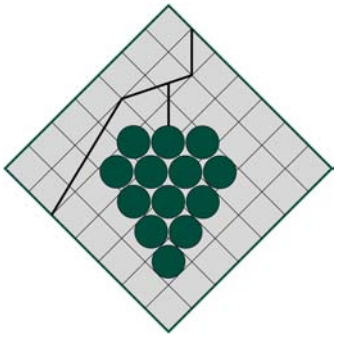
IDC
Greater Victoria Wine Grapes



State Government Victoria Department of Primary Industries

APPLYING ENVIRONMENTAL BENCHMARKING ON YARRA VALLEY VINEYARDS

FINAL REPORT to

GRAPE AND WINE RESEARCH & DEVELOPMENT CORPORATION

Project Number: **RT 03/19-3**

Principal Investigator: **Ms Alison Medhurst, Department of Primary Industries Victoria**

Research Organisation: **Yarra Valley Wine Growers Association - Technical Subcommittee**

Date: **8 October 2004**

EXECUTIVE SUMMARY

The initial objectives of the project were to:

- Trial and apply catchment based environmental benchmarks on vineyards in the Yarra Valley region;
- Provide a system of accounting for environmentally sustainable best practice benchmarking that will in turn enable "clean, green" promotional claims to be made with verifiable confidence.
- Encourage vineyards and wineries to develop consistency and compatibility with the existing landscape, Shire values and enhance a positive image to the general public;
- Assist Yarra Valley growers to understand how their business activities may impact on the environment, and to develop practical action plans for implementing best environmental practices on vineyards;
- Provide a template and practical experience in the application of environmental benchmarks that can be promoted for awareness and possible adoption by wine grape growers in other regions through four workshops funded jointly by DPI and GVWGIDC.

The first four objectives have been achieved using RITA funding and the last objective, to use the practical experience gained to promote environmental benchmarking more widely in Greater Victoria, has been achieved by combining funding from DPI and GVWGIDC with the RITA project.

Growers who participated in the trials are all very enthusiastic as to the value of the trial and the usefulness of the results in assisting them in identifying environmental issues and to better plan for environmental improvements. The documentation was also considered valuable as a means of confirming a vineyard's adherence to best environmental practice principles and best practice in general.

Participating growers also strongly supported seeking the support of the Yarra Valley Wine Growers Association to promote the use of environmental benchmarking across all vineyards in the Valley, and seeking shire council support for this.

About $70,000 in total was invested in this project and investors included Greater Victoria Wine Grape Industry Development Committee, GWRDC, and the Department of Primary Industries, Victoria.

BACKGROUND

The wine industry places a high priority on sustainable environmental management, exemplified by:

- an Eco-Efficiency agreement between Environment Australia, South Australian Wine and Brandy Industry Association and the Department of Agriculture Forestry and Fisheries;
- the development and release of the Australian Wine Industry Environment Strategy "Sustaining Success" and;
- the Cooperative Research Centre for Viticulture (CRCV) project "Environmental Management Systems".

Alexandra (2002) in his Ecovine report identified that there is a gap between catchment targets and farm targets for measures of environmental sustainability. Farm based benchmarks have also been identified as a key part of industry adoption of sustainable environmental management. Various tools have been developed within environmental management systems projects that enable on farm practices to be benchmarked. These include McFarlane and Trewick (2001) Environmental Best Management Practice on Farm, the CRCV's protocols and VERA tool, the Yarra Valley Regional Environmental Best Management Practices, and the Mornington Peninsula electronic environmental management system.

RITA funding, along with co-investment from the Department of Primary Industries, the Greater Victoria Wine Grape Industry Development Committee (GVWGIDC) and in-kind support from participating Yarra Valley growers, has enabled the on farm trialling of these processes to determine effectiveness for the wider industry in terms of on farm environmental management, and catchment management.

This project is linked to a much bigger program co-ordinated in Victoria by the DPI in active consultation with affected agricultural industries, including the development of catchment management plans that incorporate nutrient management, water management and a biodiversity strategy. The wine grape industry is leading other industries in its interest and support for the introduction of best practice environmental management on vineyards.

This project differs from other environmental management systems (EMS) projects in that it trialled the use of a self-assessment questionnaire for developing the benchmarks rather than using a risk assessment approach. The

self-assessment questionnaire encompasses both catchment and on-farm targets for environmental performance potentially leading to greater region-wide benefits. The EMS tools and benchmarks have been developed in conjunction with local industry members resulting in greater grower ownership and relevance.

The development of environmental benchmarking is a high priority for

- GVWIDC for implementation across Greater Victoria vineyards;
- Yarra Valley Wine Growers Association.

Community concerns involving social urban/rural fringe issues, application of chemicals, health issues, environmental degradation etc are on the increase. Vignerons are attentive and pro-active to industry issues such as water management, soil degradation, habitat and other environmental damage and chemical application. Environmental benchmarking provides a much needed forum for uniting the community and wine industry in their shared passion of enhancing and protecting our unique and beautiful Yarra Valley environment.

OBJECTIVES

The objectives of the project were to:

- Trial and apply catchment based environmental benchmarks on vineyards in the Yarra Valley region;
- Provide a system of accounting for environmentally sustainable best practice benchmarking that will in turn enable "clean, green" promotional claims to be made with verifiable confidence;
- Encourage vineyards and wineries to develop consistency and compatibility with the existing landscape, Shire values and enhance a positive image to the general public;
- Assist Yarra Valley growers to understand how their business activities may impact on the environment, and to develop practical action plans for implementing best environmental practices on vineyards;
- Provide a template and practical experience in the application of environmental benchmarks that can be promoted for awareness and possible adoption by wine grape growers in other regions through four workshops funded jointly by DPI and GVWGIDC.

