weed badgers". The smaller producers also use their labour force to go through the vineyard with "whipper snippers". Further north, in the Mendocino region, disease pressure is only slightly increased. This region had several large scale organic wine producers who have been practising organics for at least a decade. Some of these used heat to kill weeds, via a propane-flame device which was usually used by their labour force – which, it must be added is relatively poorly paid compared to that in Australia because the minimum wage is much lower in the USA. All organic producers planted cover crops between the vine rows, primarily for soil improvement. However, the majority still practise tillage and turn in the cover crop in late spring, as a method of weed control and to minimise competition with the vines – which are all on rootstock because of phylloxera. The rootstock appears to be dwarfing varieties as none of the vine canopies were large. Most producers were using a VSP trellising system or similar, and practised intensive canopy management – shoot thinning, leaf plucking and bunch thinning. Most regions needed to control leafhoppers, and this was frequently done ensuring flowering plants offered predators a haven.



The Big Vine
UCLA - Davis



Fetzer-Bonterra Winery
California



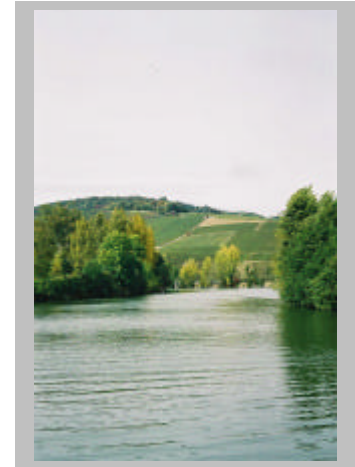
Copia: Centre for food,
wine and arts, Napa

Canada

The IFOAM Organic Viticulture conference in Victoria, BC was an extremely valuable component of the study tour. Victoria, which is perched on the southern tip of Vancouver Island is a beautiful city, surrounded by water, with much heritage architecture (no high-rises) and stunning flower gardens at every turn. The three days spent in Victoria for the conference enabled me to gain a broad view of some of the places visited in the USA, and a sneak preview (and many good contacts) of the countries yet to come. The presentations varied from the scientific to the highly practical, yet anecdotal, and included an organic wine tasting, and a superb conference dinner at Sooke Harbour House – a restaurant that has been ranked as one of the top 10 in the world...for very good reasons. The 5-course dinner was made almost entirely from local and organic foods, some from the spectacular garden right outside the doors, and some from the sea below the garden. All of the wines (8 in all) were also organic, and they were sourced from a wider source, but not Australia. A side trip as part of the conference took us to a non-certified organic wine producer (an ex-pat Australian woman) whose care and attention to detail were impeccable. They also produced balsamic vinegar, which they commenced nearly 20 years ago. What was unusual about this producer compared to others in BC, was that they practiced a high level of tillage/cultivation of the mid-row. The rationale incorporated both moisture management – the vineyard is unirrigated, and the climate very dry during summer – and pest control ...removing every weed and cover crop enabled them to remove leaf-hopper shelter. Each year they ripped and rototilled between the vines to obtain a fine tilth, and the undervine was hand hoed. The strategy appears to have worked, as just two inches below the surface, which had seen only a few mm of rain during one thunderstorm at least 1 month prior, the soil was clearly moist, and they had not had to spray anything – even soap, to control leafhoppers. Their mildew pressure, however, was so low that they only usually spray sulphur 3 times per year. Viticulture is a somewhat young industry in Canada, akin to many of Australia's wine regions that have emerged only in the past 20 years. BC produces a significant proportion of the wine grapes in Canada, with most being produced in the Okanagan Valley, some 600km east of Vancouver. Due to the timing of the IFOAM World Expo, it was not possible to visit the region. However, many producers were in attendance at the conference, and much discussion involved the local practices of organic vineyards and wineries. My one regret is that I hadn't enrolled in the IFOAM World Congress, which followed the IFOAM Organic Viticulture conference. The theme was "Creating Communities" and the program looked stimulating.

