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What is organic viticulture ?

The International Federation of Organic Agriculture Movements (IFOAM) defines organic agriculture in part as a "*holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems.*" (IFOAM 2005a).

A more detailed picture of the approach and intent of organic agriculture is provided by the following principles (IFOAM 2005b):

"To produce sufficient quantities of high quality food, fiber and other products.

To work compatibly with natural cycles and living systems through the soil, plants and animals in the entire production system.

To recognize the wider social and ecological impact of and within the organic production and processing system.

To maintain and increase long-term fertility and biological activity of soils using locally adapted cultural, biological and mechanical methods as opposed to reliance on inputs.

To maintain and encourage agricultural and natural biodiversity on the farm and surrounds through the use of sustainable production systems and the protection of plant and wildlife habitats.

To maintain and conserve genetic diversity through attention to on-farm management of genetic resources.

To promote the responsible use and conservation of water and all life therein.

To use, as far as possible, renewable resources in production and processing systems and avoid pollution and waste.

To foster local and regional production and distribution.

To create a harmonious balance between crop production and animal husbandry.

To provide living conditions that allow animals to express the basic aspects of their innate behavior

To utilize biodegradable, recyclable and recycled packaging materials.

To provide everyone involved in organic farming and processing with a quality of life that satisfies their basic needs, within a safe, secure and healthy working environment.

To support the establishment of an entire production, processing and distribution chain which is both socially just and ecologically responsible.

To recognize the importance of, and protect and learn from, indigenous knowledge and traditional farming systems."

Organic viticulture may now be defined as the application of organic agriculture practices to produce grapes and wine of the best possible quality.



Organic viticulture aims to integrate commercial production and the natural environment.

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A focus of organic viticulture is the use of natural processes wherever possible for nutrient production and cycling, and pest, disease and weed management. The organic vineyard is seen as an integrated system for converting solar energy, soil nutrients and water into grapes, with the end product reflecting the local soil and climatic characteristics.

Why organic ?

Perceived advantages in grape and wine quality, marketing, personal health and safety, and agricultural and environmental sustainability are the main reasons given by grape growers in Australia for the use of organic methods.

In relation to product quality, some growers take the issue of terroir particularly seriously. They consider that reliance upon natural processes allows the full expression of local soil and other environmental characteristics by a wine, in contrast with grapes produced for example, using chemical fertilisers.

Managing a system

Managing an organic vineyard means managing an ecosystem in which grapevines are the dominant plant species. The vineyard ecosystem is comprised of many different components including vines, other crop plants, volunteer plants, water, soil and soil organisms, beneficial and pest invertebrates such as insects, beneficial and disease-causing microbes, and adjacent natural habitat.

Most of these components, or the management activity associated with them, are closely interrelated. As a result, intervention in one component is likely to influence the function or management of other components. This is an important point to remember, for organic growers and others working towards a holistic approach to vineyard management.

Growers who keep this in mind are likely to consider and plan their management activities more carefully, to maximise the desirable consequences and minimise any undesirable consequences of those activities.



The organic vineyard should be seen and managed as *a part of* the broader ecosystem, not *apart from* it.

It is important for growers to recognise that organic management is a different approach to management, not the standard approach based on different inputs.

Another important aspect of organic management is the deliberate design and management of the production system to minimise the need for repeated human intervention (e.g. spraying and cultivation) and the use of inputs such as pesticides. The aim is to remove the need for such inputs, not simply switch to organic inputs. An example is the use of open canopy structures and resistant varieties to reduce the need for regular sprays for powdery mildew management.

When the various aspects of vineyard management are integrated into an overall management approach, efficiencies are gained in outcomes as well as in time, energy and other resources, when compared with the management of each aspect in isolation. These efficiencies can help reduce the need for growers to intervene in their vineyard and also reduce the level of intervention required.