METHOD

1. **Project planning workshop of participating YV growers – 16th November, 2003:** This enabled Ms Medhurst to explain to 20 growers the advantages of benchmarking, catchment targets, application of benchmarking tools, project methodology, and to identify and co-opt growers who will trial benchmarking on their vineyards.
2. **On-vineyard implementation of benchmarking tools – by 31st December 2003:** Yarra Valley self-assessment questionnaire was trialled on 18 vineyards in the Yarra Valley. Each grower was given training and data sheets for recording information for their own management decisions, and for assessing results.
3. **Monitoring of trialing vineyards - From 31st December 2003 to 30th June 2004:** DPI maintained regular contact with growers to ensure correct application, and regularly collected and assessed results. Assessment of results during this time took into account growers' activity levels during harvest and vintage.
4. **Workshop review of results – 23rd June 2004:** Following DPI's own overall assessment, a workshop of participating growers was held to review results, determine implications, and encourage wider adoption of the benchmarking tools by other growers.
5. **Regional workshops to publicise template – August/ September 2004:** Funding provided by DPI and GVWGIDC provided for the promotion of the Yarra Valley benchmarking template via workshops and publications of the template to other Greater Victoria regions following the 2004 harvest.
6. **Evaluative report and template and final report to GWRDC - October 2004:** Final report that describes the template developed through this project.

RESULTS

RIRDC and DPI funding had enabled the development of a set of environmental best practices and a self-assessment questionnaire for viticulture in the Yarra Valley. In November 2003, the RITA funded portion of the project commenced with 18 growers signing up to assess their own vineyards against 12 different environmental indicators, including water, chemical and energy use, biodiversity and waste management. During the assessment period, four of these were behind in completing the self-assessment questionnaire, and DPI is following up with these directly to help them although not all have chosen to complete the process. The remaining 14 submitted completed self-assessment questionnaires and their results (with grower identities protected) are summarised in Attachment 1.

Growers participating in the workshop review of the results held on 23 June 2004 were all very enthusiastic as to the value of the trial and the usefulness of the results in assisting them in identifying environmental issues, to better plan for environmental improvements. The documentation was also considered valuable as a means of confirming a vineyards adherence to best environmental practice principles.

Growers at the workshop also strongly supported seeking the support of the Yarra Valley Wine Growers Association to promote the use of environmental benchmarking across all vineyards in the Valley, and seeking shire council support for this.

Four "Introduction to Environmental Management" workshops to raise awareness of the benchmarking process in other Victorian wine growing regions were planned for August and September 2004, with funding provided by GVWGIDC and DPI. Workshop notes outlining the process of adapting and working through a Regional EMS are included in Attachment 2. The first of these was held in the Yarra Valley on 12th August at Swinburne University's Lilydale Campus. The Yarra Valley session included a brief introduction to environmental management systems (EMS), an explanation of how the Yarra Valley Regional EMS (YVEMS) was developed and what is involved in taking part in the YVEMS. Three vineyard managers who were involved in the development and first group of benchmarking also attended the session to give their perspective's and to answer questions. Representatives from six new vineyards attended the workshop and all six have indicated they would like to participate in further benchmarking sessions.

The second workshop was held in Wangaratta on Wednesday 25th August. A similar format was followed to the Yarra Valley workshop but we also included information on the CRCV's VERA tool as an alternate EMS. Most of the six participants at the Wangaratta workshop were representing educational institutions (eg. Goulburn Ovens TAFE, Melbourne University) with links to the viticultural community.

The workshop held at Ararat on the 2nd September (postponed from 26th August) followed the same format as Wangaratta. Four growers and one viticultural consultant attended the workshop with a very positive response to the YVEMS. The group was really keen to go back to their respective grower associations and promote the formation of a regional system. They have decided they will set up a sub-committee at their next committee meeting, and would like to adapt the Yarra Valley's plan to suit their regions (Grampians and Pyrenees). An evaluation of the workshop is attached.

The fourth workshop scheduled for 9th September in Geelong was unfortunately postponed due to low interest. As with all the workshops growers in the area were sent a flyer by email or mail and the local Grapecheque facilitator and grower associations participated in promoting the workshop. These groups suggested to us that environmental management is not a priority for the region at the moment and that we could try to run another session later in the year.

OUTCOME/CONCLUSION

Working through the process of benchmarking, setting goals for improvement and meeting regularly to discuss progress with a group of 14 Yarra Valley growers has seen the project achieve all of its initial aims to:

- Trial and apply catchment based environmental benchmarks on vineyards in the Yarra Valley region;
- Provide a system of accounting for environmentally sustainable best practice benchmarking that will in turn enable "clean, green" promotional claims to be made with verifiable confidence;
- Encourage vineyards and wineries to develop consistency and compatibility with the existing landscape, Shire values and enhance a positive image to the general public;

- Assist Yarra Valley growers to understand how their business activities may impact on the environment, and to develop practical action plans for implementing best environmental practices on vineyards;
- Provide a template and practical experience in the application of environmental benchmarks that can be promoted for awareness and possible adoption by wine grape growers in other regions through four workshops funded jointly by DPI and GVWGIDC.

