

Good Environmental Management Guidelines:

Vineyard Pest and Chemical Management



GEM GUIDELINES: VINEYARD PEST AND CHEMICAL MANAGEMENT

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Editors

Dr Anne-Maree Boland and Emily Tee

Department of Primary Industries, Knoxfield Centre, Private Bag 15, Ferntree Gully Delivery Centre, VIC 3156, Australia.

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The Cooperative Research Centre for Viticulture

The Cooperative Research Centre for Viticulture is a joint venture between Australia's viticulture industry and leading research and education organisations. It promotes cooperative scientific research to accelerate quality viticultural management from vine to palate. Australian grape growers and winemakers are key stakeholders in the CRCV, contributing levies matched by the Commonwealth Government and invested by the Grape and Wine Research and Development Corporation in the Centre.



GEM GUIDELINES: VINEYARD PEST AND CHEMICAL MANAGEMENT

Table of contents

INTRODUCTION	1	Section 2: CONTROL OF PEST BIRDS AND VERMIN	16
Why adopt Good Environmental Management practices?	1	ENVIRONMENTAL OBJECTIVES	16
What is in this document?	1	Risk activities and Aims	
How should this document be used?	2	Use of guns	17
VERA	2	Use of bird scarers	17
Where do the GEM Guidelines fit with other environmental programs?	3	Use of bird netting	17
		Use of baits	17
Section 1: CONTROL OF INVERTEBRATE PESTS / FUNGAL DISEASES	4	ASPECTS	18
ENVIRONMENTAL OBJECTIVES	4	POTENTIAL ENVIRONMENTAL IMPACTS	18
Risk activities and Aims		Activity – USE OF PEST CONTROL TECHNIQUES FOR BIRDS AND VERMIN	19
Application of pesticides	5	Potential environmental impacts	
Storage of pesticides	5	1. Discomfort or inconvenience for local residents	19
Transport / handling of pesticides	5	2. Disturbance to and adverse impacts upon fauna / changes to biodiversity	21
ASPECTS	6	3. Contamination of land, surface water and ground water	23
POTENTIAL ENVIRONMENTAL IMPACTS	6	4. Pollution / litter	24
Activity –USE OF PESTICIDES	7	5. Climate change / global warming from greenhouse gas emissions	25
Potential environmental impacts			
1. Contamination of land, surface water and ground water	7		
2. Adverse impacts to on-site fauna (including beneficial invertebrates) and flora, off-site crops, local flora and fauna /changes to biodiversity	10		
3. Discomfort / inconvenience for local residents	14		

INTRODUCTION

Good Environmental Management (GEM) practices involve vineyard management activities that reduce any negative impacts on the environment, and which may sustain and even improve the natural resource base which grape growing depends upon.

Why adopt Good Environmental Management practices?

There are many reasons why a wine grape grower or vineyard manager may wish to adopt GEM practices on their vineyard. In many cases the adoption of these practices are as much for good business management as they are for environmental improvements. Some of the reasons include:

- maintaining the natural resource base of the vineyard for future grape production;
- improving the economic viability of the business through better management of resources and reducing certain inputs (e.g. fertilisers, pesticides etc);
- demonstrating to customers, neighbours and the general community good environmental performance;
- meet industry, community and government expectations about environmental management;
- maintaining or gaining access to certain markets (especially those with high environmental standards);
- meet personal goals relating to the protection of the environment and natural resources.

What is in this document?

This document presents guidelines for GEM practices for *Vineyard Pest and Chemical Management*. It is part of a series of guidelines developed to provide wine grape growers and vineyard managers with information about adopting GEM practices.

Other documents available in the series* include:

- *Vineyard Fertiliser and Soil Management*
- *Vineyard Equipment, Machinery and Vehicle Management.*
- *Vineyard Water Use Management.*

*It should be noted that there is some crossover of information between these documents.

The GEM Guidelines have been written from a national perspective and so they provide general information not specific to any region. They have been written to directly link with the Viticare Environmental Risk Assessment (VERA) tool (see next page).

Each document in the series describes:

- activities relevant to the document topic which can be undertaken in association with a viticultural enterprise;
- the environmental aspects of these activities and any potential impacts;
- guidance on appropriate management and viticultural practices;
- a range of possible actions to address the impact;
- recommendations for monitoring, measuring and recording to inform decision-making.

INTRODUCTION

How should this document be used?

This document should be used as a starting point by growers, managers or regional industry officers seeking to address the environmental impacts associated with everyday viticultural activities. While it may be possible to use it as a stand-alone source of information on how to address environmental risk, the guidelines are best used together with the VERA tool. It is recommended that the GEM Guidelines be used in the following way:

- **Attend a *Research to Practice® Getting Started with Environmental Management in Viticulture* workshop.** This workshop introduces participants to the VERA tool and helps them conduct an environmental risk assessment of their business.
- **Apply the VERA tool to individual businesses.** This should help to identify those environmental aspects and impacts that have the greatest potential risk, and therefore determine what needs to be addressed.
- **Having identified the areas that need addressing, refer to the relevant GEM Guidelines** for suggested management and production actions that could be taken to reduce the associated risks.

