The Mornington Peninsula Wine Industry

A community guide to environmental best practice winery and vineyard management
Chairman's Message

The unique environment of the Mornington Peninsula has been the driving force behind this Guide. It is the environment that attracts residents, farmers, winemakers and tourists to the region. Whatever your interest, we believe this Guide will give you a better understanding of the Mornington Peninsula wine industry, its commitment, and its responsibility to the community of which it is a vital part.

Acknowledgements

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Introduction
**Wine Industry Partnership**

The Wine Industry Partnership (WIP) was established in 2001 to consider environmental issues and impacts of the wine industry on the Mornington Peninsula.

The Partnership comprises key stakeholders: The Mornington Peninsula Vignerons Association (MPVA), the Mornington Peninsula Shire Council (MPSC), Environment Protection Authority Victoria (EPA), The Department of Natural Resources and Environment (NRE), The Grape & Wine Research and Development Corporation (GWRDC), The Cooperative Research Centre for Viticulture (CRC Viticulture), Monash University, Chisholm Institute, The Department of Infrastructure (DOI), Melbourne Water (MW), Southern Rural Water (SRW) and South East Water (SEW).

This Guide is the first major project of the WIP. It is for all the community. For vineyard and winery owners and prospective owners, the Guide is a vital tool, providing best practice guidelines and information on environmental responsibility and government legislation. For the community, the Guide provides an insight into the Mornington Peninsula wine industry, its economic value, its responsibilities, its social impacts, and its environmental impact on the landscape.

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**How to use this Guide**

This Guide contains easy to read information on the wine industry. It includes:

- information of particular interest to people considering the establishment of a vineyard or winery and their responsibilities to the community,
- essential data for existing vineyard and winery owners in regard to sustainability, best practice, government legislation and their responsibilities to the community,
- an insight into the workings of established vineyards and wineries on the Mornington Peninsula in relation to key issues such as water management, spray drift, noise and effects on the broader community,
- answers to questions frequently asked by residents living in close proximity to vineyards or wineries,
- a list of key references for advice and more detailed information on all aspects covered in this booklet.

Topics have been divided into chapters, with references and contact details for further information and advice listed at the end of the Guide.

Readers who would like to comment on the Guide are encouraged to do so via the MPVA on tel 03-5989 2377 or by email: mpva@mpva.com.au. The Guide is also available on the MPVA website:

The Mornington Peninsula

The Mornington Peninsula is one of Victoria’s most beautiful and diverse regions. A playground for locals and a Mecca for tourists, the region encapsulates some of Victoria’s most striking scenery, from rugged sea cliffs to fertile hills and valleys. Over the last 20 years, vineyards have added to the region’s rich, visual tapestry.

There are more than 45 wineries operating cellar door facilities and over 175 vineyards in the region, with plantings of more than 775 hectares. Total area planted has more than doubled since 1996 and fruit production has more than trebled. However, the total area covered by vineyards and wineries is less than 1% of the 72,064 hectares which make up the Mornington Peninsula Shire. Urban usage covers 13,728 hectares or 19%, rural usage 42,434 hectares or approximately 59%, and open space – including parks and State and national parks – covers 5,961 hectares or around 8%. The balance of 9,941 hectares (13%) is for port activities and special use areas.

The economic benefits of the wine industry to the region are substantial. The wine industry is a major employer in the region and works closely with schools and tertiary institutions to provide work experience for students and jobs and career paths for those interested in a wine industry career. In 2000, estimated wholesale value of Mornington Peninsula wine was $35 million compared with $18.2 million in 1997. (Mornington Peninsula Wine Industry Diagnostic Report 2000)

Winery tourism also makes a significant contribution to the region. It is estimated that expenditure generated from wine tourism in Victoria is $394 million. This includes amounts spent on food, cellar door sales, accommodation, on site purchases and expenditure on other items during the trip. The areas where the highest expenditure is generated through wine tourism is the Around Melbourne (Yarra Valley, Mornington Peninsula, Geelong, Sunbury, Macedon Ranges) and North East Victoria zones. The Around Melbourne zone also registered the highest number of visits in 2000, at 1.5 million visits.
Sustainable use and development

As population pressures and agricultural pursuits change throughout the Peninsula, sustainable use of resources is vital. Maintaining a viable and sustainable wine industry requires viticulturalists to work closely with the community and responsibly conduct both their vineyard and winery operations.

It is important that vineyards and wineries are developed so that they are compatible and consistent with the existing landscape values of the Shire and that they present an attractive image to the passing public, are well maintained and kept in good order.

Protecting the environment

The Mornington Peninsula contains several State and National parks, wetlands protected under State government policies and Federal government international treaties, and an internationally recognized RAMSAR site - Western Port Bay.

The Mornington Peninsula and Western Port catchment has been identified as a possible UNESCO Biosphere reserve to encourage and promote sustainable use of the region’s valuable natural resources. A Biosphere reserve is where significant ecological systems are conserved and protected in areas where people live, work and play.