Yarra Valley wine growers now have a set of tools that enables them to benchmark themselves through time and against the rest of the region. The workshop notes provide a roadmap for other regional groups to set up and implement their own regional EMS.

The enthusiastic support from the Yarra Valley growers resulted in the Grampians and Pyrenees regions deciding to adopt the template for their regions and an additional group of Yarra Valley growers starting the process. Feedback from industry representatives in the two regions that did not decide to adopt the template (King Valley/Wangaratta and Geelong) suggested that an emphasis be placed on the best practice approach of the EMS tools and not the environmental aspects to attract more interest.

Although any environmental, quality or economic benefits are yet to be seen most participants had an increased awareness of environmental issues and the impacts their vineyards were having on the regions natural resources. A number of participants have reported a change in knowledge and attitudes impacting directly on the day to day running of their vineyard.

Through collaboration with Swinburne University the Yarra Valley Regional EMS tools will soon be available on the internet. It is hoped that this will facilitate a greater participation in environmental benchmarking in the viticulture industry through reducing the cost of printing and distributing the tools. However access to the tools is only the first step in implementing an EMS. The need for access to an expert to start the EMS process, coordinate a regional effort and provide ongoing support and motivation is not addressed in the long-term by simply publishing the tools on the internet. While some extension programs, such as DPI's Grapecheque program can help with these gaps they would require additional funding to do so. Similarly most regional wine growers associations would not have suitable resources to carry out this work.

RITA BUDGET RECONCILIATION

Budget	Funding required from GWRDC (From RITA appl)		Anticipated Expenditure
Consultant's fee	$7,000		$9,000
Travel & personal expenses	$1,000		$1,000
workshop mat'ls venue hire, catering	$2,000		$500
Consumables, paper, printing, etc	$2,500		$3,500
Speakers for workshops	$1,500		0
Project administration	$1,000		$1,000
Grower management & participation			
Total	$15,000		$15,000
Add 10 % GST	$1,500		$1,500
		Total anticipated expenditure	$16,500
Total funds requested from GWRDC	$16,500		
		Estimated to be remitted to GWRDC	0

Attachment 1

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14
WHOLE FARM PLAN (WFP)														
WFP in place for the future management of natural resources (eg. land, waterways, vegetation, soils) on your property.	C	B	B	C	C	NA	B	E	A	C	B	C	B	C
Level of implementation of the WFP	D	D	A	C	C	A	B	E	A	D	C	C	C	E
MONITORING OF CHANGES TO IMPLEMENTING WFP														
Collection of data relating to farm productivity and/ or problems.	D	C	A	A	C	NA	C	C	A	C	C	NA	C	C
PARTICPATION & INVOLVEMENT IN COMMUNITY ACTION LEARNING PROGRAMS														
Landcare and/or other group discussion programs.	C	C	D	A	A	E	A	E	C	C	E/D	C	A	E
WETLAND RESTORATION														
Wetland restoration/ development/ protection.	NA	NA	NA	B	NA	NA	NA	NA	A	NA	NA	NA	NA	E
ESTABLISHMENT														
Planning Controls	NA	C	NA	A	NA	A	B	A	A	NA	A	C	A	A
Water	A	C	NA	A	A	A	A	A	NA	A	A	A	A	NA
Vineyard materials	E	E	NA	A	A	A	C	A	NA	E	A	A	A	NA
Young Vines	B	A	NA	A	A	NA	A	A	NA	B	E	A	A	NA
MAPPING														
Vineyard mapping	E	C	E	A	B	NA	C	C	A	C	C/A	C	C	B
NUTRIENT MONITORING														

Monitoring vine nutritional status	B	B	B	D	B	B	B	C	A	C	A	E	C	A
Monitoring soil nutrient levels.	C	B	C	B	A	A	B	A	A	C	A	E	C	A
Evaluation of vine nutritional requirements	C	A	A	B	A	A	A	A	A	A	C	NA	C	A
FERTILISER MANAGEMENT														
Timing of fertiliser inputs	A	A	A	B	A	A	A	C	A	D	A	NA	A	A
Fertiliser rates	B	A	A	C	A	A	A	A	A	E	A	NA/E	C	A
Fertiliser selection	C	C	A	C	C	C	C	A	A	C	A/C	NA/E	C	A
Application methods	A	C	E	A	C	E	C	C	A	C	C	NA	B	B
SITE PROPERTIES														
Knowledge of water availability and current and predicted future requirements.	C	C	B	A	B	A	A	A	A	C	C	A	A	A
Soil Surveys	D	E	E	C	A	NA	C	C	A	E	E	NA/E	A	C
Knowledge of current on farm water quality and frequency of water testing.	E	D	E	D	C	E	E	D	A	E	C	E	C	E
Choosing soil moisture monitoring sites	D	C	A	E	A	A	B	A	A	E	A	A	B	A
IRRIGATION SYSTEM														
Irrigation System Development	A	E	C	B	A	A	C	C	A	A	E/A	NA	C	B
Irrigation Scheduling	C	C	C	C	A	A	A	B	A	C	A	NA	B	A
Water volume	B	A	A	B	A	A	B	E	A	A	A	NA	A	A
Pumps	E	A	A	A	A	A	E	A	A	A	A/C	NA	A	A
System maintenance	C	E	A	B	C	A	C	D	A	A	D	NA	C	A
FLOOD RISK (only answered if in flood prone area)														
Understanding of flood risk and flood management system in place.	E	NA	NA	NA	NA	C	NA	NA	A	E	NA	NA	NA	NA
EROSION CONTROL														
Erosion risk and control	C	C	NA	A	C	NA	A	C	NA	D	C	C	B	B
RECORD KEEPING														
Performance measurement	E	B	B	B	B	A	E	E	A	E	A	B	B	C
MONITORING PROGRAM														
Staff training	A	C	A	A	C	C	C	C	A	A	A	A	B	C