France

This country was the first in which I experienced a real language barrier. Despite many producers being able to 'get by' speaking English to me (as my French is so poor as to be non-existent), I felt that I missed the level of depth I was able to reach in North America. Notwithstanding that, French vigneronns are a delightful bunch of people and I thoroughly enjoyed my journey through this large and beautiful country. The Alsace region, in particular, was stunning and it's people extremely hospitable. And, of course, their wines are amongst my favourite styles in the whole world. Many of those I visited were 5th generation wine producers, still making wine in the same cellars as their forefathers did before them. Some explained that their reason for growing grapes organically or biodynamically was related to the environmental change their families had witnessed over recent generations. I visited several other key wine regions in France, but time did not permit me to reach all of them...most importantly the Loire and Burgundy, where *vin biologique* is very common. Each region celebrates its local wines and foods, and is fiercely proud of them. Naturally, I had to try them for myself! Although the number of certified organic and biodynamic producers is growing in France, it would seem that the number of producers undertaking biodynamic and organic practice is much, much greater. Certification costs are apparently high and many producers claim there is too much red tape to bother with official certification. There is many a passionate *viticulteur* in France, who are dedicated to producing the finest and purest of wines, and some of these choose not to make a fuss of the fact that they have eliminated the use of synthetic herbicides, pesticides, fungicides and fertilisers. There is much interest in "ecological" practices in French vineyards. An increasing number of winegrowers are turning from chemical fertilizers to compost, getting rid of chemical weeding because they are worried by lack of soil biological activity and by its consequences which can sometimes be important: soil erosion, or biological retrogradation of soil. The French rationale for a shift towards organic production is also based on consumer demand for organic wines – many said that they perceived a rapid increase during the last three years. The market for organic wines is mainly an export market. 70 % are exported to Germany with a lot also going to other northern European countries. Northern America and Japan are also important markets. A recent survey amongst supermarkets apparently indicated that there is a real demand for organic wines within France, but that the major limitation is the lack of production. The potential market for organic wines is an estimated 100 million bottles for both French and export market. This is 3 to 4 times current production. In 1997, the French government launched a National program in order to increase organic farming. This program contained different axis (research, technical support for farmers, promotion) and subsidies for farmers to undergo conversion to organic farming, according to EEC 2078/92 regulation.



Vineyards of
Champagne



Organic Champenoise



Alsace Region

Germany

My visit to Germany was short and unplanned. I took the opportunity of 'ducking over the border' whilst I was visiting the Alsace region of France because time permitted and I had a good contact as a result of networking at the IFOAM conference. If more time had been available, I would have been able to visit a number of other areas and institutions in Germany – in particular FiBL (The Institute for Organic Research in Switzerland). This organisation is dedicated to research into organic production and currently has some 80 staff working on various research projects.

My visit to Korb – a pretty village on the outskirts of Stuttgart enabled me to visit two organic producers. One of these (Hermann Schmalzried) has been practising organic viticulture for more than 20 years. Herman and his wife Margaret were generous and enthusiastic hosts. They explained a great many things about their vineyard and winery...most of which was in German. They suggested that although there is much organic production in Germany, some vineyards too small to undertake the certification process. According to data from IFOAM, in 2000 some 1400Ha of vineyards in Germany were certified organic, and 8 million litres of wine were produced from organic grapes.

Due to the relatively high disease pressure due to the climate, this producer was using battery of compounds. They gave me a list in German – it includes bentonite, fennel oil, baking soda to control mildews. Herman showed me vines where one row wasn't sprayed (accidentally) and was infected with mildew, whereas other rows in the same block had no sign of any infection. They used mechanical weeding, and sowed some type of cover crop annually. Herman – like most other organic winemakers in Germany, according to him - uses sulphur in winemaking. The other organic producer used similar techniques went to great lengths to pick out individual berries with any disease in the vineyard, and at the crusher to enhance quality. Both indicated that they believed in a balance of ecology-quality-economy, strived to ensure their business remained sustainable on all accounts. They both lamented on still feeling like pioneers, despite there being an exponential growth in organic grape production from 1985 to 1995 in Germany.

Italy

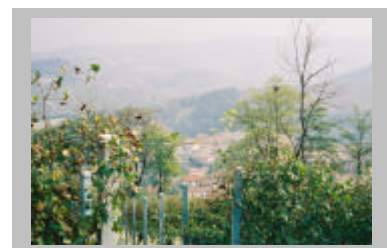
Travelling through Italy alone in a car was considerably more challenging than in France. And likewise, getting used to the 'Italian way' was more challenging than trying to get by in France being an English speaker. My main contact for the Piedmonte region, who had supposedly organised a large number of producers and others to me meet, failed to show and I was unable to contact her. When she finally contacted me 3 days later, I had moved on to another region as I was wasting precious time. Fortunately, I was returning to Piedmonte to



Korb, Germany



German weeder with model!