REMEMBER:

These GEM Guidelines are:

- only one source of information and should not be seen as the final answer to addressing environmental risk in a vineyard;
- a guide to current good environmental management practices for grape growers and vineyard managers;
- not production or technically based best management practice guidelines.

VERA

VERA is a CD-ROM developed by the Cooperative Research Centre for Viticulture (CRCV). It is a tool that is intended to provide a starting point for grape growers and vineyard managers to begin building formal environmental management into their overall vineyard management planning. It lists a number of management areas or categories (e.g. water use management) and the associated activities, and describes relevant environmental aspects and potential impacts (risks).

VERA helps growers to:

- think more about their viticultural practices and how these might impact on their vineyard and the wider environment;
- prioritise these issues;
- plan actions to address the issue and to reduce the risks associated with these impacts.

Should growers wish they can then build upon this base to develop a more structured approach to environmental management such as an Environmental Management System (EMS).

Growers attending a *Research to Practice® Getting Started with Environmental Management in Viticulture* workshop will receive a copy of the VERA tool as part of the training materials.

INTRODUCTION

Where do the GEM Guidelines fit with other environmental programs?

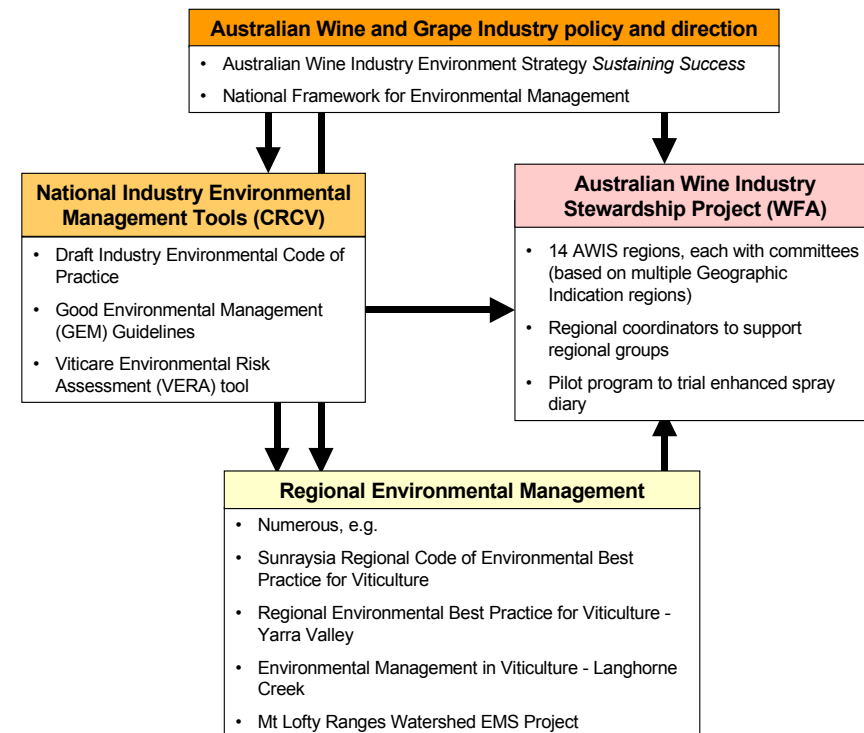
The Australian Wine Industry's Environment Strategy *Sustaining Success** was developed to provide guidance to all wine industry members about improving environmental performance and demonstrating environmental credentials. In support of this strategy the CRCV has developed a number of nationally focused documents (in addition to these GEM Guidelines and the VERA tool) including a *National Framework for Environmental Management* and a *Draft Industry Environmental Code of Practice*.

Also at a national level, the Australian Wine Industry Stewardship project, managed by the Winemakers Federation of Australia (WFA) and launched in 2005, will develop a national program to allow the industry to demonstrate its environmental credentials. Through this program regional coordinators will encourage grape growers and winemakers to participate and assist them to achieve environmental targets.

Beyond these national initiatives many grape growers have been supported at the local level through regional environmental management projects. A number of these projects have developed *Regional Codes of Environmental Best Management Practice for Viticulture* (or Regional Environmental BMPs). Such documents highlight particular regional environmental issues and may provide more specific information to assist the adoption of environmental best practice. Local grower associations can provide information about all of these programs and what is happening in their region.

*Available online at www.wfa.org.au (follow the links to >>Issues>>Environment)

How the GEM Guidelines and other environmental programs fit together



Section 1: CONTROL OF INVERTEBRATE PESTS / FUNGAL DISEASES

Environmental Objectives

In many vineyards in Australia, some level of PESTICIDE USE forms part of the grape production process. These chemicals and compounds must be USED SAFELY AND EFFICIENTLY and managed with due consideration of potential on and off site ENVIRONMENTAL IMPACTS including effects on local residents and other agricultural activities, issues of contamination of land and water, and impacts on flora and fauna.

A pesticide is a biologically active substance intended to kill or incapacitate a target pest species¹. Pesticides fall into a number of categories, including insecticides, fungicides and herbicides. The use of pesticides can potentially impact on the environment (including non-target organisms) and cause disturbance to local residents.