Who monitors?	A	C	A	A	A	NA	A	C	C	A	A	A	A	A
Monitoring Vine Development	E	A	E	A	B	A	B	C	A	E	A	C	C	B
Monitoring strategy	B	C	A	A	C	A	A	C	A	C	C	C	A	A
Thresholds set for main pests and diseases	C	C	C	A	B	C	A	C	A	C	C	C	C	C
MANAGEMENT STRATEGIES														
Prevention strategies for pest and disease introduced.	A	C	C	A	B	A	B	C	A	C	C	C	A	C
Protection of beneficials.	C	C	A	A	D	A	A	C	A	C	C	A	A	B
Pest strategies.	A	A	A	A	B	A	A	B	A	A	A	C	A	B
RECORDS														
Monitoring records	E	C	C	A	A	C	A	D	A	E	A	A	A	A
Using your recorded pest and disease information.	E	C	B	A	C	C	B	D	A	D	D	C	B	D
Storing your pest and disease information.	E	A	A	A	B	A	B	C	C	D	C	C	A	B
Pest and disease controls recorded.	E	A	A	A	A	C	C	B	A	C	C/A	C	A	B
THE NEED FOR CHEMICAL USE														
Consideration of other methods before using chemicals	A	C	A	B	C	C	A	C	A	A	A/B	C	A	C
TRAINING & KNOWLEDGE														
Attendance at an accredited Farm Chemical Users Course.	A	B	B	B	A	A	A	D	A	A	A	B	A	A
Knowledge of current legislation.	A	C	A	A	D	A	C	C	A	A	C	C	A	A
Compliance with chemical legislation.	A	A	NA	A	C	C	A	C	A	C	A	A	A	A
STORAGE														
Grouping of chemicals in storage.	C	C	E	A	C	C	A	E	A	C	B	C	A	A
Age of chemicals stored on farm.	C	C	C	A	A	A	C	C	A	E	C	E	A	B
Storage Facility.	E	C	E	A	C	A	A	C	A	A	A	E	A	B
EQUIPMENT														
Calibration.	A	C	C	A	A	A	C	C	A	A	B	C	C	B
Maintenance of equipment used for chemical application.	A	A	A	A	A	A	A	A	A	A	A	C	A	A

Appropriate equipment used for spray application.	A	A	A	A	A	A	A	B	A	A	A	A	A	A
CHEMICAL USE														
Cleaning of equipment and chemical containers after use.	A	A	A	A	C	C	B	C	A	D	A	C	A	A
Emergency plan for management of chemicals on farm.	D	E	E	C	C	A	C	C	A	A	D/E	D	C	D
DISPOSAL														
Disposal of unusable leftover product.	A	E	NA	A	B	A	C	A	A	A	C	A	A	A
Disposal of prohibited use chemicals.	A	E	NA	NA	B	A	A	C	A	A	NA	A	A	NA
Disposal of empty chemical containers.	A	B	A	A	B	C	A	B	A	C	C	A	A	A
RECORDS														
Record of chemicals stored and used on farm.	C	C	B	A	C	C	B	B	A	C	A	C	A	A
VINEYARD FLOOR MANAGEMENT STRATEGY														
Vineyard floor management strategies.	C	D	B	B	C	C	A	C	A	C	C	C	B	C
Soil condition is measured and monitored.	C	B	D	B	A	C	C	B	B	C	B	E	B	B
Organic content of soil is monitored and measured.	C	C	A	C	B	C	C	C	C	C	E	C	B	A
Soil erosion managed.	B	A	A	A	B	E	C	A	A	C	A	B	A	A
SOIL MANAGEMENT														
A strategy for improving/ preventing soil structure problems is implemented.	C	A	A	A	C	C	A	E	A	C	B	A	C	A
WEED MANAGEMENT														
Weeds are prevented from entering or spreading through the vineyard.	A	C	A	A	C	A	A	C	A	E	C	C	C	B
Inter-row swards are managed in an integrated way.	A	B	B	A	C	E	C	D	A	D	A	A	A	B
Herbicide use to control weeds.	D	C	A	A	C	A	A	A	A	E	C	C	B	D
Weed control by mulching.	C	E	E	NA	E	E	C	E	A	E	E	C	E	E

COVER CROPS														
An inter-row cover crop management plan is implemented.	E	B	A	A	D	NA	C	E	A	A	E	A	C	E
HARVEST OPERATIONS - MACHINERY														
Knowledge of harvest operations issues originating from machinery on property.	NA	A	NA	A	C	A	E	NA	NA	C	C	NA	NA	A
NOICE CONTROL														
Strategies for noise control during harvesting.	NA	C	NA	B	C	C	B	NA	NA	C	E	NA	NA	A
Noise generated from bin handling is controlled.	NA	E	NA	A	C	C	C	A	NA	C	E	NA	NA	A
Harvesting activity is communicated to neighbours.	NA	C	NA	A	D	E	E	NA		E	C/E	NA	NA	NA
MACHINERY WASH DOWN														
Location of wash-down area.	NA	C	NA	C	D	C	C	E	A	C	C/E	NA	D	B
WASTE MANAGEMENT PLAN														
Knowledge of waste management issues, legislation guidelines and wastes generated on property.	C	C	NA	B	C	C	C	E	C	E	C	C	B	C
Planning for purchasing materials / items follows environmental best practice.	C	C	A	A	C	A	B	NA	C	E	C	C	C	C
Knowledge of environmental impacts from disposal of property wastes.	C	C	A	C	B	A	C	E	C	E	C	C	B	C
MANAGEMENT OF CONSUMABLE WASTE														
Management of vine guards.	NA	A	NA	NA	NA	NA	A	NA	A	C	A/E	A	NA	B
Management of agricultural chemicals.	C	C	A	A	C	A	C	C	A	D	E	E	C	D
Storage of agricultural chemical containers (new or used).	C	A	B	A	C	A	A	E	A	A	A	D	A	C
Handling of unwanted chemicals in containers.	A	C	C	A	C	A	C	B	A	A	C	C	B	B