The hills of Barolo
Piedmonte, North Italy

attend the Slowfood festival, so I did manage to meet some of these people later. Unfortunately, it also meant that I missed out on a large organic fair in Turin that was being conducted, without my knowing, at the time. Italian organic producers were a little more reluctant than others to share their knowledge and information, but overall the visit was worthwhile. I spent over 1 week in the Tuscan region at the ‘mercy’ of Associate Professor Andrea Pardini, from the University of Florence. He had an extremely busy and interesting timetable of people to meet and places to visit, and his wife and he were very hospitable. The Tuscan countryside is even more beautiful than it looks in the magazines, although the visible presence of ‘working girls’ at freeway entrances around the region (as is found elsewhere in Italy) is somewhat disconcerting and almost seems out of context. Getting used to the siesta period, where EVERYTHING shuts from anywhere between 12 noon and 4pm - sometimes for the whole period – was something I didn’t achieve. Organic wine producers are scattered around the north of Italy, but the majority are located – as I later found out – further south in the Abruzzi region and Calabria, where the climate is more favourable.



Associate Professor Pardini
in Montalcino vineyard
Australian Sub-Clover

In the regions I visited, cover cropping was an integral part of weed control, usually because it also protected the soil from erosion due to the steep slopes and the clayey nature of the soil. Wines were generally made using sulphur dioxide – albeit limited amounts.

My attendance at the Salone del Gusto – although not part of the Churchill scholarship – was immensely enjoyable as well as being relevant. This 5 day gastronomic event features foods and wines made by artisan producers throughout Italy and the world, often using organic principles. Some 2000 wines were available for tasting, some of which were certified organic, and many others which simply followed organic guidelines. (Only 25% of wines grown organically in Italy are marketed or labelled as such). From the 200,000 or so people who attended it became clear that there is great consumer interest in eating (and drinking) high quality products that have not been produced in an industrial manner. According to one source, 60% of wines marketed as organic are exported, predominantly to Germany (Bazzocchi et al, 2000).



Food & Wine Tasting at
Salone del Gusto

4. Introduction & Rationale

- **Background**

The world-wide demand for organic products is growing exponentially as consumers express their concerns about food safety and the state of the conventional agricultural system. Such concerns about agriculture have reached unprecedented heights in recent years as a result of an array of events including contamination of soils, foods and animal feed, the introduction of genetically modified crops and outbreaks of BSE (mad cow disease) and foot-and-mouth disease. Consumers see certified organic products as some type of guarantee that products have been grown and processed in a way that reduces the risk of harm to themselves and the environment. Demand for organic wine is strong and growing throughout the world, and is growing, albeit slowly, in Australia. Most of the global demand stems from Switzerland, Germany, UK and Japan – none of which can meet the demand from their own production. As an example the 1.3 million bottles of organic wine produced in Switzerland satisfied only 30% of the demand in 2000 (Haseli, 2000).

The expansion of organic *agriculture* in Europe, expected to climb from between 3 and 8% to 30% by 2010 is astonishing, as is the proposal in Germany to convert all agriculture to organic by 2008 (Cherry Ripe, Australian, May 2000). The percentage of land under organic *wine production* is lower, but also growing due to the subsidies provided by the EU for conversion of conventional production into organic.

In Britain, 75% of organic food produced is sold through the major supermarkets, and many have announced aspirations to sell residue-free foods. It is reported that Sainsburys and Tescos stock about 500 organic grocery items between them. At a recent Wine Industry Technology conference in Adelaide, SA, Phil Reedman the wine buyer for Tescos expressed his frustration that there was so little Australian organic wine, as he had a ready market that was not being adequately supplied (Reedman, 2001).

There are sound economic reasons for Australian wine producers to consider organic production. Globally as well as in Australia, there is an emerging wine glut with supply outstripping demand by a large factor, set to continue for several years to come. Smaller producers are the most likely to be the victims of the squeeze that will occur as a result of this glut. Australian wine already has a reputation for 'clean and green', and has a largely favourable climate, so it would be relatively easy to capitalise on this by producing certified organic wine to meet the huge demand in Europe and Japan.