The Mornington Peninsula and Western Port region has been proposed because of its outstanding values which include:

- Wetlands listed under the RAMSAR Convention on Wetlands of International Importance and their dependent migratory bird species.
- Colonies of Little Penguins, Koalas, Australian Fur Seals and the nationally significant Short-tailed Shearwaters.
- Sites of national geomorphological significance.
- Many significant native plant communities, including rare, threatened and vulnerable species.
- Regionally important remnant native vegetation, both in small reserves and on private land.
- Highly scenic landscapes and sites of historical importance.

It is these natural attributes that help bring residents and tourists to the Mornington Peninsula. It is important to develop industry to generate employment and economic health, while conserving, maintaining and improving our environmental resources and ecosystems for the benefit of future generations.

The Wine Industry and the Community

The wine industry is a small, but vital part of the Mornington Peninsula, covering in total only one percent of the region. While vineyard and winery owners are passionate about growing grapes and producing premium wines, they are also concerned about sustaining the soil, preserving surrounding habitats, minimizing the need for pesticides and maximizing quality.

The broader community has concerns about environmental management, chemical management, health issues, social impacts and economic issues.

What unites all parties is their love for the Mornington Peninsula and its unique environment. Together, we can work to ensure that this special part of Victoria is preserved for future generations.
Frequently asked questions

What legislation is there to control wineries and vineyards on the Mornington Peninsula?

Wineries and vineyards on the Mornington Peninsula are subject to local planning provisions and codes as outlined by MFSC, EPA, the NRE and various State and Federal laws. A list of the main legislation affecting wineries and vineyards is listed under Legal Responsibilities in Step One: Investigate and Research.

What is the MPVA and what does it do?

The MPVA is a membership organization of people involved in growing grapes or in the production of wine on the Mornington Peninsula. Its members include 45 wineries and 175 vineyards in the region. The MPVA has a Code of Practice with which members agree to comply. The MPVA also holds regular seminars for members covering all aspects of best practice for vineyard and winery management.

The MPVA and its members participate in community events on the Mornington Peninsula and are actively involved in initiatives such as the Wine Industry Partnership, Mornington Peninsula Tourism and other Shire activities.

Are genetically modified organisms used in the Australian Wine industry?

“The Australian wine industry has a strong reputation for producing some of the best wines in the world at affordable prices. This has been achieved through continuous innovation combined with the use of time-honoured traditional practices. We will continue to explore new developments in all areas of science and apply these where there are clear benefits to consumers and acceptance by society.

“At present, no genetically modified grapes or yeasts are used in the production of Australian wines.

“There will be no commercial use of genetically modified organisms to produce Australian wine until it is clear that they are safe, of high quality and beneficial to consumers.” Australian Wine Research Institute.

To obtain the Institute’s full statement of The Australian Wine Industry’s Position on Genes Technology visit the Institute’s website at: http://www.awri.com.au

Are there limits set for the amount of chemical spraying of grapes?

Maximum Residue Limits (MRLs) are set by governments around the world for the amount of residue of a chemical that is legally allowed in grapes or wine. These limits vary widely between countries including those to which Australia exports wine. The Australian Wine Research Institute (AWRI) can provide further information on MRLs.

Is chemical use controlled?

Chemical use must comply with legislation such as the Agricultural and Veterinary Chemicals Act, the Occupational Health and Safety Act, the Environment Protection Act 1970, the Dangerous Goods Act and their respective regulations.

How often are chemicals used in vineyards?

Chemicals are used to provide protection against fungal diseases that attack the vines, to control pests and insects and to minimize weed growth under the vine rows. Vineyards are constantly monitored for signs of disease pressure or insect attack and when these signs are not detected some sprays can be saved from the program. When a disease is detected however a systemic spray may be used to cure the problem.

Fortnightly spraying is necessary during the growing period from September to six weeks prior to harvest, which equals approximately 10 to 12 sprays per year. Some herbicides are used at other times. Sprays used today are far less harmful than those used in horticulture on the Peninsula in years past. A list of chemicals approved for use in vineyards is available from the AWRI. The MPVA supports the use of softer chemicals, less spraying and more physical controls.

What types of chemicals do vineyards use?

Chemicals most typically used to control fungal diseases are sulphur (powdery mildew and mites), copper or mancozeb (downy mildew) and pyrimethanil or prodimine (botrytis).

For insect pests - mainly light brown apple moth and grapevine moth - tabunonizid (trade name Mimic specific only to moths), or bacillus thuringiensis (the so called BT sprays which are suitable for use in organic vineyards).

Herbicides commonly used are glyphosate (Round Up and others) and glufosinate-ammonium, a knockdown weedkliler that controls only the leaves sprayed.
What nutrients are used by vineyards?

