

Winery Wastewater Management & Recycling

Key principles for wineries



Australian Government

Grape and Wine Research and
Development Corporation



Introduction

The management of winery wastewater is important to the business and environmental performance of a winery, and it can have ramifications for vineyards and grape production. A sound approach to wastewater management will involve:

- ▲ cleaner production, less waste and more profit within the winery
- ▲ easier and cheaper 'fit for purpose' treatment of winery wastewaters
- ▲ more options for secure water supplies to the vineyard
- ▲ more options to reduce any environmental risks from wastewater discharges.

Improved wastewater management does not have to cost a lot. It may be as simple as beginning with better operations to reduce the wastage of grapes, juice and wine within the winery.

The Winery Wastewater Management and Recycling (Communications) project of the Grape and Wine Research and Development Corporation (GWRDC) has drawn together the results of several years of research and industry knowledge so practitioners may have easy access to the latest information on this important topic.

Key points

There will be ongoing management problems if the issues of source, treatment and discharge or recycling of winery wastewaters are not integrated. Holistic management is essential.

Adopting an integrated approach to winery wastewater management will generate solutions that encompass:

- ▲ Winery operations: 'cleaner production' in the winery – reducing the volume and enhancing the quality of winery effluent or wastewater streams, and lowering treatment costs.
- ▲ Wastewater treatment: 'fit for purpose' wastewater treatment – treating winery wastewater to the standard required for planned discharge or recycling.
- ▲ Water recycling or discharge: recycling reclaimed water for productive irrigation (or other uses) will improve water use efficiency and reduce the risk of environmental impact.



Key messages

Efficient wastewater management involves sound planning and good operating procedures.

Planning and evaluation

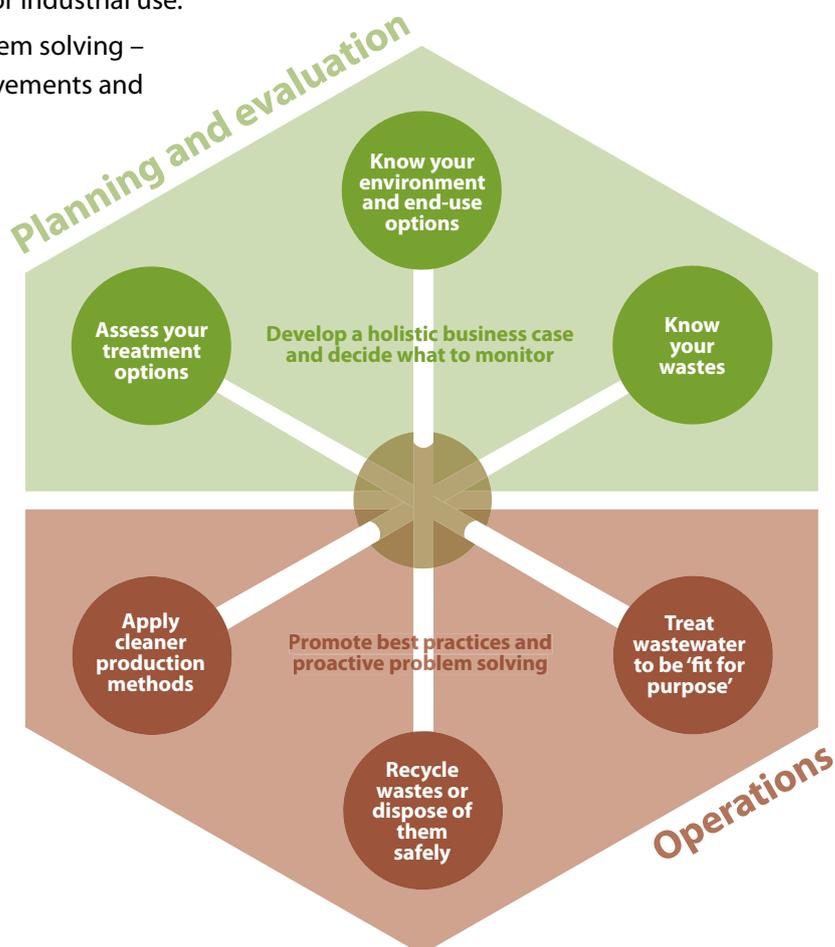
- Know your wastes – where they come from and how variable they are.
- Know your environment and end-use options - fit in with your environment.
- Assess your treatment options – choose a system that matches your wastes and their end-use.
- Develop a holistic business case and decide what to monitor – in the winery, treatment plant and vineyard.