Useful management approaches

The following approaches to the design and management of agricultural systems may provide useful insights and techniques for growers considering vineyard management in the context of organic production, ecosystem management, reduced inputs and less intervention. Both approaches use conscious design to maximise the natural robustness, resilience and productivity of agricultural and other systems.

Permaculture

The concept of Permaculture was devised in the mid 1970's in Australia and has since spread globally. In relation to agriculture, Permaculture is about design based on what we learn from observation and from natural systems and processes. Amongst many other things, it involves thoughtful choice and arrangement of the components of a system, such as a vineyard, to maximise the positive interactions between those components and minimise the need for human intervention to maintain the system. The following definitions come from the originators of the concept:

"Permaculture (permanent agriculture) is the conscious design and maintenance of agriculturally productive ecosystems which have the diversity, stability and resilience of natural ecosystems. It is the harmonious integration of landscape and people providing their food, energy, shelter and other material and non-material needs in a sustainable way.

The philosophy behind Permaculture is one of working with, rather than against, nature; of protracted and thoughtful observation rather than protracted and thoughtless action; of looking at systems in all their functions rather than asking only one yield of them; and of allowing systems to demonstrate their own evolution." (Mollison 1988).

"Consciously designed landscapes which mimic the patterns and relationships found in nature while yielding an abundance of food, fibre and energy for provision of local needs." (Holmgren 2002).

Agroecology

Agroecology is an ecology-based approach to agriculture that takes the interactions of all the different components of the agricultural system into account when designing and managing the system. Aspects such as mineral cycles, energy transformations, biological processes and socioeconomic relationships are viewed and analysed as integral parts of a whole system, rather than as individual components.

"Agroecology is concerned with the maintenance of a productive agriculture that sustains yields and optimises the use of local resources while minimising the negative environmental and socio-economic impacts of modern technologies" (<http://agroeco.org>).

The relevance of this approach to the design of environmentally-sound organic systems is shown by the following principles upon which Agroecological design is based (Reijntjes et al. 1992).

Enhance recycling of biomass and optimizing nutrient availability and balancing nutrient flow.

Secure favorable soil conditions for plant growth, particularly by managing organic matter and enhancing soil biotic activity.

Minimise losses due to flows of solar radiation, air and water by way of microclimate management, water harvesting and soil management through increased soil cover.

Species and genetic diversification of the agroecosystem in time and space.

Enhance beneficial biological interactions and synergisms among agrobiodiversity components thus resulting in the promotion of key ecological processes and services.

For more details on these approaches to agricultural design and management, see 'Management approaches' in the Bibliography.

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A note on Bio-dynamics

Bio-dynamic agriculture is a holistic approach to agriculture based on teachings of the Austrian philosopher Rudolf Steiner in the 1920's. Steiner believed that soil, plants, animals (including humans) and the cosmos were all closely connected. Amongst other things, he considered that enhancing that connectivity was the key to healthy soil, and therefore to the health of the plants and animals that rely upon the soil.



Bio-dynamic 'barrel compost' is one of the carefully prepared inputs used by some grape growers.

Some grape growers are fully committed to the Bio-dynamic approach. Others, who do not necessarily consider themselves 'Bio-dynamic' growers, have incorporated selected Bio-dynamic techniques into their production system. These include use of the soil, compost and plant health preparations referred to as the BD500 series.

This publication does not address Bio-dynamic philosophy or techniques - that is best left to the experts. Useful starting points for information on the Bio-dynamic approach are the organic and Bio-dynamic certification organisations (section 15.3), Biodynamic Agriculture Australia (see the Bibliography for 'Organic/sustainable agriculture') and specialised publications such as 'Grasp the Nettle - making biodynamic farming and gardening work' (Proctor and Cole 1997).

Organic standards

Organic standards are publicly available, documented standards against which certified organic growers are audited for compliance. The standards typically list in brief and generalised form, a range of recommended, restricted and prohibited inputs and practices applicable to a wide range of issues facing organic growers. As such, organic standards provide some general guidance on organic management but do not offer advice or 'recipes' on management of specific issues.