The on-site storage of pesticides is often a necessary requirement when implementing a pest management strategy for a vineyard. When using

¹ The terms 'pest' and 'pesticide' are used in this section to mean any invertebrate (e.g. insect, mite) or pathogen (e.g. fungus) or weed plant which is deemed detrimental to vineyard production, and any compound used to control it.

pesticides always read the labels and other information provided by the manufacturer and reseller. Consideration and care needs to be given to the protection of people and the environment when applying, storing, transporting and handling pesticides.

Legislation may require display and easy access to a register of hazardous substances and dangerous goods kept on the property, and ready access to Material Safety Data Sheets (MSDS) for each pesticide (MSDS are available from the manufacturer or chemical re-seller).

All staff who are likely to come into contact with pesticides should receive chemical handling training, relevant facilities and equipment should be made available (including appropriate personal protective equipment), and supervisors/managers should ensure all codes, policies and guidelines relevant to using pesticides are followed, including:

- OHSE (Occupational Health, Safety and Environment);
- permitted and prohibited chemical use;
- withholding periods;
- agricultural chemical users permits;
- training in hazardous substances and dangerous goods handling etc.

All pesticides used in Australia must be registered with the National Registration Authority for Agricultural and Veterinary chemicals. All activities relating to the use of pesticides must meet local, regional, state and national guidelines and regulations. Additional guidelines may also apply according to the requirements of the winery, or any cooperatives or associations to which the vineyard is a member.

Section 1: CONTROL OF INVERTEBRATE PESTS / FUNGAL DISEASES

Risk activity – APPLICATION OF PESTICIDES

Aims

- Use pesticides effectively in order to control targeted pests and their impacts, while minimising the effect on non-targeted organisms.
- Include any pesticide use in an overall vineyard management strategy and consider both cultural and biological control programs in this strategy (i.e. implement an integrated pest management (IPM) program).
- Use and manage pesticides according to label recommendations (e.g. application rates, withholding periods etc).
- Follow OHSE etc guidelines for chemical application.



Risk activity – STORAGE OF PESTICIDES

Aims

- Store pesticides in a well-ventilated and dry area, out of direct sunlight.
- Ensure storage sheds can be securely locked.
- Separate pesticide storage sites from fuel depot areas.
- Site pesticide storage sheds away from highly sensitive areas (e.g. flood prone sites, high biodiversity importance areas, water courses).
- Store pesticides separate from fertilisers, composts, chemicals seeds and stock food to prevent cross contamination.
- Ensure appropriate cleaning materials and agents are located nearby to clean up any spills.
- Store pesticides in the original container with labels intact – if labels come off or become unreadable always immediately re-label the container.
- Ensure storage facilities are properly signposted.
- Follow OHSE etc guidelines for chemical storage.

Risk activity – TRANSPORT / HANDLING OF PESTICIDES

Aims

- Employ / train suitably qualified persons to perform chemical transport and handling duties.
- Transport pesticides separately from food products, stock feed, water and other hazardous substances.

Section 1: CONTROL OF INVERTEBRATE PESTS / FUNGAL DISEASES

- Securing pesticide containers on the transport vehicle so they cannot move or fall.
- Developing and implementing an emergency response plan to contain spills etc.
- Displaying appropriate signage on the transport vehicle.
- Follow OHSE guidelines and information provided by manufacturers and chemical re-sellers regarding the transport and handling of pesticides.

ASPECTS

Those aspects associated with use of pesticides, which have the potential for adverse environmental impacts include:

- dispersal of pesticides through both normal use and potential over-spraying;
- potential for leaks and spills.

POTENTIAL ENVIRONMENTAL IMPACTS

The remainder of this section provides details about potential environmental impacts for each of the risk activities associated with the use of pesticides. It also outlines actions to help avoid those risks, and recommendations on data collection to aid management decisions. Impacts include:

1. Contamination of land, surface water and ground water.
2. Adverse impacts to on-site fauna (including beneficial invertebrates) and flora, off-site crops, local flora and fauna /changes to biodiversity.
3. Discomfort / inconvenience for local residents.



Activity: USE OF PESTICIDES

Potential impact

1

Contamination of land, surface water and ground water

Aspect/s

- Dispersal of pesticides through both normal use and potential for over spraying
- Potential for leaks and spills

Explanation

Pesticides may be dispersed and potentially contaminate land and water during the normal course of pest management activities, particularly if over-spraying, spill or leaks occur. These chemicals can be dispersed into the air during application, spill from containers or leak from tanks to directly contaminate soil or surface water. Alternatively, pesticides can dissolve in water and move into waterways via run-off, or percolate through the soil profile and contaminate ground water. Chemical residues may also become attached to soil particles and move into waterways along with eroded soil causing further off site contamination.

Vera Ref. No.