The typical annual input to replace nutrients removed with the grapes at harvest would be a compound fertilizer containing nitrogen, phosphorus and potassium plus small amounts of trace elements. This might be in the order of 12 kgs of active nitrogen, 6 kgs of active phosphorus and 17 kgs of active potassium per hectare of vineyard. Petiole analysis is conducted at flowering to determine if there are any deficiencies that may need a top up. These top ups, if required, are often delivered through the drip irrigation system.

What training is given to people applying chemicals?

The MPVA recommends its members and their employees undertake the Farm Chemical Users Course, and comply with the Code of Good Practice of Farm Chemical Spray Application. NRE also strongly recommends that farmers and users of chemicals complete the chemical farm users course.

For more information on chemical use go to the NRE website at www.nre.vic.gov.au and look under farming and agriculture. This states how chemicals should be applied and available training.

How are chemicals disposed of?

Disposal of chemicals is carried out as specified by the EPA and NRE guidelines. The MPSC has also organised a drum collection service called Drum Muster which will collect chemical drums and return them to the manufacturer for reuse. Concentrate chemicals are not permitted to be disposed of to land and must be disposed to a facility licensed to accept chemicals. Chemical containers must be triple rinsed prior to disposal with the rinsate disposed of appropriately.

Are vineyard owners concerned about water quality?

Vineyard owners rely on the water quality available to them for irrigation and other watering requirements. MPVA members are therefore concerned over the quality of water they use and the ability for that water to be sustainable to their needs.

MPVA members are involved in a water survey, being undertaken by research students in the region. This may be the forerunner to further research if necessary. MPVA members are also keen to support the Water Watch Program, a voluntary project to regularly test water. Participants are trained to sample water and can obtain accreditation if they wish.

Any member of the community who has concerns about water quality can contact the EPA or NRE, MW, SRW or SEW depending on the issue of concern.

How much water does a vineyard use?

The amount of water used on Mornington Peninsula vineyards varies between zero and one megalitre per hectare per year. This compares favourably with other wine regions where water use can be up to 12 megalitres per hectare per year. The accepted standard of water use for wineries throughout Australia is between two and six litres for every litre of wine produced. Some wineries on the Peninsula that have put in practice water minimization strategies have reduced their usage to 2 to 3 litres per bottle of wine. Most of the water consumption occurs during vintage.

Before planning a new vineyard it is important to investigate the availability of a suitable water supply by discussing it with Southern Rural Water or Melbourne Water.

What is the Victorian wine industry doing in regard to environmental management?

The Victorian Wine Industry Association (VWIA) in conjunction with the EPA and the Australian Centre for Cleaner Production has developed an Environmental Management System to minimize the use of raw materials used during wine making process and to minimize the amount of wastes generated. The EMS has been funded through the EPA Cleaner Production Partnership Program. The intention is that the EMS will be adopted throughout the industry.

Who should I contact regarding noise from wineries or vineyards?

Firstly, speak to the vineyard or winery owner involved. Noise issues usually involve noise at harvest time, noise from winery restaurants or accommodation, or noise from scare guns and other devices used to scare birds away. Most vineyards no longer use scare guns as netting is widely used. There are limitations to the use of scare guns including a buffer distance requirement to the nearest resident of a minimum 300m. Further information on the use of scare guns and noise related issues is available in the EPA Publications Noise Control Guidelines and Annoyed By Noise. Planning permits issued for the site may also include conditions to control noise and further information can be obtained from the MPSC.
A Guide to Vineyard and Winery Ownership
What you need to know before buying land, a vineyard or a winery

**Step 1: Investigate and research**

Before committing to the purchase of land for a vineyard, winery, cellar door and possibly other facilities such as a restaurant or visitor accommodation, it is important to identify whether the land is suitable for development and whether the site meets your particular needs. The physical capacity of the land to sustain the proposed type and intensity of land use and its relationship with adjoining uses, is vital to your decision.

If you are considering the purchase of an existing vineyard, you will also need to consider the vineyard’s soils, water, aspect, size, onsite effluent containment, and whether it is suitable for further expansion should you wish to add a winery, cellar door or restaurant. An existing vineyard may be affected by urban sprawl, so you will also need to consider the impact on neighbours and whether the vineyard is effectively buffered.

**Neighbouring Activities**

Residents, schools, hospitals and other rural land uses may be affected by noise, spray drift, odour or other impacts from a vineyard or winery. You also need to consider nearby activities that could impact on your vineyard operation, such as spray drift from other rural uses.

**Zoning**

Existing residential or landscape living zones close to the site may be affected by vineyard, cellar door or winery operations. A vineyard and winery is at times a 24-hour, 7 day a week operation. Noise from patrons, car vehicles, night harvesting or gas scare guns can affect nearby residents. By selecting a site that is effectively buffered from nearby individual houses, and is significantly separated from existing residential and landscape living zones, you can avoid any negative impact on neighbours.

**Local planning provisions & controls**

We recommend that before making a decision to purchase land for a vineyard or winery, or before purchasing an existing vineyard or winery that you wish to expand, you discuss the suitability of the site with the local Council.