To achieve and maintain organic certification, growers must comply with the standards while implementing them in a practical way that suits their particular enterprise. Some certifiers have their standards freely available through their Internet site (see section 15.3).

Several organic standards may apply directly or indirectly to certified Australian producers. These are:

The National Standard for Organic and Bio-Dynamic produce. This is the minimum standard (Organic Produce Export Committee 2002) that must be met by organic certifiers and producers operating in Australia. Organic certifiers are audited and accredited under this standard, by the Australian Quarantine Inspection Service (AQIS) which also regulates organic exports from Australia.

The National Standard is maintained by the Organic Industry Export Consultative Committee (OIECC), a body through which AQIS consults with the organic industry. The OIECC is comprised of representatives of the organic industry and relevant government agencies. The National Standard and an up-to-date list of accredited organic certifiers are available on the AQIS Internet site (see section 15.1).

Standards of individual Australian organic certifiers. Individual certification organisations (see section 15.3) develop their own standards that match or exceed the requirements of the National Standard. These individual industry standards are the ones with which certified producers have to comply.

IFOAM Basic Standards for Organic Production and Processing. IFOAM, The International Federation of Organic Agriculture Movements (see section 15.2) sets a basic standard (IFOAM 2005b) against which individual certification organisations in any country can become accredited. IFOAM accreditation has been achieved by some Australian certifiers and has the advantage of being recognised in some key international markets.

Market-specific standards. Certain countries, notably the USA and Japan, have developed their own organic standards that must be met by produce exported into those countries. Some Australian certifiers are accredited under the USA and Japanese standards. However, certified Australian producers are still required to complete extra documentation to satisfy the requirements of the USA and Japanese organic standards.

Organic standards are under constant review to keep up to date with national and international requirements. Industry input into the revision process is welcome, and is in fact necessary to ensure the standards remain practical while adhering to organic principles. Producers should feel free to provide their certifier with feedback on their particular standard. Comments on the National Standard can be made through individual certifiers or direct to the OIECC through the AQIS Organic and Biodynamic program (see section 15.1).

Organic certification

Organic certification is an accreditation system based on standards, inspections and audits, that allows the 'organic' nature of production systems and other aspects of the agricultural supply chain to be independently verified. This verification gives the consumer some assurance as to the authenticity of the product, and is increasingly necessary as the organic marketplace becomes more competitive.

Organic certification and the processes involved are described in an Agriculture Note at the end of this section. Because certification is required for produce exported as organic, it is of particular interest to grape and wine producers who seek to

use the organic approach to add value to their product in international markets.

Input products

Organically acceptable or not ?

Each grower is responsible for ensuring that their particular certifier approves of the input products used on their certified organic vineyard. Use of non-allowed inputs can result in suspension of organic certification, so growers should check with their certifier if there is any doubt about a particular product. This applies to fertilisers and soil amendments as well as pesticides.



Certified organic growers need to ensure that any inputs they use comply with the relevant organic standards.

Organic standards published by the certification organisations usually contain lists of the general types of products that are permitted or prohibited under those standards. It is important to note that not all products based on the same major ingredient, such as sulphur or pyrethrum, are acceptable under organic standards, as some products contain additives prohibited under those standards.

Some products are specifically certified as allowable organic inputs by organic farm certification organisations. Current lists of those inputs are available from the certifiers, and in some cases are included on their web sites (see section 15.3). Those lists are not reproduced in this publication, as like the organic standards, they are

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regularly reviewed and updated.

'Alternative' pesticides

Of the many pesticides registered for use in viticulture, very few are accepted for use in organic vineyards. As a result, organic grape growers may seek 'alternative' products for weed, disease and pest management. 'Alternative' pesticides could include homemade substances such as insecticidal plant extracts, or commercial products not registered as pesticides.