The threat of globalisation and the 'get big or get out' mentality to Australian wine producers may also be overcome by the production of a niche product. Globally, it has been found that there are hundreds of millions of consumers who are prepared to pay more for higher quality products, and organic products fit into this category. In the US, researchers found that 23% of consumers would pay more for products that made (verifiable) claims to being environmentally sound (Swezey & Broome, 2000).

Even typically conservative institutions in the USA are becoming involved in organic practice and research. For example, University of California's Davis Department of Viticulture has recently change from its 'old school' method of vineyard management to 'bio-responsible' management. Whereas once there was a policy of not tolerating any other vegetation in the vineyard, with the use of tillage and herbicides frequent, they now grow cover crops between the rows, and have installed culinary and medicinal herbs at vine row entrances, and are trialling composts and mulches (Bugg & Hoenisch, 2000)

The USA and even New Zealand have responded fast to the increase demand for organic wine, and there is a real risk of Australia being left behind.

In July 2000, I attended a seminar on “organic viticulture” conducted in Margaret River by the Department of Agriculture, WA for interested people in the wine industry. Participation in the seminar vastly exceeded the organisers (staff from the Ag Department’s “Organic Farming Project”) expectations, demonstrating a clear interest in the area of organic grape and wine production. Presenters included local and interstate organic wine producers (of which there were only two certified producers in WA at the time), Ag Department staff and a consultant. The seminar confirmed my perceptions about organic wine production, that it was underdone in WA, and that there was limited practical information available to interested producers. I believed that visiting wine regions that had been producing wine grapes successfully for many years could provide the local industry with more information about the practicalities of production and also about the market for such wines, hence providing motivation to producers. The Winston Churchill Memorial Trust likewise saw the value in undertaking such a study tour and provided me with a fellowship to do so. The objectives of my tour were to:

- Determine current practice and research being undertaken in organic viticulture in relation to:
 - weed, pest and disease control
 - cover crops
 - canopy management
 - water and nutrition management
- Identify techniques of wine production used to attain high quality, premium table wine
- Investigate the marketing of organic wines
- Establish a network of researchers and practitioners for future contact
- Identify appropriate resources (handbooks, guides, websites)

5. Findings

Although the findings below have been separated, there is, of course, much cross-over and hence repetition. For example, adequate canopy management is critical to minimise the need for disease control sprays; cover crops assist with the management of weeds and pests, as well as optimising nutrition.

5.1. Current practice and research: *weed, pest and disease control*

The many and sometimes large organic vineyards in California demonstrate that organic grape production is relatively easy in dry climates. Diseases are generally managed using a combination of cultural strategies (site selection, pruning, canopy management, cultivar selection) and organically acceptable fungicides such as sulfur. A great deal of attention is paid to ensuring canopies are not conducive to humidity and poor light. Shoot thinning, leaf plucking, and bunch thinning are all used by the majority of producers, in addition to shoot positioning and other canopy management strategies. In the USA, the availability of a cheap labour force enables much of this manual work to be done economically. This is not so with vineyards in Canada, but the practices still occur on a widespread basis.

Biological and cultural controls are relied upon to control insect pests. Mites, leafhoppers and leafrollers are the main insect pests in California and are tolerated in relatively high numbers as they do not directly affect the fruit. The biological and cultural controls, which take some time to take effect, are able to give satisfactory control. "Insectories" are planted within and surrounding vineyards in order to attract beneficial insects which act as parasites or just feed on pest insects (see figure 1). Cover crops are also used in this way to some extent.

According to reports about organic grape production in the more humid parts of the USA – which were not visited on this study tour – other pests such as berry moth and a variety of fungal diseases are problematic in those areas. Pheromone-based systems are used to control the moth. Most vineyards in the Pacific North-west remove, burn or mulch pruning material to eliminate over-wintering of pests and diseases. Strategies to reduce dust migration from roadways and other areas are utilised to control pest mites in the Pacific North-west.

Fungal diseases are apparently more difficult to control in the more humid/eastern areas. Powdery Mildew is one of the main fungal diseases everywhere and is controlled using Sulphur preparations in the Pacific Northwest, and in some cases, sodium or potassium bicarbonate (baking powder) – both of which are organically acceptable. Kaligreen was the most common proprietary brand of bicarbonate used.

Phomopsis and Downy Mildew are less of a problem in the dry areas, but are generally controlled using copper and Bordeaux sprays in the more humid areas north and east of California.