Risk activity

Action to avoid impact

Monitor, Measure, Record

100 101	Application	Ensure correct usage of pesticides and follow best management practices. Develop and implement an integrated pest management (IPM) program. Wherever possible use less pesticide or choose a product with a lesser environmental impact. Use windbreaks/buffer zones between sprayed areas and sensitive areas. Avoid spraying in adverse weather conditions. Maintain spray equipment. If applicable, use pesticides with rapid dissipation rates. Reduce the amount of run-off. Install sediment traps and decontaminate run-off by using filter strips and dams. Retain surface cover. <i>(list continued on next page...)</i>	Check equipment calibration, set up and operation. Read and adhere to label recommendations. Monitor to ensure correct dosage and usage of pesticides occurs. Record any pesticide application undertaken, including date, location and type of product used (i.e. maintain spray diaries).
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Activity: USE OF PESTICIDES

Potential impact

1

Contamination of land, surface water and ground water

(...continued from previous page)

Vera Ref. No.	Risk activity	Action to avoid impact	Monitor, Measure, Record
100 101	Application	<p><i>(...previous list continued)</i></p> <p>Notify neighbours when spraying/applying pesticides.</p> <p>Complete and maintain necessary pesticide application training and accreditation (e.g. chemical user's course).</p> <p>Check persistence and leachability of pesticides used.</p> <p>Check labels for information on toxicity and choose the least toxic pesticide where possible.</p>	
107 108	Storage	<p>Consider reducing the amount of pesticides stored.</p> <p>Locate storage and handling sites away from sensitive areas (e.g. areas of high biodiversity, watercourses, flood prone sites etc).</p> <p>Store pesticides in a well-ventilated dry area, out of direct sunlight.</p> <p>Install bunding around the perimeter of pesticide storage/handling areas to contain any spills or leaks.</p> <p>Drain the bunded area to a sump or evaporation pit.</p> <p>Regularly check containers for leaks and damage. .</p>	<p>Keep records of pesticides purchased, stored, transported etc.</p> <p>Clearly display correct signage.</p> <p>Ensure Material Safety Data Sheets (MSDS) are kept for all pesticides used.</p> <p>Report/record any spillage, leakages or OHSE incidents that occur.</p> <p style="text-align: right;"><i>(Continued on next page...)</i></p>

Activity: USE OF PESTICIDES

Potential impact

1

Contamination of land, surface water and ground water

(...continued from previous page)

Vera Ref. No.	Risk activity	Action to avoid impact	Monitor, Measure, Record
110 111 113 114	Transport / Handling	<p>Minimise pesticide transport and handling as much as possible.</p> <p>Use appropriate transport and handling equipment, including appropriate protective equipment (i.e. suitable gloves, glasses etc).</p> <p>Maintain transport equipment and ensure operators have adequate training and education and that safety equipment is always readily accessible.</p> <p>Provide training to staff and practice safe transport and handling methods.</p> <p>Locate handling sites away from sensitive areas to minimise the impact of potential spills and leaks.</p> <p>Install bunding around the perimeter of handling sites to contain any spills or leaks.</p> <p>Drain the bunded area to a sump or evaporation pit.</p> <p>Quarantine any tail-waters on site to minimise the risk of contaminating waterways.</p> <p>Ensure Material Safety Data Sheets (MSDS) are kept for all pesticides transported.</p> <p>Check product labels (or with chemical re-sellers) for information about handling requirements.</p> <p>Keep pesticides in original containers and never remove labels.</p> <p>If possible, purchase pesticides in containers that can be readily handled.</p> <p>Check containers for correct packaging and that bungs and lids are correctly fitting to avoid spillage.</p> <p>Surround glass containers with suitable packing material.</p>	<p>Keep records of pesticides purchased, stored, transported etc.</p> <p>Clearly display correct signage.</p> <p>Ensure Material Safety Data Sheets (MSDS) are kept for all pesticides used.</p> <p>Report/record any spillage, leakages or OHSE incidents that occur.</p>

Activity: USE OF PESTICIDES

Potential impact

2

Adverse impacts to on-site fauna (including beneficial invertebrates) and flora, other off-site crops, local flora and fauna / changes to biodiversity

Aspect/s

- Dispersal of pesticides through both normal use and potential for over spraying
- Potential for spray drift
- Potential for leaks and spills

Explanation

The use of pesticides can potentially have an impact on flora and fauna both on and off site (e.g. spray drift can cause detrimental off site effects including damage to neighbouring crops). Chemical residues can be dispersed into the air during application, spill from containers or leak from tanks to contaminate soil or surface water with subsequent impacts on local biota. The use of pesticides may also reduce the population size of susceptible off target species and therefore limit the ability of these populations to diversify, potentially changing local biodiversity. This can have adverse impacts in the vineyard, as the presence of viable populations of beneficial organisms in a vineyard can decrease the need for pesticide use and even become an alternative to applying some pesticides within an integrated pest management (IPM) program.

Vera Ref. No.	Risk activity	Action to avoid impact	Monitor, Measure, Record
102 103 105 106	Application	Wherever possible use less pesticide or choose a product with a lesser environmental impact. Check labels for information on toxicity, and choose the least toxic where possible. Use pesticides that will have the least impact on non-target organisms. Ensure correct usage of pesticides and follow best management practices. <i>(List continued on next page...)</i>	Identify and record the presence of beneficial organisms. Check equipment calibration, set up and operation. Monitor to ensure correct dosage and usage of pesticides occurs. Record pesticide application undertaken, including date, location and type of product used.