As well as planning approval for a development, Council approval is required for the removal of native trees and vegetation of botanical or zoological significance including vegetation removal from roadside verges. If establishing a new vineyard, look for land that has already been cleared and avoid sites that need to be cleared.

In granting a development approval a Council may consider the following factors:

- The scale and site suitability of the proposed vineyard or winery
- Impact on adjoining uses
- Potential for pollution
- Odour
- Possible surface run off from wastewater irrigation areas, impact on underground supplies, distance from rivers and bores
- Soil degradation
- Waste facilities and methods of disposal
- Impact on the amenity of the area
- Suitability of access
- Suitability of lighting for 24-hour period
- Building construction standards
- Management methods and practices to be used

The local Council may refer your development application to other departments such as the EPA, Department of Human Services and NRE if they believe it may be of interest to those departments or to seek advice on the suitability of the application.

If you are planning to develop a new winery, we suggest you submit a development application to the local Council 12 months prior to the first vintage to allow sufficient time for development approval and construction of the winery.
Covenants

Land of significance may be covered by a covenant or a covenant may be applied for.

- Conservation Covenant (through Trust for Nature)
- Section 173 Planning Environment Act Agreement
- Land for Wildlife (through NRE)

Environment Protection Authority

Under the Environment Protection Act 1970, all people have a duty to protect the environment. A winery processing 300 tonnes of grapes per year or more requires approval in the form of a Works Approval from the EPA prior to commencing with the development. The works approval must be made in accordance with Section 19 of the Environment Protection Act 1970. This approval applies to proposed and existing wineries wanting to expand. A works approval is also required for all premises wanting to install a sewage wastewater treatment plant with a capacity to treat 5000L of effluent per day.

The EPA recommends the applicant discuss their proposal prior to submission of the application or to clarify whether a works approval is required.

Maintaining the Biodiversity of a Site

A survey and assessment of biodiversity values that exist on the site should be conducted, as often the real values have never been identified on a property in detail. Now is the time to design the operation to enhance the biodiversity, for example, by establishing Land for Wildlife corridors on the property.

Victoria's Native Vegetation Management - A Framework for Action was launched in August 2002 as the State policy to guide native vegetation protection and enhancement. Its primary goal is a reversal across the entire landscape of the long-term decline in the extent and quality of native vegetation, leading to a Net Gain. It introduces mechanisms to achieve the Net Gain goal and to measure progress towards it, such as using Habitat Hectares as the standard measure of vegetation quality. The Framework can be found at the NRE web site at http://www.nre.vic.gov.au by selecting Land and Water Management, and then Land from the menus.

Consider what biodiversity values and sites of significance are known on the site and nearby. Are these values and importance likely to over-ride the use of the site? What potential impacts may a winery or vineyard have on these values?

Soil characteristics

Soil characteristics will determine whether a site is suitable for the establishment of a vineyard. A soil survey and analysis should be carried out as part of the preliminary investigation of the site. The soils in which you plant your vines will have a significant impact on the yield and quality of the grapes produced.

They will also affect the type of rootstock and appropriate trellising, any soil amelioration work required prior to planting and the fertilizer and irrigation requirements of the vineyard.

Water

When selecting a site, consider the availability of water for irrigation and drainage, and whether there is the potential for polluting any existing bodies of water on your site or adjoining sites. Bore and dam water supplies should be analysed on a site specific basis for high levels of salt, bacteria, algae or other contaminants to ensure that wastewater can be irrigated onto a variety of vegetation types.

Vineyards rely heavily on water for irrigation and wineries require access to water for cleaning operations and staff/visitor needs. Water usage will depend on the amount of grapes crushed per year, the cost of source water, the cost of wastewater disposal and diligence in minimizing wastewater.

Water is available from reticulated town water, groundwater, some streams, general catchment rainwater and all recycled water. Under the Water Act 1989 (as amended in 2002) all new irrigation or commercial dams need a license, wherever they are located. New surface water irrigation licenses only allow water to be diverted during winter when supplies are plentiful, and in many catchments the amount being harvested is already exceeding sustainable limits. Contact the NRE, SEW or SRW for further information.

EPA strongly encourages the reuse of wastewaters where practicable.
Topography

The topography will influence the planning and layout of your vineyard and the general operation of the vineyard. Avoid steep slopes and low lying, flood prone or seasonally saturated land. Low lying areas may also be susceptible to frost.

Climate and aspect

Consider the climate and aspect. Important criteria are: average rainfall, prevailing winds, susceptibility to frosts and whether the site is north or west facing so as to maximize sunlight to the vines.

Availability of services

Are services such as water, reticulated sewage, electricity or gas available? If not, consider the cost of connecting services. Have you allowed space for an onsite effluent treatment plant and irrigation or reuse scheme? The proximity to support industries and businesses such as agricultural equipment and supplies is also important.