In the Pacific Northwest, the use of biological fungicides (AQ10 and Serenade) was common. These products are formulated from beneficial microorganisms that, when sprayed on the plant, destroy fungal pathogens. AQ10 is a parasitic fungus, *Ampelomyces quisqualis*, which attacks and destroys the powdery mildew fungus. The active ingredient in Serenade is a bacterium, *Bacillus subtilis*, that helps prevent the powdery mildew from infecting the plant.

Botrytis is controlled using canopy management strategies such as leaf plucking around the ripening bunch to improve light and air penetration, with many vineyards stating they used compost teas to combat the disease also – despite there appearing to be little empirical evidence for this. Some also use a beneficial fungus called Trichodex (*Trichoderma harzianum*) to control Botrytis.

Weeds are controlled using a combination of cover crops, mulching and cultivation.

In Europe, most organic viticulturalists use combinations of copper, sulphur and compost teas or biodynamic preparations to manage mildews. In Germany it would seem that sodium or potassium bicarbonate is also widely used, along with fennel oil and bentonite. In some regions of France, vineyards of different ownership are not on discrete pieces of land, rather the vine rows belonging to one owner will be within rows belonging to others. In these circumstances, it is highly likely that the disease-control compounds used by non-organic grape growers are drifting in to the organic grower's vines, thus making disease control easier.

Figure 1: Insectory garden in Napa Valley, California USA



5.2. Current practice and research: *cover crops*

USA – Although cover cropping was practiced widely by organic producers, the majority turned these in during the growing season. Clearly, most of the regions visited did not have steep slopes nor concerns about wind erosion that would prohibit this practice in Australia. Many producers expressed concern about this practice, realising that improved soil structure and health could be achieved if cultivation ceased, but they felt they had little option.

Italy – Most of the vineyards visited used a permanent sward approach. Considerable research is going into cover crops in Tuscany due to the steep slopes and clayey soil and the inherent problems of erosion. Australian sub-terranean clovers have been trialled with considerable success.

Figure 2: Sub-clover use in Montalcino



Germany – the use of permanent and/or green cover crops is reportedly universal in Germany among organic producers, and now also common in conventional vineyards. Cover crops are believed to improve the nutritional status of vines by nitrogen fixation and aeration of soils,

and are also used to encourage beneficial insects to predate on pest insects. Some organic vineyards re-seed each year, and others have allowed a permanent sward to develop.

5.3. Current practice and research: *canopy management*

The various practices encompassing canopy management are widely undertaken in both North America and Europe. Trellis design plays a more important role, generally, in the USA and Canada, where there are few restrictions on producers compared with those in Europe who are bound by regulations associated with appellation controls. Organic vignerons in both continents engage in relatively large amounts shoot thinning, leaf plucking and bunch thinning, and most have their vines on rootstock that effectively devigorate them. The canopies were typically much thinner and smaller than those in cool climate regions in Australia, particularly in WA where most vines are on their own roots.

5.4. Current practice and research: *water and nutrition management*

Fertility needs are easily met with a variety of organically acceptable materials, due in part to the relatively rich soils (compared with our old and tired ones here in Australia). Most American and Canadian organic vignerons composted their grape marc together with manures and carbon sources such as sawdust on-site, and applied them on an annual basis to provide nutritional support. In France, grape marc is taken away and distilled to provide industrial alcohol, and the producer receives a tax deduction in return, so composting this resource is not practicable. Rather, various other sources of compost are used. Italian organic producers, however, do tend to use grape marc for compost production. In the USA, like Australia, irrigation is permitted, whereas many European countries prohibit grape-growers from irrigating vineyards. Composted mulches are frequently used to minimise water losses in organic vineyards in the USA.

5.5. Identify techniques of wine production used to attain high quality, premium table wine

Harvesting

Most producers hand-harvested, with a very few odd exceptions, to ensure good fruit quality. Attention to the usual details such as picking in the cool of the day, and placing grapes into low-sided bins was widespread. Very few used stainless steel picking bins, but most transferred fruit directly from the low-sided bins into the crushing area almost immediately upon picking.

Fruit Selection

In the Pacific North-west, Canada, Germany and France considerable effort goes into selecting out poor quality grapes. Some of this work is done in the vineyard, but much happens at the crusher. Sorting tables are the norm, and some even go to the trouble of picking out individual berries.