(Continued on next page...)

Activity: USE OF PESTICIDES

Potential
impact

2

Adverse impacts to on-site fauna (including beneficial invertebrates) and flora, other off-site crops, local flora and fauna / changes to biodiversity
(...continued from previous page)

Vera Ref. No.	Risk activity	Action to avoid impact	Monitor, Measure, Record
102 103 105 106	Application	<p><i>(...List continued from previous page)</i></p> <p>Adopt an integrated pest management (IPM) approach to improve the overall effectiveness of pesticides used and to generally minimise the amount of pesticides applied, including:</p> <ul style="list-style-type: none"> • using a variety of non-grapevine plants within and around the vineyard to provide alternate hosts and food sources for beneficials; • where possible, consider introducing beneficial insects for the management of insect pests. <p>Use windbreaks/buffer zones between sprayed areas and sensitive areas.</p> <p>Avoid spraying in adverse weather conditions.</p> <p>Maintain spray equipment to maximise efficiency.</p> <p>Notify neighbours when spraying/applying pesticides.</p> <p>Complete and maintain pesticide application training and accreditation.</p> <p>Check persistence and leachability of pesticides used.</p> <p>Make contact with local groups, catchment management authorities and/or land protection authorities involved in biodiversity management for more information on local issues and important species.</p>	<p>Record:</p> <ul style="list-style-type: none"> • vegetation types and amounts. • types and numbers of regionally important fauna species.

(Continued on next page...)

Activity: USE OF PESTICIDES

Potential
impact

2

Adverse impacts to on-site fauna (including beneficial invertebrates) and flora, other off-site crops, local flora and fauna / changes to biodiversity

(...continued from previous page)

Vera Ref. No.	Risk activity	Action to avoid impact	Monitor, Measure, Record
109	Storage	<p>Consider reducing the amount of pesticides stored.</p> <p>Locate storage and handling sites away from sensitive areas (e.g. areas of high biodiversity, watercourses, flood prone sites etc).</p> <p>Store pesticides in a well-ventilated dry area, out of direct sunlight.</p> <p>Install bunding around the perimeter of pesticide storage/handling areas to contain any spills and leaks.</p> <p>Drain the bunded area to a sump or evaporation pit.</p> <p>Regularly check containers for leaks and damage.</p> <p>Make contact with local groups, catchment management authorities and/or land protection authorities involved in biodiversity management for more information on local issues and important species.</p>	<p>Keep records of pesticides purchased, stored, transported etc.</p> <p>Clearly display correct signage.</p> <p>Ensure Material Safety Data Sheets (MSDS) are kept for all pesticides transported.</p> <p>Report/record any spillage, leakages or OHSE incidents that occur.</p> <p>Record:</p> <ul style="list-style-type: none"> • vegetation types and amounts. • types and numbers of regionally important fauna species.

(Continued on next page...)

Activity: USE OF PESTICIDES

Potential
impact

2

Adverse impacts to on-site fauna (including beneficial invertebrates) and flora, other off-site crops, local flora and fauna / changes to biodiversity
(...continued from previous page)

Vera Ref. No.	Risk activity	Action to avoid impact	Monitor, Measure, Record
112 115	Transport / Handling	<p>Minimise pesticide transport and handling as much as possible.</p> <p>Use appropriate transport and handling equipment, including appropriate protective equipment (i.e. suitable gloves, glasses etc).</p> <p>Maintain transport equipment and ensure operators have adequate training and education and that safety equipment is always readily accessible.</p> <p>Provide training to staff and practice safe transport and handling methods.</p> <p>Locate handling sites away from sensitive areas to minimise the impact of potential spills and leaks.</p> <p>Install bunding around the perimeter of handling sites to contain any spills or leaks.</p> <p>Drain the bunded area to a sump or evaporation pit.</p> <p>Quarantine any tail-waters on site to minimise the risk of contaminating waterways and impacting on flora and fauna.</p> <p>Ensure Material Safety Data Sheets (MSDS) are kept for all pesticides transported.</p> <p>Check product labels (or with chemical re-sellers) for information about handling requirements.</p> <p>Keep pesticides in original containers and never remove labels.</p> <p>If possible, purchase pesticides in containers that can be readily handled.</p> <p>Check containers for correct packaging and that bungs and lids are correctly fitting to avoid spillage.</p> <p>Surround glass containers with suitable packing material.</p> <p>Make contact with local groups, catchment management authorities and/or land protection authorities involved in biodiversity management for more information on local issues and important species.</p>	<p>Keep records of pesticides purchased, stored, transported etc.</p> <p>Clearly display correct signage.</p> <p>Ensure Material Safety Data Sheets (MSDS) are kept for all pesticides transported.</p> <p>Report/record any spillage, leakages or OHSE incidents that occur.</p> <p>Record:</p> <ul style="list-style-type: none"> • vegetation types and amounts. • types and numbers of regionally important fauna species.

Activity: USE OF PESTICIDES

Potential impact

3

Discomfort / inconvenience for local residents

Aspect/s

➤ **Potential for spray drift**

Explanation

When applying a pesticide as part of pest management activities, there is the potential to create spray drift, which may impact on the surrounding environment, including local residents.