Handling of excess chemical in spray tanks.	A	B	E	A	A	A	C	B	A	C	E	C	B	B
Management of fertiliser packaging.	C	C	A	B	A	C	A	B	A	A	C	C	C	A
Management of sump and other engine oil.	A	C	C	B	B	A	A	A	C	C	NA	C	A	NA
Management of waste water.	C	C	C	B	B	A	C	C	C	A	E	NA	B	C
Handling of vegetative waste.	A	A	A	A	A	E	A	A	A	A	A	A	E	C
MANAGEMENT OF CAPITAL WASTE														
Handling of treated timber posts.	A	C	NA	A	C	E	C	E	C	C	C/D	C	D	C
Handling of used other waste materials.	A	A	C	A	C	A	B	C	A	E	C	C	B	C
VINEYARD EQUIPMENT SELECTION														
Selection and purchase of vineyard machinery matches site requirements.	A	A	A	A	A	E	A	A	A	E	A	C	A	A
EFFICIENT VINEYARD MACHINERY OPERATIONS														
Greenhouse gas emissions are monitored and controlled.	D	C	C	B	C	A	C	D	A	E	D	D	C	B
SOIL COMPACTION (SEE ALSO SECTION 6: VINEYARD FLOOR MANAGEMENT)														
Prevention of soil compaction is planned and implemented.	C	A	E	B	C	A	B	D	A	C	C	A	B	A
NOISE CONTROL (SEE ALSO SECTION 7: HARVESTING)														
Noise generated in the vineyard is monitored and controlled.	A	C	NA	A	C	A	B	A	A	C	C	C	A	B
BIOSECURITY PLANNING														
Biosecurity plan is developed for the property.	C	C	E	C	C	A	C	C	A	C	C	C	B	C
Detection and response to outbreaks.	C	E	C	E	C	E	C	D	A	C	E	C	B	D
Risk assessment														
Risk assessment of potential contaminant sources.	C	C	E	C	C	A	B	B	A	C	C	C	A	E
Control of movement														

Movement of people, machinery and organic material.	A	E	NA	C	C	A	B	C	A	D	A	A	A	C
Import of materials	A	E	NA	A	D	A	C	B	A	A	A	A	A	NA
FROST RISK MONITORING														
Frost risk assessed for site and temperature monitoring system installed.	B	A	A	A	B	E	B	A	NA	B	A	A	B	A
FROST MANAGEMENT														
Site established and managed to reduce frost risk	C	A	A	A	C	A	A	B	A	C	B	A	A	B
Strategies developed for managing frost events.	C	E	A	E	C	B	C	B	NA	E	B	NA/E	B	C
Frost management strategy communicated to neighbours.	C	E	A	NA	E	E	E	C	NA	E	E	NA	NA	D
BIODIVERSITY MANAGEMENT STRATEGY														
Knowledge of legislation affecting biodiversity in Yarra Valley	C	C	C	A	E	C	B	E	C	E	C	C	B	C
Protection of remnant vegetation and habitat on farm.	E	D	E	E	E	NA	C	D	E	E	A	E	E	E
Biodiversity assessments are carried out.	E	E	D	D	D	E	B	E	D	E	E	E	D	D
Biodiversity action plan in place.	E	E	E	A	D	E	C	E	C	E	E	C	A	E
THREATENING PROCESSES														
Identification of threatening processes.	E	E	B	B	C	A	B	C	C	E	B	E	A	E
NATIVE & INDIGENOUS VEGETATION														
Percentage of farm covered by native or indigenous vegetation (remnant & revegetated).	D	D	A	C	D	B	C	D	D	E	D	E	C	C
Management/ fencing of native vegetation.	E	A	A	A	E	D	B	E		E	E	NA	A	C
REVEGETATION														
Revegetation planning.	E	A	NA	A	D	C	A	C	C	E	B	E	B	B

Percentage of native revegetation planting's which reflect the indigenous vegetation of the area.	E	A	NA	A	E	C	B	D	NA	D	A	E	B	A

Attachment 2

IDC Greater Victoria Wine Grapes

Victoria The Place To Be

YARRA VALLEY WINE GROWERS ASSOCIATION Inc Reg No A0019575S

Environmental Management

What is it?

What is involved?

How to do it!

An introductory workshop

Ararat, 2nd September 2004



Introduction

Agricultural production (including horticulture) involves the use of natural resources and therefore has varying degrees of positive and negative impacts on the environment.

The Australian viticultural industry is a key player in local, national and global markets and must be able to demonstrate work practices that are ecologically, culturally and socially sustainable.