Gravity feed

The use of gravity to assist the transfer of fruit, must and wine is almost an art form in parts of the Pacific North-west. Many wineries in Oregon were built using gravity feed principles to minimise the impact of the winemaking process on the final product. In some European wineries, great efforts (and hence money) have gone into converting their old establishments into gravity feed systems, although it must be said that many were already built like this.

Sulphur/sulphites

Sulphur dioxide is widely used in the winemaking practices of organic producers, although most attempt to minimise its need. It appeared that there were more American wineries using a no-added-sulphur approach than Europeans, and certainly I tasted more 'faulty' organic wines from the USA than from France, Italy and Germany.

5.6. Investigate the marketing of organic wines

The marketing of organic wines faces many of the challenges that non-organic wines face, and more. Discussions with various wine marketers in the USA and Europe led me to the conclusion that customers need to know more about organic wines and where to buy them. In addition, there are common misconceptions related to labelling and quality issues and the recent decision by the US Department of Agriculture to decree that the term organic wine would only be given to wine made from organically grown grapes *and made without the use of added sulphur dioxide* (my emphasis) will only serve to keep the matter confusing in the USA. The public, retailers and wholesalers need to be educated about organic wine or wine made from organically grown grapes.

There appears to be good opportunities to market organic wine or wine made from organically grown grapes in both the USA and Europe. Australia's reputation for producing good quality, good value wine will serve as an advantage for entry into these markets. Throughout the Pacific North-west and certain parts of Europe (Germany, Switzerland) there appears to be increased interest in purchasing organic wine, possibly due to increase availability and quality in recent years. There has been an increase in chains specialising in organic foods in USA and an increase number of specialist organic importers. In BC, Canada, the wine market is mature and embraces 'new' and 'different', and is especially interested in wines that are distinct and from smaller producers, wines that tell a story and 'transport you to another place'. Organic wine marketers suggested that a big part of bottle wine consumption is the story behind it. People like to think they're drinking it with the winemaker. Wine made from organically grown grapes is a story in itself, and these marketers/importers believe "you can't lose if you're product is well presented and of good quality".

Some established organic wine producers believe that their presence in the marketplace provides an alternative for wine consumers who share their values and concerns. They also suggest that not all of our customers are particularly looking for organic wines; they may be choosing the wine just because they like it, and could not care less about the moral packaging. For many producers organic wine production is a value-added symbiosis, far removed from mass marketing, high volume production and maximization of economic return above all else.

5.7. Establish a network of researchers and practitioners for future contact

Most European countries visited have specialist organisations to research organic production (see References section at the end of this documents). There is also a new specialisation in organic agriculture at both under and post graduate level at the Wageningen University in the Netherlands.

All states visited in North America had their own organic organisations, and in Europe there was usually at least one organisation for each country visited. For example, in France a specific organisation for organic wine growers (and distributors) was created in 1998 - FNIVB, National Federation for Organic Wine. Its aims are:

- the promotion of organic wines
- improving the knowledge on the market
- protection of the terms « organic wine »
- development of the production

Technical support for organic wine growers is provided by the chambres d'agriculture (Agricultural boards).

5.8. Identify appropriate resources

A vast array of resources was identified, and some were purchased. The following is a mere snapshot of the wine availability of publications related to organic viticulture that I now have in my possession. Some websites of interest are provided at the end of this document.

Books:

Poirier-Locke, J. 2002. *Vineyards in the Watershed: Sustainable winegrowing in Napa county*. Napa Sustainable Winegrowing Group. Napa USA.

Attore, A. 2002. *Guide aivini biologici d'Italia 2002. (Guide to organic wines of Italy)*. Tecniche Nuove, Milano ITALY

Newsletters:

CCOF. Newsletter, **Summer 2002**. California Certified Organic Farmers, California.

COABC. *BC Organic Grower*, **Summer 2002**. Certified Organic Association of British Columbia.

Oregon Tilth. *In Good Tilt*, **August 2002 Vol 13(4)**.