Vera Ref. No.	Risk activity	Action to avoid impact	Monitor, Measure, Record
104	Application	<p>Wherever possible use less pesticide or choose a product with a lesser environmental impact.</p> <p>Check labels for information on toxicity, and choose the least toxic where possible.</p> <p>Ensure correct usage of pesticides and follow best management practices</p> <p>Adopt an integrated pest management (IPM) approach to improve the overall effectiveness of pesticides used and to generally minimise the amount of pesticides applied.</p> <p>Use windbreaks/buffer zones between sprayed areas and sensitive areas.</p> <p>Avoid spraying in adverse weather conditions.</p> <p>Maintain spray equipment to maximise efficiency.</p> <p>Notify neighbours when spraying/applying pesticides.</p> <p>Make contact with local groups, catchment management authorities and/or land protection authorities involved in land use planning and management for more information on local land use conflict issues.</p>	<p>Check equipment calibration, set up and operation.</p> <p>Monitor to ensure correct dosage and usage of pesticides occurs.</p> <p>Record pesticide application undertaken, including date, location and type of product used.</p>

Activity: USE OF PESTICIDES

Remember the Environmental Objectives for the USE OF PESTICIDES from the start of this section



As some level of PESTICIDE USE often forms part of the grape production process in many Australian vineyards, **SAFE, EFFICIENT AND MINIMAL USE** of these chemicals and compounds is vital in order to **MINIMISE THE POTENTIAL FOR RISK** for local residents and other agricultural activities, and avoid adverse effects on flora and fauna and contamination of land and water. These Guidelines provide one way to consider the risks associated with the use of pesticides, and outline Aims and Actions to **LIMIT ENVIRONMENTAL IMPACTS**.

Section 2: CONTROL OF PEST BIRDS AND VERMIN

Environmental Objectives

Birds and vermin such as rabbits, rats and foxes can cause DAMAGE TO VINES, particularly by eating young vines and the ripening fruit, or may be otherwise undesirable in the vineyard. CONTROL OF PEST SPECIES often requires an integrated approach. This should take into consideration the associated ENVIRONMENTAL IMPACTS such as disturbance to neighbours and local fauna, issues of contamination and pollution, and contribution to the production of greenhouse gases.

Birds and vermin can be a nuisance around the vineyard and can cause damage to vines and grapes. They are however, an important part of local biodiversity and careful management is needed to reduce the impact of the various control techniques. As birds have the ability to learn, it is necessary to integrate a number of different control methods in order that birds do not become de-sensitised to any one technique.

In certain areas or times, some introduced pest bird species may be destroyed via shooting. However, attempting to shoot large numbers of common pest

bird species is time consuming, expensive and usually ineffective for managing vine damage or fruit loss. Shooting may scare/deter the majority of that population from entering the vineyard for a period of time. When using guns to control pest bird populations in the vineyard it is important to adhere to Australian gun laws and be aware of the protection status of any target birds. It is illegal to shoot protected species.

A range of scaring devices are available to deter pest birds from coming into or remaining for long in the vineyard, such as noise scarers (i.e. gas guns) and visual scarers including balloons, scarecrows, mirrors and flags. When considering bird-scaring techniques it is important to consider the potential impacts on neighbours and on the environment.

Netting is another method of eliminating damage to vines caused by birds by preventing their access to the ripening fruit. Care needs to be taken when handling netting to ensure holes are not created that can trap birds or allow them to continue to access the vines.

Like birds, many species of vermin can be a nuisance around the vineyard. Using baits to control vermin must be carefully managed to ensure impacts to the environment and non-target species do not occur. Wherever possible, use of baits should be integrated with other exclusion or control methods such as fencing, or the use of protective or deterrent animals in the vineyard such as chickens and dogs.

All activities relating to the control of birds and vermin must meet local, regional, state and national guidelines and regulations. Additional guidelines may also apply according to the requirements of the winery, or any cooperatives or associations to which the vineyard is a member.

Section 2: CONTROL OF PEST BIRDS AND VERMIN

Risk activity – USE OF GUNS FOR BIRD CONTROL

Aims

- Where possible, deter birds from entering the vineyard.
- Own and use guns in accordance with legislation and personal obligations.
- Use guns as one part of multiple control techniques.
- Avoid shooting birds for population reduction.
- Be aware of all local bird species, including protected species.

Risk activity – USE OF SCARERS FOR BIRD CONTROL

Aims

- Integrate a range of scaring techniques and other control methods.
- Always consider the local environment and residents when choosing scaring techniques.
- Use bird scaring devices in accordance with regulations, legislation and within permitted times.

Risk activity – USE OF NETTING FOR BIRD CONTROL

Aims

- Ensure netting is in good condition and correctly fastened.
- Use netting in conjunction with other control techniques.

- When the netting is no longer needed or is beyond its life span, dispose of it correctly.



Risk activity – USE OF BAITS FOR VERMIN CONTROL

Aims

- Identify the type of vermin pest and select the most suitable bait to control them.
- Use baits in accordance with directions and with consideration to occupational health and safety requirements.