Environmental factors, together with other industry and management factors, will contribute to the economic sustainability of your business.

If the interaction of your business or workplace with the surrounding environment is detrimental to the environment, then your workplace may be operating in a manner that is ecologically, economically, culturally or socially unsustainable.

Your environment includes the following elements:

- air
- water
- land
- natural resources
- flora
- fauna
- people

Any or all of these factors will interrelate with your business or workplace and the interaction may be beneficial or detrimental to the surrounding environment.

What is Environmental Best Practice?

Environmental best practice for viticulture (in the Yarra Valley region) is:

- using current scientific knowledge and experience of growing grapes (in the Yarra Valley Region) to achieve stated goals of grape production (tonnage and quality);
- while minimizing the impact of these activities on the environment in accordance with acknowledged best practice and legislative requirements;
- to maintain economic viability and social sustainability.

<u>Notes</u>

Best practice will differ from area to area, region to region, industry to industry, etc. Even within the viticulture industry, best practice will vary depending on whether you grow grapes in the warm, irrigated Sunraysia region or the cooler, moister Yarra Valley region.

Acknowledged or documented best practices change over time as we come to know more about our environment and all the factors that can affect it positively and negatively. For example, certain pesticide sprays have been regarded as acceptable until we have learnt of their negative effects on non-target organisms

Why adopt Environmental Best Practice?

The major reasons why grape growers adopt environmental best practice are:

- To improve the sustainability of the vineyard and the viticultural industry by maintaining or enhancing the quality of the environment and natural resources necessary for the production of grapes.
- To improve the long-term economical sustainability of the vineyard by reducing the inputs (eg fertilisers, chemicals, fuel) required to produce grapes.
- To protect the environment and natural resources.
- To ensure access to desirable markets, in particular those markets with high environmental standards.
- To meet industry, community and government environmental expectations.

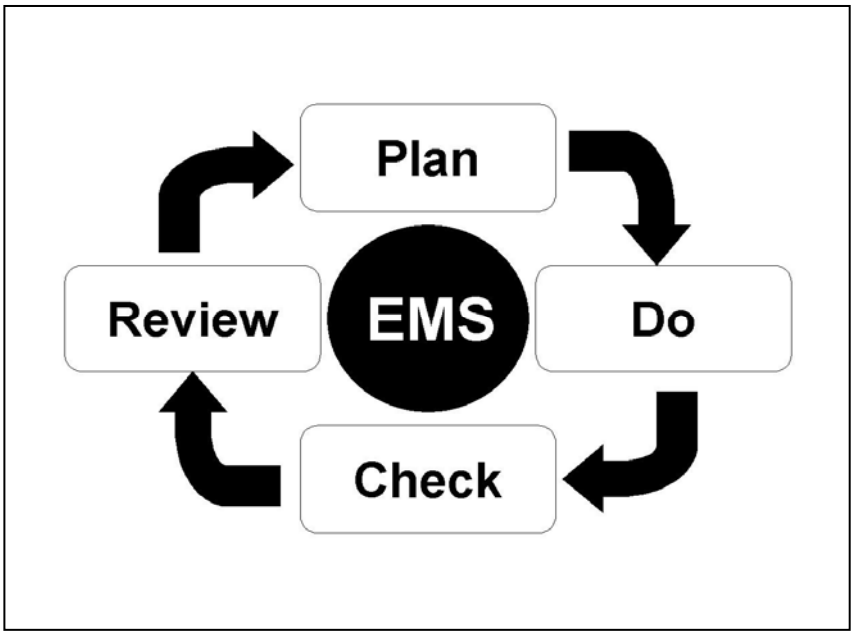
What is an Environmental Management System (EMS)?

EMS is a systematic approach to help farmers assess and improve their environmental performance on their own farms. Based on a “Plan, Do, Check, Review” cycle, it aims to achieve continual improvement in environmental, business and marketing performance.

The business (farm) identifies environmental impacts and legal responsibilities, then implements and reviews changes and improvements in a structured way.

Documentation, record keeping and assessment are crucial components of an EMS so the business can prove it does what it says it does and better manage itself.

A regular process of self-assessment is a key part of EMS implementation, to determine progress toward environmental objectives and targets.

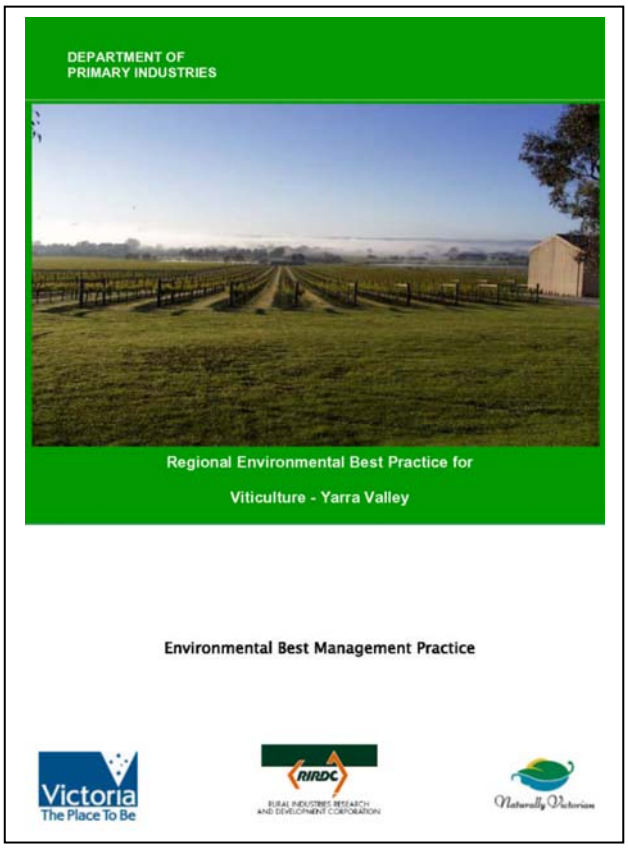


The Yarra Valley Regional EMS

The Yarra Valley Regional EMS is divided up into 3 sections:

1. The Regional Environmental Best Practices for Viticulture;
2. The Regional Environmental Legal Obligations; and
3. The Self-Assessment Questionnaire.