Many 'alternative' pesticides have been documented in organic literature in the past, arising variously from folklore, anecdotal evidence or scientific study. Because of low efficacy or a combination of high costs and poor prospects for economic return, only a few of these products have been researched and refined for commercialisation and registration. These are referred to under the relevant pest and disease sections of this publication.

All growers should be aware of at least the following issues that would arise from the use of non-registered 'alternative' pesticides:

Legal:

In a nutshell, national legislation states that:

- a) an agricultural chemical is a substance used to control pests and pest plants, and
- b) a person must not use an unregistered agricultural chemical.

This means that it is illegal to use unregistered products including such things as milk and home-brewed plant extracts, directly for pest, weed and disease control.

Commercial:

Wineries are becoming more exacting in their requirements for the supply of grapes, especially in relation to pesticide use. The detection of residues of non-registered pesticides on fruit may mean rejection of the fruit by the winery.

Technical:

Because they have not been subject to a rigorous registration process, many alternative pesticides have not been critically evaluated in relation to their efficacy against the target organism, their environmental impact and any human health and safety risks. Some products may appear entirely benign, especially those based on food ingredients and especially when compared with 'conventional' pesticides. However, no one knows what their impact would be after wide-spread or long-term use in the environment. The best approach, and one that matches the spirit of organic production, is to minimise the use of all pesticides, thus minimising the potential for negative environmental and other impacts.

Off-label pesticide use

Some registered, organically acceptable pesticides are not specifically registered for use on grapes. Others, registered for use on grapes, may not be registered specifically for use against the target pest or disease that the organic grower wants to control. Use of those pesticides in such situations would be considered as 'off-label'.

Off-label use of a registered pesticide is any use that is not specified on the label of the product, ie: any variation from the label 'Directions for Use'. Off-label uses may involve crops, pests, rates of use or application methods that are different to those listed on the label. Regulations controlling off-label use vary between states. For example, off-label use is permitted in Victoria as long as the application:

does not involve the use of substances classified by the Victorian Department of Primary Industries as 'restricted use chemicals' (none of the 'restricted use chemicals' are acceptable under organic standards in any case);

does not exceed the maximum label rate for that use;

does not exceed the label frequency of application for that use; and

complies with any specific label prohibitions (ie. the label's 'DO NOT' statements) regarding the use.

Anyone using a registered pesticide in an off-label manner accepts full responsibility for the efficacy or lack of efficacy of that use, and also for any environmental or human health and safety impacts of that use.

Growers should familiarise themselves with the relevant legislation and at least be aware of how their use of organically acceptable inputs relates to those regulations. Information on chemical use regulations should be accessible through the relevant state agriculture department.



Organic Farming: The certification process

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What is organic certification?

Organic certification is an audit and inspection process which allows agricultural and other enterprises to have their status as organic producers, processors, packers and exporters, verified by an independent organisation. Many individuals and companies involved in the food and fibre supply chain offer consumers 'organic' products and services. The organic nature of those products is an important characteristic from the consumers' point of view. Organic certification provides some credibility to claims that certified enterprises make about the organic status of their products or services and gives consumers some confidence in the authenticity of organic products.

Why become certified organic?

By becoming certified organic, producers and others gain credibility, assistance and some marketing advantage for themselves while contributing to the development and standing of the organic industry. They also support the efforts of organic agriculture organisations who are working together and with government, towards:

- providing practical marketing information and linkages for growers;
- developing and refining standards for organic production, processing and handling; and
- promoting organic agriculture, the certification schemes and organic produce to the public.

Organic certification is required if produce is to be exported from Australia under an organic label.

Who can certify organic enterprises?

Organic certification in Australia is regulated by the Organic and Bio-dynamic Program of the Australian Quarantine and Inspection Service (AQIS). AQIS accredits independent organisations to operate organic certification schemes.