6. Conclusions & Recommendations

The overall conclusion to my study tour is that organic viticulture can be done, particularly in favourable climates like those of northern California and hence, much of the Australian wine growing area. Notwithstanding this, there is an obvious need for continued research

Organic production is no longer 'fringe' agriculture. All over the world there are institutes, such as that called FiBL (the Research Institute of Organic Agriculture) in Switzerland which has some 80 research staff; universities that are teaching and researching organic agricultural systems; specialised retail outlets for organic produce especially in USA. There is also strong demand by northern European consumers (eg. Germany and Switzerland), and much of the tourism in rural Italy is focused around organic farms. However, organic production forms a relatively small percentage of grape and wine production in the pacific-north west of USA, Canada and the EU. According to a FiBL study almost 60,000 HA of vineyards were managed organically in 2000 in Europe (Willer, et al, 2002). The countries with the highest percentage of organic vineyards compared to conventional include Italy and Portugal (3.4%), and those with the highest production are Italy, Spain and France. However, the proportion of organic viticulture land compared to all vineyards is lower than that for organic agriculture (at 10%). Clearly there are barriers in those countries to the greater uptake of organic grape and wine production. In Europe, in particular, the control of Downy Mildew is problematic as the level of copper being will be required to be reduced in the future and suitable, effective alternatives do not yet exist for high pressure climates. The use of fungus-tolerant varieties (non-vitis vinifera) is hindered by appellation and EU regulations. European producers also indicate that the subsidies they receive for conversion to organic production compared to those for conventional production are not sufficiently large enough to warrant the extra expense of conversion. Most of these issues do not apply in Australia, hence there is an opportunity for Australian wine producers.

In most countries there also appears to be a lack of clarity about organic definitions as far as consumers are concerned, and labelling laws complicate matters. Despite this, the proportion of vineyards producing organically grown grapes has increased dramatically over the past decade and appears set to continue rise. In the USA organic grape production is growing at 20% per annum.

The quality of wines made from organically grown grapes I tasted revealed that the production of high quality wines can easily be achieved, provided sulphur dioxide (or other forms of sulphites) is used in the winemaking process. The quality of wines produced without added sulphites was generally inferior, often poor but occasionally (red wines) great (eg. Frey's Zinfandel).

Australian wine producers require information and support if a greater level of uptake of organic grape production is to occur. It may seem, to the broader wine industry and the research bodies funded by it, that to focus on organic production would be tantamount to admitting we do not have a 'clean and green' production system. However, it can also be seen as an opportunity – one that may be lost if action is not rapid – particularly for the nation's 961 small (<100 Tonnes/year) wine producers who make up 65% of the total (Aust & NZ Wine Directory, 2002). The current projected wine surplus is likely to affect the smallest producers first as they generally have low economies of scale and are facing increasing difficulty in acquiring retail space due to the monopolisation of the wine retail system, and the competition from the "big 4" wine companies in Australia (who produce 70% of branded wine). Small producers are currently being encouraged to consider exporting their products, and as this is where the majority of the demand for organic wine currently lays. Hence, it is opportune for these producers to be supported in, and educated about, organic production to capitalise on an untapped, potentially large market and to contribute to environmental goals.

To conclude I offer the following quote from an organic grape and wine producer in Canada (Hainle Wines)....

“We are often questioned, sometimes quite cynically, about our organic grape-growing and winemaking practices. At a recent tasting, one of the proprietors of a prestigious Napa Valley winery, after asking for more details about the meaning of the word "organic," commented rather pointedly that they weren't doing anything differently than we were. To that, we say congratulations and good on ya! The whole point is that our approach is never intended to be critical of anyone else's; organic certification does not mean that we're doing it right and everyone else is doing it wrong. It simply means that there is a verifiable set of standards, we've agreed to follow them and we're willing to have someone audit the process.

...Organic certification in the vineyard and in the cellar is only part of how we're trying to minimize our environmental footprint. Our approach extends to recycling, composting and a host of other decision-making processes in the course of doing business-- everything from using washable cloth towels instead of disposable paper in the public washrooms to getting our computer printer cartridges refilled instead of replaced. Some of it just makes good business sense, and some of it just makes us feel a little bit better about what we do. And who's going to scoff at a chance to do that?

Some critics, including the venerable Jancis Robinson, suggest that organic grape growing is opportunistic pandering to a chemo-phobic world... However, we keep coming back to the point that our goal is to minimize our footprint. We want to feel part of nature, not engaged in a constant battle against it. This is an ideological statement, but it's also the way in which we make our living. We're not warriors, armed against our landscape; we're farmers who are negotiating an exchange which should, in the end, benefit both us and our environment. It's as simple and as complicated as that.”