The Regional Environmental Best Practices for Viticulture



The regional environmental best practices for viticulture (or BMP's) were developed to provide an information source to cover all environmental issues. They are a collation of all the currently available environmental best practices for viticulture in the Yarra Valley region.

The BMP's are voluntary codes developed to assist you with the implementation of best environmental practices. The BMP's aim to target regional environmental objectives and to assist you in complying with market requirements.

Negative impacts on the environment can be avoided or reduced by adopting environmental best practices when managing your vineyard. These environmental best practices are achievable and economically viable.

BMP's have been developed for the following vineyard management practices:

1. Whole Vineyard Planning
2. Nutrient Management
3. Water Management
4. Pest and Disease Management
5. Chemical Management
6. Vineyard Floor Management
7. Harvesting
8. Waste management
9. Energy Use
10. Biosecurity
11. Frost
12. Biodiversity

Format for environmental best practices

Each of the environmental best practices is broken up into the following components:

- Environmental objectives
- Environmental impacts
- Performance indicators
- Best practice information
- References

Environmental objectives

A summary of the current environmental best practice for the vineyard management practice is provided. This provides some general environmental objectives for growers to aim towards.

Environmental impacts

The environmental impacts related directly to the vineyard management practices are listed. This section is intended to highlight what the potential environmental impacts are so that you can take action to avoid or minimise them.

Performance indicators

Environmental performance indicators related to the vineyard management practice are listed. The performance indicators are intended to be easily measured on farm and to be used to quantify and track the environmental performance of the vineyard.

Best Practice information

This section is the information explaining how to achieve the environmental objectives identified. The information included is a summary of currently accepted and documented best environment practice related to the vineyard management practice. The information includes references to other publications, which provide further technical detail to assist you with implementation.

References

Details of publications referred to in the Best Practice information are listed.

Review of legal obligations

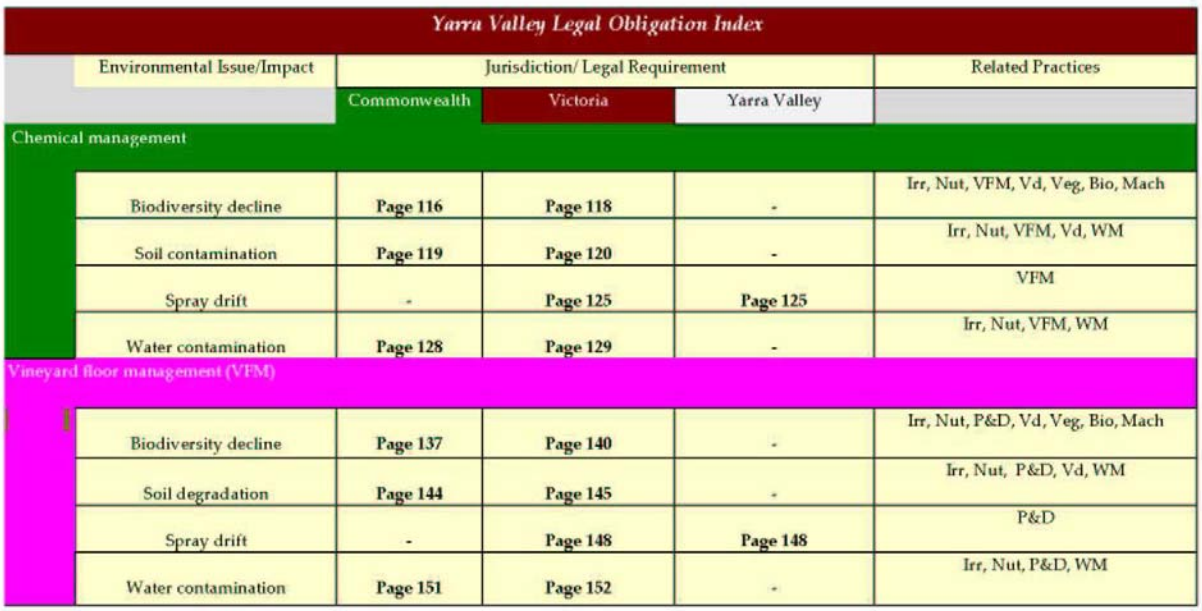
The Regional Environmental Best Practices often extend beyond the basic legal obligations, so identifying and being aware of your legal obligations are an important starting point in your pursuit of improved vineyard environmental performance. This section will help you to identify and increase your awareness of legal obligations relating to the environmental impacts of your vineyard practices.

Legislation helps to minimise environmental degradation from activities both on site where activities are conducted and off-site, where the impacts from activities may not be obvious, but may have an impact further down the catchment or in the future. The legal obligations are most often in the form of licensing, certification, prohibited activities, or compulsory activities.