Section 2: CONTROL OF PEST BIRDS AND VERMIN

ASPECTS

Those aspects of the control of birds and vermin in vineyards which have the potential for adverse environmental impacts include:

- generation of noise by guns and bird scarers;
- potential killing of target, non-target and protected species with guns and baits;
- disposal of spent ammunition;
- gases used in gas guns;
- temporary changes to visual landscape with the use of bird netting;
- potential trapping of target, non-target and protected species in bird netting;
- potential for leaks and spills of chemical baits.

POTENTIAL ENVIRONMENTAL IMPACTS

The remainder of this section provides details about potential environmental impacts for each of the risk activities associated with the control of birds and vermin in vineyards. It also outlines actions to help avoid those risks, and recommendations on data collection to aid management decisions. Impacts include:

1. Discomfort or inconvenience for local residents.
2. Disturbance and adverse impacts on fauna / changes to local biodiversity.
3. Contamination of land, surface water and ground water.
4. Pollution / litter.
5. Climate change / global warming from greenhouse gases.

Activity: USE OF PEST CONTROL TECHNIQUES FOR BIRDS AND VERMIN

Potential impact

1

Discomfort or inconvenience for local residents

Aspect/s

- Generation of noise by guns and bird scarers
- Temporary changes to visual landscape with the use of bird netting

Explanation

The repeated firing of guns and audible scaring devices used to control birds, contribute to noise pollution and can become an inconvenience to local residents, especially when vineyards are located in close proximity to neighbouring properties or residential communities. Use of bird netting can temporarily change the appearance of the landscape. This can impact on visual amenity which may be of significance in some areas, particularly tourist destinations. Netting also has the potential to trap birds which may be of concern to some local residents.

Vera Ref. No.	Risk activity	Action to avoid impact	Monitor, Measure, Record
117 122	Use of guns and audible scaring devices	<p>Integrate control methods, and use alternate controls to guns and audible scaring devices where possible, e.g.</p> <ul style="list-style-type: none"> • provide alternate food sources for birds away from vines to focus them away from the vineyard; • use visual scaring techniques. <p>Adhere to noise and restricted guns use times.</p> <p>Where possible, use noisy devices away from neighbouring properties, especially in residential areas.</p> <p>Notify neighbours of your intention to use noisy devices, including the reasons and expected frequency.</p> <p>Where possible, avoid scaring the birds into neighbouring properties where they can also become a pest.</p>	<p>Record and monitor any complaints received from local residents.</p> <p>Monitor the effectiveness of control methods.</p>

(Continued next page...)

Activity: USE OF PEST CONTROL TECHNIQUES FOR BIRDS AND VERMIN

Potential
impact

1

Discomfort or inconvenience for local residents

(...continued from previous page)

Vera Ref. No.	Risk activity	Action to avoid impact	Monitor, Measure, Record
125	Use of netting	Use dark coloured netting (e.g. black instead of white). Plant vegetative buffers to obscure netted blocks. Communicate with local residents about why the netting is being used. Consider other bird control techniques to minimise netting if it is a concern.	Record and monitor any complaints received from local residents. Monitor the effectiveness of control methods.

Activity: USE OF PEST CONTROL TECHNIQUES FOR BIRDS AND VERMIN

Potential impact

2

Disturbance to and adverse impacts on fauna / changes to local biodiversity

Aspect/s

- **Generation of noise by guns and bird scarers**
- **Potential killing of target, non-target and protected species with guns and baits**
- **Potential trapping of target, non-target and protected species in bird netting**

Explanation

The noise generated by guns and audible bird scarers can disturb other non-target bird and fauna species that may live or have their breeding habitat nearby. This may cause them to move away from the area, perhaps into less desirable sites. Killing pest birds changes population numbers and dynamics, and non-target or protected species may also be accidentally shot. The use of netting is intended to be a non-fatal exclusion technique to keep pest birds from grapes, but there is also the potential to trap birds in the netting, This could result in unnecessary deaths and is indiscriminate as to which species may become trapped. All bird control methods have the potential to adversely impact on fauna and flora and may change local biodiversity. This is due to the interdependence of species within an ecosystem, e.g. birds often provide pollination services for plant seed production. Target pest bird species which are shot, or other birds or mammals which leave the area due to disturbance may have a vital role in some other part of the local ecosystem. Thus any change or decrease in populations, whether intentional or unintended could have ramifications elsewhere, e.g. a reduction in seed production by various plants due to reduced pollination which results in decreased food supplies for dependent birds and mammals. Using chemical baits to control vermin such as rodents can also have similar impacts.

Vera Ref. No.	Risk activity	Action to avoid impact	Monitor, Measure, Record
116 118 119 120 123	Use of guns and bird scarers	Wherever possible use guns as a scaring technique, rather than to kill the targeted pest. Alternative between scaring devices, guns and other control methods. Adopt regional approaches to control birds, such as strategic re-vegetation to provide alternative food sources away from vineyards. Be aware of and able to identify native and protected bird species located on and around the vineyard. At no time should native or protected species be killed. Contact local groups to learn about species and habitats relevant to the region.	Identify and record: <ul style="list-style-type: none"> • the species of birds causing damage; • protected birds in the area. Monitor the effectiveness of the control methods applied. Record varieties of regionally important flora and fauna species. Monitor local flora and fauna species.