A current list of accredited certifiers is maintained by AQIS and is available on the AQIS Organic and Bio-dynamic Products web site at www.aqis.gov.au/organic.

What are organic standards?

Organic certification organisations verify the organic status of enterprises with reference to documented, publicly available standards. This allows everyone to understand the meaning behind an enterprise's certification. Organic standards are sets of definitions, requirements, recommendations and restrictions regarding the practices and materials that can be used within certified organic production and processing systems. Organic standards also cover such aspects as the transport, storage and marketing of organic products.

Organic standards typically contain lists of materials that are permitted as farm and processing inputs such as fertilisers, pesticides and food additives. All other materials should be considered as prohibited unless the relevant certification organisation approves their use. Organic standards generally emphasise the use of good management practices to minimise the need for inputs wherever possible. As well as considering the technicalities of agricultural production and processing, organic standards address such broader aspects as biodiversity, native vegetation retention, waterway management, animal husbandry ethics and waste management.

Organic certification organisations operating within Australia have to comply with a minimum standard which has been developed in co-operation with the organic industry. The 'National Standard for Organic and Biodynamic Produce' sets out the basic requirements for certified organic production and processing in Australia. This standard is available from the AQIS web site listed above.

The certification process

Organic certification organisations may vary in the way they handle certification, but the following points are a general guide to the process.

Standards

First obtain a copy of the organic standards and fee structure from one or more of the certifying organisations. Some certifiers have this information available free of charge from their web site. It is important to read and understand the standards. They are the 'rules' that have to

be complied with to achieve and maintain certification. If any aspects of the standards are unclear, clarification should be sought from the relevant organisation.

Contact & application

To decide which certification scheme to join, speak with other certified growers for advice or contact a number of the certifiers for more information to judge their suitability.

Obtain an application form from the preferred certification organisation. This and other relevant information is available freely from some certifiers' web sites. The completed application form, and fee if required, is returned to the organisation if the applicant agrees with the standards and agrees to comply with them.

Questionnaire

A comprehensive questionnaire will be sent to the applicant, requesting information on the management of the enterprise to be certified. For primary production, this includes chemical use, cultivation practices, fertiliser inputs and other nutrient management strategies, pest control methods, crop types and rotations. The risk of chemical contamination from neighbouring properties and other sources is also of interest.

The questionnaire is to be completed and returned together with a map of the property clearly showing the location of areas to be certified. Some organisations require a statutory declaration to be signed, to add legal strength to the certification and licensing process.

Inspection

The applicant is then contacted to arrange a visit by an experienced inspector. The inspector will usually:

- help fill in any gaps in the questionnaire;
- inspect the area or facility to be certified and note any problems such as major weeds and risks of contamination (e.g. spray drift on farms or fruit residue in packing lines);
- examine the soil condition and management practices; and
- collect samples of soil or products if required for chemical residue analysis.

Application review

The questionnaire, inspection report and soil or produce test results will then be considered by the certifying organisation which will either offer certification, or reject the application if there is good reason to do so.

Contract

Once accepted, the applicant will be offered a contract of certification. This states the obligations of the applicant and certifying organisation in the event that the contract is accepted. The contract may include conditions necessary for the maintenance of certification, information on the use of certification labels or logos and annual licence fees or levies if they apply.

Organic certification and the right to use the certifying organisation's labels or logos and to promote produce as certified, may be withdrawn if the contract is broken. This

could occur for example if a product or practice prohibited under the organic production standards is used.

Certification levels

There are currently two levels of certification relevant to primary production, preceded by a 'lead-in' period:

'Pre-certification' commences once the questionnaire is received and applies for one year. This lead-in period allows applicants to demonstrate that they can manage their enterprise in compliance with the organic standards. During pre-certification, no claims can be made regarding the organic status of the enterprise or its products. This means that certification cannot be sought to cover a crop that is about to be harvested.