Potential for Growth

It is important to consider possible expansion when selecting your site. Key factors when considering expansion are:

► Your ability to obtain a planning permit for a winery, cellar door or restaurant at a later date
► Whether the land is large enough for a winery and the associated waste management facilities

► Whether the land is capable of retaining all wastewater effluents within the boundaries
► How a winery, cellar door or restaurant will impact on neighbours
► Whether there is land for car parking
► Good road access to the site and sufficient area for the unloading and loading of trucks, equipment and supplies
► The need for a buffer from residential and commercial uses of land on neighbouring property
► The availability of a suitable water supply

Noise

Noise emissions are controlled by the EPA under the interim Guidelines for the Control of Noise, which apply to areas outside the Metropolitan Region and are applicable to the Mornington Peninsula. Noise from vineyards can include vehicle noise during vintage and noise from scare guns. Noise from wineries can include plant noise from pumps, refrigeration, crushing facilities and noise from vehicles.

The use of some equipment such as power tools, compressors and other items have been identified as having prescribed times for use. This is outlined in the EPA guidelines Annoyed by Noise.
Odours

The Environment Protection Act 1970 requires that no offensive odours are discharged beyond the boundary of any premises. Odours associated with wineries can be minimised through sensible siting and good management practices. Odours may occur due to the wastewater collection, storage and treatment system or from the wastewater treatment and disposal system.

Odours can also be generated when applying chemicals to the vineyard. It is therefore important to take into account weather conditions and the location of neighbours when applying chemicals or wastewaters to prevent the generation of offensive odours.

Legal Responsibilities

Owners and operators of vineyards and wineries should be aware of all acts, regulations, orders or notices relevant to the Australian wine industry. Some relevant acts and regulations include:

NRE

- Agricultural and Veterinary Chemicals (Control of Use) Act 1992 and Regulations
- Australian Wine and Brandy Corporation Act 1980 and Regulations
- Australian Wine and Brandy Corporation's Label Integrity Program
- Australian Food Standards Code
- Dangerous Goods (Storage and Handling) Regulations 2000
- Local council by-laws and development regulations

- Water Act 1989, as amended by the Water (Irrigation Farm Dams) Act 2002
- EPA
- Environment Protection Act 1970
- State Environment Protection Policy (Water of Victoria) 1988
- Schedule F8 Waters of Western Port and Catchment 2001
- State Environment Protection Policy (Air Quality Management) 2001
- Industrial Waste Management Policy Waste Minimisation
- Code of Practice for Small Wastewater Treatment Plants
- Code of Practice – Septic Tanks On-Site Domestic Wastewater Management
- Noise Control Guidelines
- Interim Guidelines for Control of Noise From Industry in Country Victoria
- State Food Act

Australian and New Zealand Environment and Conservation Council (ANZECC)

- State Occupational Health and Safety Act 1970
- State Wine Grapes Industry Act
- State liquor licensing acts
- Trade Measurements Act
- Trade Practices Act 1974
Step 2: Planning for Vineyards and Wineries

The Master Plan

All vineyards and wineries should have a written master plan and business plan. Preparation of the master plan will avoid costly mistakes and allow accommodation of long term visions, such as increases in vineyard areas, or building a cellar door, winery, restaurant or visitor accommodation. Proper planning will ensure the best use is made of the features of the site, and that best management practices are followed when setting up a vineyard. Initial costs of setting up a vineyard and winery are high, often with no return on investment for some years. This should be considered in the plan.

The Master Plan should include:

Vegetation and Landscape

- Vegetation to be retained, or enhanced, and any vegetation proposed to be removed
- Additional landscape planting, including areas to be set aside as wildlife habitat or movement corridors, and revegetation works to compensate for any vegetation that will need to be removed. Any additional planting should connect with existing areas of remnant vegetation on the site or on neighbouring land in order to create viable wildlife habitat and movement corridors. Planting adjacent to watercourses should be a minimum of 10 metres wide to protect those watercourses and should reinforce any existing remnant vegetation.
- All revegetation, planting and planting for buffers should comprise indigenous species that are suitable for the location and purpose for which they are used. Where possible, plants should be grown from seeds of local provenance. Particular care should be taken to exclude local environmental weeds in any revegetation program, e.g. Piptosporum or Agapanthus.
- Plantation buffers are important to the management of spray drift, to the protection of watercourses from vineyard operations, potential odour emissions, and to protect vines from wind damage.
- Ongoing land management.

Water and Wastewater

- Rivers, streams, drainage lines and other waterbodies (including dams) and their vegetated buffer zones.
- Floodplains, overland flow paths and areas of seasonal saturation.
- Contours - where vines are planted across contours and influence drainage patterns the use of strategically located contour and cut off drains should be utilized to minimize impacts on streamlines and to reduce/control soil erosion.
- Sewage and winery wastewater treatment works, including effluent irrigation and reuse areas.
- Capture of wash down water and redistribution
- Water resource management

Siting Considerations

- Topographic plan showing the location of all proposed buildings, waste storage, treatment and disposal areas and the location of houses and buildings used for commercial or recreational uses on surrounding properties.
- The proposed vine plantations including adequate machinery turning areas (headlands) at the end of vine rows. Machinery turning areas should be located within the property and must not extend into adjoining road reserves.
- Access roads and car park areas

Operations

- Surrounding land uses
- Storage of chemicals
- Spray and equipment wash down facilities
- Tonnage of grapes to be crushed at maximum rate of production
- Estimate of annual and monthly volume of wastewater generated when the winery is operational

Future Development

- Long term proposals for the site, including additional vineyard areas and other uses such as a winery, restaurant, or visitor accommodation.