7. Resources, References, Bibliography

Resources: see previous

References:

Bazzocchi C, Tellarin S, Zanoli R. 2000. Organic viticulture in Italy. IFOAM 2000 Conference, Basel Switzerland, p104-114

Bugg, RL & Hoenisch, RW. 2000. Cover cropping in California vineyards. IFOAM 2000 Conference, Basel Switzerland, p39-41

Cherry Ripe. 2000. Naturally superior. Originally published by the Australian newspaper, 4th May 2000. Sourced from http://www.templebruer.com.au/nat_sup.html

Haesli, H. 2000. Organic viticulture in Switzerland IFOAM 2000 Conference, Basel Switzerland, p82-85

Hainle Wines (see website: <http://www.hainle.com>)

Swezey, SL & Broome, JC. 2000. Growth predicted in biologically integrated and organic farming . California Agriculture Vol 54(4)

Reedman, P. 2001. "Environmental component of consumer perceptions in the UK market" p165. In Proceedings of the 11th Australian Wine Industry Technology Conference 2001 (ed by Blair RJ, Williams PJ, Hoj PB).

Willer, H, A. Haeseli, D. Levite, L. Tamm: Organic Viticulture in Europe. In: Canadian Organic Growers (ed.): The 7th international congress on Organic Viticulture and Wine. August 20-21, Victoria, Canada. Victoria 2002

Bibliography

Organic organisations

AIAB (Italian Organic Association): www.aiab.it

Biological Farmers Association of Australia: <http://www.bfa.com.au/links/links.htm>

California Certified Organic Farmers: <http://www.ccoof.com>

Centre for Biological Agriculture, France <http://www.agribio.com/>

Certified Organic British Columbia, Canada: <http://www.certifiedorganic.bc.ca/>

Ecovin (German organic association): <http://www.ecovin.de>

FiBL (Research Institute of Organic Agriculture): <http://www.fibl.ch>

The French Institut National de Recherche Agronomique INRA <http://www.inra.fr>

International Federation of Organic Associations Movement: <http://www.ifoam.org>

National Association of Sustainable Agriculture in Australia: <http://www.nasaa.com.au>

New Zealand Organic Association: http://www.organicnewzealand.org.nz/documents/Wine_Report.pdf

Swiss Organic Association: <http://www.bio-suisse.ch>

French organic wine stie <http://vinbio.free.fr/english/vendange.html>

Other organisations with organic pages

Appropriate Technology Transfer for Rural Areas: <http://www.attra.org/attra-pub/organics.html>

& <http://www.attra.org/attra-pub/grape.html>

Cornell University, USA: <http://arneson.cornell.edu/Pp101/Organic/WhatIsOrganic.htm>

FAO: <http://www.fao.org/organicag>

Australian sites

NSW Department of Agriculture: <http://www.agric.nsw.gov.au/reader/4859> (good overview of organic farming from an Agricultural Department's perspective)

RIRDC: <http://www.rirdc.gov.au/programs/org.html> (the federal government's organic program)

Other websites

The Soil Food Web (compost tea research): <http://www.soilfoodweb.com>

Whole Foods Supermarket (specialises in organic produce & wine) <http://www.wholefoods.com/>

LIVE program (Oregon based, sustainable agriculture system): <http://liveinc.org/>

Frey Wines (one of pioneer organic producers in California): <http://www.freywine.com/>

Fetzer Wines (the biggest organic producer in California): <http://www.fetzer.com>

Vincremos is an organic retailer based in the UK <http://www.vinceremos.co.uk/acatalog/index.html>

Nature published news about a study showing organic apples to be tastier than conventional
<http://www.nature.com/nsu/010419/010419-4.html>

For a discussion on a tasting of 30 organic wines (c.f. 30 non-organic wines) see
<http://www.wineanorak.com/organictasting.htm>

Report about organic viticulture in Germany
http://www.organic-europe.net/country_reports/germany/viticulture.asp

Webpage about organic viticulture in France
<http://www.infodienst-mlr.bwl.de/la/lvwo/kongress/France.html>

Cover cropping paper by Uwe Hofman, Organic Consultant, Germany <http://www.organic-europe.net/resources/downloads/hofmann2000.pdf>

It's not quite organic, but this website allows the producer to self-assess their practices in terms of sustainability <http://www.vineyardteam.org/pps/index.htm>

Recent articles in wine magazines on organic wines

Climo, C. Feb/March 2003: Gourmet Traveller Wine Magazine. "Natural expansion" p51-57

Goode, P. Jan 17 2003. Harpers Wine & Spirit Weekly. "Stars in their eyes" p24-27