Activity: USE OF PEST CONTROL TECHNIQUES FOR BIRDS AND VERMIN

Potential impact

2

Disturbance to and adverse impacts on fauna / changes to local biodiversity *(...continued from previous page)*

Vera Ref. No.	Risk activity	Action to avoid impact	Monitor, Measure, Record
126 127 128	Use of netting	<p>Ensure netting is secure and tight as this will greatly reduce the potential to trap birds.</p> <p>Monitor and inspect netting regularly for trapped birds, immediately removing any that are trapped.</p> <p>Use other control methods in conjunction with netting.</p> <p>Adopt regional approaches to control birds, such as strategic re-vegetation to provide alternative food sources away from vineyards.</p> <p>Contact local groups to learn about species and habitats relevant to the region.</p>	<p>Identify and record:</p> <ul style="list-style-type: none"> • the species of birds causing damage; • protected birds in the area. <p>Monitor the effectiveness of the control methods applied.</p> <p>Record varieties of regionally important flora and fauna species.</p> <p>Monitor local flora and fauna species.</p>
131 132	Use of baits (for vermin control)	<p>Select baits with consideration for potential implications to non-target and protected species. Refer to the label for recommendations and information.</p> <p>Contact local groups to learn about species with regional significance.</p> <p>Use baits based on careful pest identification and monitoring.</p> <p>Ensure the correct dosage and application of baits.</p> <p>Where possible, use alternative controls to baiting, e.g. biological controls or deterrents.</p> <p>Follow AVCARE resistance management strategies for the use of chemical baits.</p> <p>Use buffer zones between treated and sensitive areas, e.g. known habitats of non-target species.</p>	<p>Identify species with regional significance.</p> <p>Monitor vermin numbers, species and problem areas.</p> <p>Maintain records for the use of baits, including time, amount and location.</p>

Activity: USE OF PEST CONTROL TECHNIQUES FOR BIRDS AND VERMIN

Potential impact

3

Contamination of land, surface water and ground water

Aspect/s

➤ **Potential for leaks and spills of chemical baits**

Explanation

Potential leaks and spills from chemical baits used to control vermin around the vineyard, such as rodenticides for rats and mice, can potentially result in contamination of land, surface water and/or ground water.

Vera Ref. No.	Risk activity	Action to avoid impact	Monitor, Measure, Record
129 130	Use of baits	Ensure the application of baits follow correct handling procedures and is conducted by a suitably trained persons. Keep baits in their original containers. Regularly check containers for leaks. Ensure MSDS are kept for all baits used. Display appropriate signage. Locate handling and storage sites away from sensitive areas. Store, handle and apply baits away from waterways whenever possible. Contain any spills and leaks by installing bunding around the perimeter of storage/handling sites. Quarantine any tail-waters on-farm to minimise the risk of contaminating streamlines. Dispose of bait and bait containers as you would for chemicals.	Record the application of all baits used, including the date and location.

Activity: USE OF PEST CONTROL TECHNIQUES FOR BIRDS AND VERMIN

Potential impact

4

Pollution / litter

Aspect/s

➤ **Disposal of spent ammunition**

Explanation

When using guns in the vineyard there is the potential to create unsightly pollution and litter problems if spent ammunition cartridges etc are not collected. In addition, lead shot has the potential to cause lead contamination problems.

Vera Ref. No.	Risk activity	Action to avoid impact	Monitor, Measure, Record
121	Use of guns	Use alternative control methods wherever possible rather than shooting. Don't leave spent ammunition lying around vineyards. Dispose of spent ammunition properly.	Monitor: <ul style="list-style-type: none"> • ammunition used; • spent ammunition collected.

Activity: USE OF PEST CONTROL TECHNIQUES FOR BIRDS AND VERMIN

Potential impact

5

Climate change / global warming from greenhouse gases

Aspect/s

➤ Gases used in gas guns

Explanation

Some of the gases used in gas guns to scare birds away from vineyards may contribute to green house gas emissions. Regularly using gas guns for bird scaring purposes therefore has the potential to contribute to climate change and global warming.

Vera Ref. No.	Risk activity	Action to avoid impact	Monitor, Measure, Record
124	Use of gas guns	Alternate gas guns with other bird control methods. Stop using gas guns for a time when they have become ineffective.	Monitor effectiveness of gas guns.

Remember the Environmental Objectives for CONTROL OF PEST BIRDS AND VERMIN from the start of this section

As pest bird species and vermin such as rodents and foxes can DAMAGE VINES, especially young vines and the ripening fruit CONTROL METHODS need to be applied. Best control is generally achieved integrating a variety of approaches. It is important to CONSIDER THE ENVIRONMENTAL IMPACTS associated with these activities. Good Environmental Management means MINIMISING THE POTENTIAL FOR RISK due to disturbance of neighbours and local fauna, issues of contamination and pollution, and contribution to the production of greenhouse gases. These Guidelines provide one way to consider the risks associated with control of pest birds and vermin, and outline Aims and Actions to LIMIT ENVIRONMENTAL IMPACTS.