



## PILLARS OF SUSTAINABILITY



NEW ZEALAND WINE  
PURE DISCOVERY



### BYPRODUCTS

Reducing the impact that vineyards have on the environment is a key focus for Sustainable Winegrowing New Zealand (NZ). Wine production, like all farm production, generates waste. But many waste products from vineyard operations can be diverted from the waste stream for beneficial use, with significant environmental and economic benefits.

Organic vineyard and winery waste can be composted and applied back onto the vineyard as mulch to improve the soil and keep weeds down. Grape seed extracts are also used in the health and cosmetics industries.

Packaging materials can also be recovered, reused or recycled through various government, council and industry run programmes, including agrichemical containers, cardboard, plastic wrap, glass, batteries, solvents and waste oils.

Management of wastewater is also an important issue. New Zealand wineries must manage their wastewater to ensure they don't cause nutrient enrichment or salination of downstream water sources, degrade soil structure, contaminate soils or emit odours during treatment.

To ensure cleaner production and environmental best practice, New Zealand Winegrowers developed a Code of Practice, which outlines strategies to manage both solid and liquid waste from wineries.

The Sustainable Winegrowing New Zealand programme focuses on initiatives that

promote the minimisation, reuse and recycling of waste wherever possible, in addition to the responsible disposal of it.

#### NOTE:

- 'Marc' refers to the refuse of grapes that has been pressed for winemaking.
- 'Lees' is the thick sediment that settles on the bottom during the wine fermentation process.
- 'Sludge' is the thick soft, wet, viscous mixture of liquid and solid components, a product of the refining process.

### SUSTAINABLE WINEGROWING NEW ZEALAND COMPLIANCE AND CONTROL

- Members must comply with the New Zealand Winegrowers Management of Winery Waste Code of Practice (CoP).
- Sustainable Winegrowing New Zealand annual audits check:
  - Records of spillage and management protocols.
  - Storage of products prior to reuse, recycling or collection.
  - Staff training records are properly maintained.
- Members must demonstrate that they use appropriate methods to dispose of marc, lees and sludge, and if contractors are used they must also comply.
- Staff training records are checked to prove that participants know how to manage by-products and waste.

### INITIATIVES ON WASTE MANAGEMENT

There are various government, regional and industry initiatives to assist wine businesses

with responsible waste management practices in New Zealand.

#### GOVERNMENT

The New Zealand Government Waste Minimisation Act 2008 provides a legislative framework for waste management in New Zealand. All parties (producers, owners and consumers) are required to take responsibility for the environmental effects of their products.

The New Zealand Winegrowers Code of Practice (CoP) for Winery Waste Management provides guidance for winemakers on cleaner production and sound environmental practices, including waste management and disposal.

It supplies strategies to manage solid and liquid waste from wineries. It discourages the disposal of grape marc to landfills (given the range of other beneficial uses) and recommends disposal of sludge and solids to landfills because of high nutrient loading of these by-products.

The CoP recommends pre-treatment of wastewater, and outlines issues to be considered when establishing land-based disposal and treatment systems.



## REGIONAL

Sustainable Winegrowing NZ is working with District and Regional Councils to identify recycling options for vineyards and wineries. In Marlborough the District Council has provided information on potential recycling options to reduce landfill, and Sustainable Winegrowing New Zealand has passed this on to members across New Zealand to encourage members to search for similar solutions, and implement them.

## INDUSTRY

Sustainable Winegrowing New Zealand provides members with a checklist so they can record and measure recycled material and waste.

The New Zealand Winegrowers Code of Practice for Management of Winery Waste provides guidance on practical solutions for waste management, and aims to develop long-term practices to minimise waste and increase reuse and recycling where possible.

## SUSTAINABLE WINEGROWING NEW ZEALAND—STANDARDS FOR VINEYARDS AND WINERIES

The Sustainable Winegrowing New Zealand programme has standards for organic and non-organic waste management:

- In-house waste and by-products should be reduced, reused and recycled wherever possible.
- The collection and disposal of by-products should not impact the receiving environment.
- Storage of products prior to recycle or reuse must not impact on the environment. For example, chemical containers must be triple-rinsed, nets must be bundled and bailed.
- Records of recycling, reuse, and waste may be kept.
- Staff are trained in all aspects of handling by-products and waste.

## RECYCLE AND REUSE OPTIONS

AgRecovery offers a nationwide rural recycling programme to all wineries and vineyards, collecting and disposing of unwanted chemicals, plastic containers, nets and plastic wrap. They also provide general information and reports on recycling for all land-based activities (horticulture, viticulture and farming).

Nets, irrigation pipe and posts are all large and expensive items to take to landfill, and

AgRecovery (and other businesses) are investigating alternative initiatives. Members are encouraged to reuse where possible, and investigate alternative methods of disposal.