Landcare and Land for Wildlife

Victoria has more than 900 active landcare groups who work to address problems of land degradation, soil erosion, salinity, soil acidification, nutrient leaching, soil compaction, weed infestations, pest animals, declining vegetation cover and damage to water courses. Many people also recognize the value and place of wildlife in a healthy rural environment and are looking for ways to encourage wildlife on their property. The NRE can provide more information regarding these groups.

Environmental Management System

An environmental management system (EMS) is a tool for businesses to manage their operations in a way that recognises and protects the environment. The ISO 14000 series of standards for EMSs has been developed by the International Organization for Standardization (ISO) and is based on the ISO 9000 series for quality management. In conjunction with the EPA Victoria and the Australia Centre for Cleaner Production, the Victorian Wine Industry Association (VWIA) is developing an EMS to minimize the use of raw materials such as energy, water and agrochemical inputs in viticulture and winemaking and also to minimize wastes generated such as winery effluent.

For further information on EMS contact Standards Australia, the EPA, the VWIA or the Grape and Wine Research and Development Corporation.

The Code of Good Manufacturing Practice for the Australian Grape and Wine Industry

The Australian Wine Research Institute has developed the above Code to: "outline the basic practices that should be followed in vineyards and wineries to ensure that safe and sound quality products result. Safe refers to both the environment and the consumer." For further information contact the Australian Wine Research Institute. The Code can be viewed at: http://www.awri.com.au
Management Systems, Schemes or Certification

Further information is provided at the end of this booklet regarding who to contact for further advice on:
- Environmental Management Systems
- Quality Assurance Programs
- Codes of Practice

We strongly advise anyone establishing or buying a vineyard or winery on the Mornington Peninsula to contact the MPVA and obtain a copy of the Association's Code of Practice.

Visual impacts

Visual impact is vitally important in the Mornington Peninsula Shire. Buildings and car park areas should be carefully sited and designed so that they are not visually intrusive, and should be located away from hilltops or ridgelines. Signage should be designed and located so that it is compatible with its setting and presents an attractive image of the vineyard. The development, including signs, should be fully contained within existing property boundaries. Buffer planting should be compatible with the surrounding landscape.

Minimization of spray drift

The master plan should include plantation buffers to further minimize the potential for spray drift (there should be no spray drift), and to protect vines from wind damage. Planting of buffers should comprise indigenous species if possible, that are suitable for location, and purpose for which they are used. Non-indigenous species may also be used, and further information is available from the MPVA.

Protection and management of soil

Soils are an irreplaceable resource that should be protected and managed. Soil erosion can result in loss of fertile topsoils and nutrients. It is particularly important to protect soils during planting, other ground works and irrigation. It is also important to plant vines in the most suitable areas for wine grape growing and to locate other activities over unproductive soils.

A soil monitoring program should be developed to ensure regular checks of soil quality and to further ensure the sustainability of the vineyard.

Building and maintaining a dam

In most cases a Planning Permit from the MPSC and approval from SRW is required to construct a dam on the Mornington Peninsula.

Dams need to be properly constructed and maintained. You should consult experienced engineering consultants and contractors to design and construct a dam. Proper soil testing will ensure that the soils are suitable for dam construction.

Dams may not be located on a watercourse. Approval is required from MW to locate a dam within 30 metres of any defined waterway. When choosing the site for a dam, contact SRW or MW to ascertain if there will be enough runoff from the catchment to fill the dam without impacting downstream users or the stream environment (a take and use license will be required); or if permission can be obtained to fill the dam from a nearby waterway during winter months.

If a dam is to be installed to store wastewater from the winery or from sewage effluent it must be appropriately lined to protect the groundwater. Further information can be obtained from the EPA on the appropriate liner.

Waste water and re-use

Water is a limited resource and it should be used and managed in a responsible way. You should consult existing and future water sources before establishing your vineyard. Uncontrolled withdrawal of water from rivers or streams is not sustainable in the long term. Be aware of potential water use upstream and downstream of your property.

A major concern of the Shire and the community is the pollution of water sources from soil erosion, wastewater, nutrients, herbicides, insecticides and other sprays and chemicals. You can reduce pollution of water sources by the provision of buffer zones along waterways to filter out potentially polluting material and minimize the effects of spray drift.

Vineyards may also generate wastewater that must be appropriately treated and disposed of. A wastewater management plan should be prepared to address the treatment, disposal and containment of wastewater within the property. Recycling of sewage and process wastewater should be considered. Treated water may be used for vine irrigation, particularly for summer irrigation.