Operations

- Apply cleaner production methods – reduce, recycle and segregate wastewater at its source for easier treatment, more efficient wine making and greater profit.
- Treat wastewater to be 'fit for purpose' – get it to the standard required for its next-use.
- Recycle wastes or dispose of them safely – get value from wastes and reduce the risk of environmental harm by recycling, e.g. recycled water can be a valuable asset for irrigation or industrial use.
- Promote best practices and proactive problem solving – train and empower staff for low-cost improvements and solve problems early. Diagnose the specific causes of individual problems but seek integrated solutions. If in doubt, consult an expert.



These key messages and supporting questions are explained in the Winery Wastewater Management and Recycling Operational Guidelines, which is available with other communication products from www.gwrdc.com.au/www



Key principles for wineries

Key principles for planning the management of winery wastewater:

- There are three parts to the equation – production, treatment and recycling or disposal. Balance them to suit your business.
- Know your wastewater's characteristics, where it comes from in different seasons, what it could be used for following treatment and how it could be improved.
- Consider regional features, such as the availability of land and water, any environmental risks or concerns with discharge options.
- Understand the local environmental regulations and standards applicable to your situation.
- Monitor critical aspects of production, treatment and re-cycled use regularly, evaluate trends and issues and consider options for response.
- Develop a business case that considers cash and non-cash costs and benefits in the winery, treatment plant and vineyard.

Key principles for managing the generation of winery wastewater:

- Tackle the source, not the symptom. Stop solids and other contaminants getting into the system, reduce water use and consider segregating wastes (especially strong wastes) for easier and cheaper treatment.
- Assess 'cleaner production' options. Reducing waste and increasing conversion efficiencies can be a low-cost way to solving wastewater treatment problems – and may improve operating profits.
- Focus on training and workplace practices, at all levels, as a cheap option to reduce wastes and improve efficiency. Encourage all employees to 'own' the issue and contribute to its remedy. Weave waste minimisation into corporate culture.

- Keep domestic sewage out of winery wastewater streams – it introduces a range of treatment issues and health regulations that can otherwise be avoided.
- Isolate stormwater as much as possible. It can be used in the winery and vineyard and to lower the concentration of wastes from the treatment plant.
- Try to minimise 'spikes' in effluent quality – or at least give people warning they are coming. A spike in abnormal wastes from the winery may cause problems in the treatment plant and flow through to become a problem in the vineyard.

Key principles for winery wastewater treatment:

- Know your wastes. You can't design or manage a suitable system without understanding the wastes being treated. Understand their source, volume and quality – and how that varies during vintage and non-vintage.
- Have adequate storage and treatment capacity for emergency situations. Design for peak flows and loads, to avoid overloading during vintage when problems are least wanted.
- Treat wastewater to the standard needed for the use or disposal method you have in mind. 'Fit for purpose' treatment tailors treatment to the end-use. There is no point in achieving high standards of treated effluent if it is to be discharged to a sewer.
- Ensure odour is effectively managed. It can lead to complaints from neighbours as well as creating an unpleasant work environment.
- Make the selection and design of a treatment system an iterative process. Choose an option that fits your re-use plans, once you have considered ways to reduce the volume, and improve the quality of waste coming from the winery.

More information

For hard copies of any of the communications products or any queries about related seminars and training workshops, contact GWRDC (gwrdc@gwrdc.com.au).

The Australian Wine Research Institute (AWRI) has developed a training package based on the Operational Guidelines. For more detail and information about training options, contact AWRI (rtp@awri.com.au).

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