Identifying and increasing your awareness of legal obligations related to environmental impacts can be most easily achieved by:

- Choosing a vineyard practice
- Noting the environmental impacts related to the practice
- Use the legal obligation index which summarises legal obligations according to:
  - Vineyard Practice;
  - Environmental Impact; and
  - Jurisdiction (location)
  - Read the detailed legal obligations referred to in the index

Relevant legal information is contained in the accompanying document, including Commonwealth, State and Regional environmental requirements.



Yarra Valley Legal Obligation Index

Environmental Issue/Impact	Jurisdiction/ Legal Requirement			Related Practices
	Commonwealth	Victoria	Yarra Valley	
Chemical management				
Biodiversity decline	Page 116	Page 118	-	Irr, Nut, VFM, Vd, Veg, Bio, Mach
Soil contamination	Page 119	Page 120	-	Irr, Nut, VFM, Vd, WM
Spray drift	-	Page 125	Page 125	VFM
Water contamination	Page 128	Page 129	-	Irr, Nut, VFM, WM
Vineyard floor management (VFM)				
Biodiversity decline	Page 137	Page 140	-	Irr, Nut, P&D, Vd, Veg, Bio, Mach
Soil degradation	Page 144	Page 145	-	Irr, Nut, P&D, Vd, WM
Spray drift	-	Page 148	Page 148	P&D
Water contamination	Page 151	Page 152	-	Irr, Nut, P&D, WM

Example of Legal Obligation Index for the Yarra Valley

Self Assessment Questionnaire

Before actions are taken to improve environmental performance it is first necessary to gain a 'snapshot' or 'benchmark' of current performance against the regionally accepted environmental best practices.

To assist you to determine your current level of environmental performance, self-assessment questionnaires for each of the vineyard management practices included in the regional code have been developed.

Section 3: Water Management		A	B	C	D	E	Your Rating or N/A	Priority on your farm
Site properties								
1	**Knowledge of water availability and current and predicted future requirements**	Water requirements and availability known for property.		Either water requirements OR availability known for property.		Water requirements and availability not known.		
2	**Soil Surveys**	Soil type and variability is known, mapped and used to decide irrigation layout.		Initial irrigation layout not designed on soil surveys. Layout retro-fitted to take soil survey into account.		No soil survey.		
3	**Knowledge of current on farm water quality and frequency of water testing**	Quality of all water sources measured and recorded every second year in summer & winter or more frequently.	Quality of all water sources measured and recorded every second year or more frequently.	Water quality measured every 2-5 years and recorded.	Water quality measured less frequently than every 5 years and recorded.	No measurements taken of water quality. OR No records kept for water quality test results.		
4	**Choosing soil moisture monitoring sites**	Monitoring sites accurately represent soil type and variation over the whole vineyard.		Monitoring sites are not representative of the vineyard.		Soil moisture not monitored.		

Example page from the Self-Assessment Questionnaire

The self-assessment questionnaire has four functions as follows:

- To encourage you to consider your environmental performance when making decisions about your vineyard management
- To provide a rating system so you can evaluate your current environmental performance
- To enable you to identify areas for environmental improvement related to each of your vineyard management practices
- To enable an overview or picture of environmental management in viticulture to be developed for your region or catchment.

Develop an Action plan including setting goals and targets

Short-term targets and longer-term goals are developed and set down in writing so you can later assess how you are progressing.

An action plan is developed, with clearly specified tasks set out with time frames and responsibilities to meet objectives and targets.

The action plan needs to clearly state:

- the action to be taken and a deadline,
- the name of the person responsible for the action,
- a list of the material needed and organisation needed,
- an estimate of the cost; and
- a record of whether the action has been achieved.

Example, a *longer-term goal for one vineyard manager might be*

'To reduce the amount of water used for irrigation by 20%'

with a short term target 'to install tensiometers in every block by September 2002 and to have staff trained to monitor and record and irrigate in response to agreed limits by December 2002'

Person responsible is Vineyard Manager

Cost estimate =$5,000

Where to from here?

For more information on the Yarra Valley Regional EMS or to discuss how your vineyard could use an EMS please contact:

Alison Medhurst

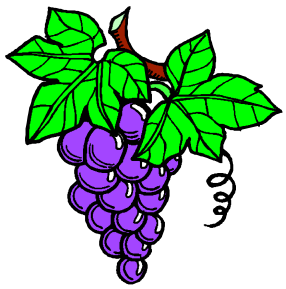
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Roadmap to Developing a Regional EMS



1. **Form a group** of interested vineyards.

2. **Decide how you want to use your EMS**. Do you want to use your participation in marketing your wine? Are you required to have an EMS by a winery? This will help you decide what level of EMS (on the 7-step framework) you will need.

3. **Collect currently available materials**. You can compare these to see which ones will work best for your group and it can also cut down the amount of work you need to do by seeing how much applies to your region.

4. You may find it helpful to **work with an independent person** (a non-grower) who understands environmental impacts or legislation.

5. **Develop a list of environmental issues or impacts** you want to focus on in your region.

6. **Collect information** about what is current environmental best practice in these issues.

7. **Develop an appropriate assessment tool**. This could be using a self-assessment questionnaire approach or adapting the VERA tool for regional use.

8. **Assess or benchmark participating vineyards** and decide on areas for action. Some growers find it easier to work with other growers when doing the benchmarking. Often a solution to a problem can be provided by a neighbour who has already tried it out on their vineyard!

9. Follow the continuous improvement cycle of "**Plan, Do, Check, Review**".