State environment protection policies require the recycling and reuse of wastewater, and the irrigation of effluent to land in order to protect the quality of surface waters. Food crops, such as vegetables and wine grapes, can be grown using wastewater.

When planning a wastewater management system you will need to consider land availability, the type of soil in the wastewater utilization area, the surrounding land uses and their proximity, the risk of flooding, the climate, the estimated volume of wastewater and seasonal peaks. With this data you can then decide on your waste water strategy.

Sites should not be used for disposal of winery wastewater if sub-surface drainage is likely to cause rising groundwater tables, land salinisation or increased nutrient levels.

To minimize surface runoff and soil erosion, effluent should not be spread on land that is:
- Within 100m of streams or watercourses
- Subject to flooding at a frequency greater than 1 in 25 years
- Waterlogged or saline
- Sloping with inadequate groundcover
- Rocky and highly erodible
- Of highly impermeable soil type

Storm water and run off must also be managed on site to reduce the potential for chemicals or nutrients to be discharged into waterways and to collect run off from areas that have been irrigated with wastewater.

For further information on wastewater, wastewater re-use, wastewater treatment plants and your responsibilities, contact the EPA.
Step 3: Operation of Vineyards and Wineries

Having carefully planned your vineyard and winery it is important to consider your responsibilities to the community and the environment in regard to the operation of your vineyard.

Vineyard Chemicals

One of the greatest concerns of those living in close proximity to vineyards is the chemical control of pests, particularly in relation to spray drift. Spray drift occurs when very small droplets or chemical vapour is carried away from the target by wind, through leaching or through offsite migration of chemicals. Spray drift can damage sensitive crops, pollute water supplies and damage non-target crops, flora and fauna. Spray drift is an offence under Victorian legislation.

Drift, or off-target movement of chemical spray can be reduced by good management. When spraying is required, it should only be performed under appropriate weather conditions, with the right equipment and using appropriate chemicals and the correct spraying techniques.

When agricultural chemicals are used, application should be in accordance with the Code of Practice for Farm Chemical Spray Application, available from the NRE. Some chemicals may only be used by a person who holds an Agricultural Chemical User Permit, while some chemicals are prohibited within the Melbourne Chemical Control Area. The MPFA strongly advises its members and new vineyard owners to participate in the Farm Chemical Users Course for safe handling of chemicals. Remember that even if a spray contractor is hired, the property owner is still responsible for any incorrect application or mishap.

Before spraying:

1. Establish if the problem is caused by a pest
2. Identify the weed, insect, fungus, parasite or other pest and determine if it is present at a level which is likely to cause economic damage
3. Consider non-chemical management options where possible: mechanical, cultural and biological.

4. Consider the toxicity of spray being considered for use.
5. Always read the label carefully.

The Australian wine industry has a reputation in the international market as a supplier of residue free wine, and in order to maintain this reputation chemical spraying should be kept to a minimum.

A Spray Diary must be kept by the vineyard manager of all chemicals applied to vineyards, whether sprayed by the vineyard manager or by a contractor. Records must include date, weather conditions, wind direction, chemical and water rates, crop, calibration, maintenance and operating details for each block sprayed. A record of any accidents including fire, spills or poisoning as required by the Occupational Health and Safety Act 1985.

Material Safety Data Sheets for the chemicals, available from the manufacturer or retailer, must be kept onsite and be readily accessible.

Other pest and disease control techniques should be considered such as:

- orientation of vine rows and selection of appropriate trellis systems to maximize airflow through and around vines
- selection of clones appropriate for the region
- selection of rootstock compatible with clones selected
- reliance on native birds and other insects to help control some vineyard pests.

The NRE runs courses on Integrated Pest Management. At its website: http://www.nre.vic.gov.au you can also view the draft Victorian Pest Management Framework, developed to provide the strategic direction for the management of declared and potential pests. The Framework describes in detail the background and key strategic issues and recommended actions that will influence pest management in Victoria.
Best Practice to avoid spray drift

Follow these guidelines to reduce spray drift:

- Use equipment that has been designed for the task
- Avoid sensitive areas such as houses, bee-hives, orchards, conservation areas, schools and public places, water supplies
- Choose appropriate weather conditions – mild temperatures and low humidity and low wind speed.
- Avoid volatile formulations – some sprays can drift as vapour even after spraying is complete
- Use anti-drift agents, if recommended on the chemical label
- Shield boom sprayers – shields can reduce spray drift
- Use a larger drop size
- Use slower tractor speeds
- Reduce boom height
- Calibrate boom spray
- Keep records of weather conditions, wind direction and operating details of when spraying occurred.

Storing and Disposing of Chemicals

Storage must comply with the Dangerous Goods Legislation and EPA’s Bunding Guidelines (EPA Publication 347). Chemicals should be stored in accordance with label instructions and in accordance with the Australian Standard AS2507-1998. The storage and handling of agricultural and veterinary chemicals. All chemicals on site should be recorded and safely locked away. Check storage containers regularly for deterioration. Buy chemicals only as needed and do not stockpile.