'Conversion to organic' is achieved when an enterprise successfully completes pre-certification and the associated audits and inspections. The length of the conversion period depends on the history of the enterprise and current management practices. It could last several years as it takes time to develop a good organic production system. Produce from enterprises in the conversion phase can carry a 'Conversion to organic' label and can be promoted as being in conversion to organic.

'Organic' is the top level of certification and is achieved once all relevant requirements of the standards have been met for a minimum of three years. Produce can be labelled and promoted as being 'Certified organic'.

Annual audit

Once certification is achieved, compliance with the standards must continue for the certified status to be maintained. Certified enterprises are reinspected annually to verify that the standards are being met.

Things to consider before applying for certification

Join a local organic grower group - they are there to support growers. Certification organisations and agriculture departments should be able to help growers contact these groups. Speak with people who are familiar with organic/sustainable agriculture and who use organic methods.

Read as much as possible on the subject.

Speak to someone who is familiar with organic certification. Get an idea of what is involved, including costs, in applying for certification and maintaining certified status. Find out about the application fee, farm inspection, soil tests and licence agreements. Ask to see the sort of questionnaires involved.

If a neglected property has been obtained especially for organic production because it has not had chemicals applied recently, remember that organic/sustainable agriculture is about best practice management not just chemical-free management. Organic certification organisations want to see good management practices in operation, and place some emphasis on the development and implementation of organic management plans for certified enterprises.

Develop a conversion plan for the property. This should document the phases that each area of the property will go

through during conversion to organic management. Aspects such as the establishment of windbreaks, cover crops and crop rotations would be included.

Consider the scale of the potential organic enterprise. It may need more capital input, labour and bulk materials such as manures and mulch. Are the resources and experience available to convert the whole property at once? Organic techniques may be trialed on a small area first before being applied on a larger scale. However, with this approach, the organic area may have a high risk of contamination from adjacent crops or from spray vats used for other crops.

If a small trial area for organic management is to be established and certified, is there any guarantee that produce from the organic and conventional areas would not get mixed up? 'Parallel production' occurs when a grower produces a crop organically but is also producing the same type of crop using conventional methods. However, there are tight restrictions on 'parallel production' under organic standards. For example, check the certifiers' requirements regarding dedicated machinery, especially spray equipment, for use on certified land.

Specific concerns about a property that is to be certified should be addressed before the application is made and fees are paid. For example, if the area is surrounded by properties on which heavy chemical use occurs, the application may fail because of an unacceptably high risk of chemical contamination.

Neighbours should be informed of what is involved in the conversion to organic. Try to reach some agreement on what they will do as good neighbours to minimise or eliminate any effects that their use of chemicals may have on the organic system. Do the same for other groups such as water boards using herbicides on irrigation channels, councils treating roadsides and crown land with herbicides and agriculture departments who may apply chemicals for pest control (e.g. fruit fly and locusts).

All growers, regardless of the production methods they use, should investigate the distribution and marketing aspects of a new enterprise before they develop that

enterprise. This is particularly important for organic growers because the organic market, while rapidly expanding, is still relatively small and easily oversupplied with certain products.

Contacts

Australian Quarantine and Inspection Service (AQIS)
Organic Program

Program Management and Operations

Tel: (02) 6271 6638

Policy and Market Access:

Tel: (02) 6272 3509

Fax: (02) 6272 3238

Email: organic@aqis.gov.au

Internet: <http://www.aqis.gov.au/organic>

For information on certification organisations, the 'National Standard for Organic and Biodynamic Produce' and export requirements for organic produce.

Organic Federation of Australia (OFA)

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Oakleigh Sth. VIC 3167

Tel: 1300 657435

Email: info@ofa.org.au

Internet: www.ofa.org.au

Australia's peak organic industry organisation.

This Agriculture Note can be accessed through the DPI web site: <http://www.dpi.vic.gov.au/notes>

For general inquiries, contact the DPI Call Centre:
Phone 136186 or Email: customer.service@dpi.vic.gov.au

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