Disposal of chemicals should be in accordance with the Code of Practice for Farm Chemical Spray Application. All containers should be emptied, triple rinsed and punctured before disposal in an approved site. Rinse and wash down water should be disposed of following EPA guidelines. It must not be allowed to drain into ground water, storm drains or water supplies.

Concentrated chemical should never be disposed of on farm but should be disposed of as specified by the EPA/Department of Agriculture Victoria guidelines.

Emergency plan for spills

You should have an emergency plan in place in case of a spill. Emergency equipment such as a spill kit, protective clothing, soil, sand or vermiculite and equipment and material recommended on the chemical label should be on hand.

For major spills call the CFA and the EPA Waste Management Unit for assistance. Keep people away from the spill and do not hose down as this will spread the contamination. Ensure you have the contact numbers for emergency events at an accessible location such as the chemical storage room.

Occupational health and safety

If you employ people on your vineyard and in your winery you have responsibilities to provide them with protective clothing and safe practices, prevent leakage or spills, take reasonable fire precautions and prevent accidents to children. You also have an obligation to visitors and the general public.

If you store agricultural chemicals you have a number of legal responsibilities under the Occupational Health and Safety Act 1985 as well as various regulations including the Occupational Health and Safety (Hazardous Substances) Regulations. The Dangerous Goods Act 1985 also applies to the storage of some chemicals. You can view each of these pieces of legislation at www.dms.dpc.vic.gov.au.

The Code of Practice for Hazardous Substances and the Code of Practice for Dangerous Goods Storage and Handling provide more information on dealing with hazardous substances in the workplace.

Buffer Planting

Plantation buffers should be at least 50% taller than the vines. They should be semi-permeable so that air can pass through the foliage to allow the foliage to filter out the spray particles. Buffers should be wide enough to ensure that they provide effective containment of spray drift within the property boundaries. They should be located so that they will not shade or compete with the vines and so that they take account of prevailing wind direction. Species most appropriate are those with long, thin, rough foliage such as Casarina (Sheake).
Phylloxera

Phylloxera is an aphid-like insect, native to America, which attacks the root systems of vines and eventually kills ungrafted European grape varieties. The effects of phylloxera are minimised by grafting European varieties onto resistant American root stocks. Phylloxera has never been found on the Mornington Peninsula. Please take care not to import phylloxera into the district on fruit, young grapevines, in soil on boots, vehicles or equipment, or on clothing. Planting material should only be obtained from registered vine improvement associations and affiliated nurseries. For more information go to the Phylloxera website: http://www.phylloxera.org.au

Controlling Pest Birds

Netting is the preferred way of controlling pest birds. Noise generating devices can be intimidating to adjoining land owners. If using scare guns, usage must comply with the appropriate Environmental, Occupational Health, Safety and Welfare Acts and Guidelines and with the EPA Noise Control Guidelines (TG 302/92). When using netting you should frequently check the area so as to release native species of birds that may become entrapped.

Managing nutrients

Grape vines require nutrients to ensure the desired quality and quantity of crop is grown. These nutrients are usually supplied as fertilizer, which is applied before vines are planted, and at strategic times throughout the growing season.

Nutrients must be managed to ensure minimum movement into dams, streams and rivers via surface water run-off and ground water via leaching. Loss of nutrients to these water bodies may lead to blue green algae outbreaks and prolific weed growth which impact on aquatic habitat, and soil acidity.

To minimize nutrient loss:

- time nutrient application to maximize vine uptake
- use drip or microspray irrigation techniques to avoid over watering

- establish a permanent grass sward between vine rows and on headlands to stabilize soil and filter runoff
- ensure the right type and quantity of nutrient is used through soil testing and leaf analysis.

Salinity

Responsible land management practices should be followed to ensure that salinity problems do not develop. Tree removal, particularly in ground water recharge areas, is a major cause of salinity. Inappropriate irrigation practices can lead to a rising water table, thus increasing potential for salinity problems.

Monitoring programs

Monitoring programs should be prepared for the analysis of nutrients, soil quality and soil moisture, and water quality.
Conclusion

The Wine Industry Partnership is committed to protection and enhancement of the unique environment of the Mornington Peninsula region. This Guide has been produced as a guide for prospective vineyard and winery owners, existing vineyard and winery owners and the community, in relation to best practice and environmental responsibility of the wine industry on the Mornington Peninsula.

For further information on the wine industry on the Mornington Peninsula contact the MPVA on 03-5989 2377.

Checklists

The MPVA has available a series of Checklists for vineyard and winery owners and employees, developed by the partnership, that will test your knowledge and help you plan your vineyard and winery operation. The Checklists cover the following topics: Pest Management, Soil Management, Water Management, Viticulture Management, Wine Quality and Continuing Education.
References & Resources

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