### EXAMPLES OF REUSING AND RECYCLING:

- Glass is mainly used by wineries (as opposed to vineyards) and is recycled as glass bottles by OI Glass in Auckland. OI Glass bottles have a 65% recycled component. Other ways to recycle glass include local initiatives such as aggregate for road building (Marlborough), or undervine mulch (Canterbury). Waste glass can be taken to transfer stations, or collections can be arranged.
- Paper and cardboard is reused, and collected for recycling. Most regions have recycling options for paper products.
- Plastics may be recycled as the amounts from vineyards and wineries tend to be small. They can be recycled through transfer stations, and plastic plant guards and irrigation piping can be reused. Packaging wrap and other plastic items can be stockpiled then sent to transfer stations for recycling.
- Timber should be reused where possible. Timber can often be recycled for landscaping and fencing, if not treated it can be used for firewood. Treated timber should not be burned because of the harmful emissions it gives off.
- Vehicle waste, such as old tyres, oil, and parts, should be taken to transfer stations or collection points if possible. These items should not be buried or burned

## WASTE MANAGEMENT OPTIONS

Vineyard waste includes primarily pruning materials and marc. Winery waste includes marc, lees, winery sludge and processing aids.

- Pruning material is generally mulched within the vineyard or composted. There are initiatives such as burning prunings under controlled conditions for fuel/heat in wineries.
- Marc can be applied directly to the vineyard, or composted, and must meet allowable Nitrogen limits in compliance with regional council and Sustainable Winegrowing New Zealand standards. (See Soil section).
- Sludge is either composted or sent to landfill.
- Lees can be used for compost.

## MONITORING

Sustainable Winegrowing New Zealand requires that winery waste must not impact the environment. For example if incorrectly stockpiled or applied to land it can impact soil or water quality and impede wastewater management. Staff training is undertaken and records are kept to ensure that Sustainable Winegrowing New Zealand requirements for management of winery waste are met.

## SPILLS AND LEAKAGE PROCEDURES—MANAGEMENT OF UNFORESEEN WASTE

Members have systems in place to reduce the risk of spills of by-products, chemicals and potentially toxic petrochemicals.

- Emergency procedures must be in place to manage both dry and liquid chemical spills and flammable materials.
- Sustainable Winegrowing New Zealand provides an emergency procedures flipchart that has been developed with the Environmental Protection Authority (EPA). This includes information on training, first aid guidelines and emergency contacts, and examples of typical situations that occur in vineyards and wineries.
- Members are provided with a template to use to record spills, and a set of protocols to follow in the event of a spill. These are maintained onsite and checked at audit time.

## PRACTICES

- Train staff in storage, handling and use of chemicals and chemical containers (see Chemicals section).
- Train staff on spill prevention.
- Use small containers of oil and petrochemicals ; this reduces the risk of large unmanageable spills.
- Ensure that all storage containers, tanks (above and below ground), pipes and valves are secure (no leaks or drips).
- Ensure that all taps and lines are secure.
- Ensure suitable absorptive materials for spills are available onsite.
- Store large amounts of fuel and oil in a manner that complies with the local Regional Plan requirements for vineyards. Information is available from the [Environmental Protection Agency website](#).
- Collect waste oils for recycling programmes.



- Make sure that any spillage cannot reach waterways or drains (including storm-water drains).
- Ensure management systems are in place to prevent future spills.
- Spills must be documented and all actions taken recorded.

## WASTEWATER MANAGEMENT

The subject of water on vineyards and wineries is covered in the Water section. Management of wastewater as a by-product is included here.

The volume of wastewater is directly proportional to the amount of water use. Therefore minimising water use minimises wastewater.

## COMPLIANCE AND CONTROL

- Members conduct wastewater system reviews on a regular basis, and these are examined at audit.
  - Evidence of reviews includes a completed and dated winery waste management checklist, audits undertaken by district/regional councils, or consultants.
- Members have standard operating procedures and hold staff training records with regard to limiting and reducing products in wastewater.

## WASTEWATER STANDARDS

- Wastewater treatment systems should be designed to complement other disposal treatment systems of the wineries, and the volumes and components of winery wastewater.
- Wastewater treatment systems should be designed to minimise any impact on the environment.
- Primary wastewater should be pre-treated so it has minimal impact on the environment.
- Primary wastewater pre-treatment must be undertaken and comply with local authority trade-waste by-laws.
- All monitoring requirements should be followed (for example pH readings) and should correspond to allowable levels as documented in the resource consent for discharge of waste.
- The winery must review the wastewater system at the start, during, and at the end of the season. Evidence of reviews includes a completed and dated winery waste management checklist. Audits are

undertaken by district/regional councils, or consultants.

## RECYCLING AND REUSE

Reusing winery water involves using water that has already been part of the wine production process for an additional purpose. Relatively clean washing water can be reused for dirty washing jobs.

Recycling winery water involves using treated winery wastewater for a secondary purpose, such as irrigation, vineyard, crop or woodlot watering, or maintaining winery grounds or wetlands.

## WASTEWATER DISPOSAL

- Onsite: irrigation for land, vineyard, trees, gardens, pasture, wetlands and water features.
- Offsite: discharged for municipal or private treatment or other disposal schemes.

## BY-PRODUCT PRACTICES

Members must have plans that outline how their systems are designed to cope with liquid waste, and have strategies in place to address any problems that may occur. These strategies should include:

- Measure water use to ensure that the wastewater system is able to cope with the volumes generated, including storm water.
- Measure the total liquid waste generated by the winery (wastewater plus suspended/dissolved waste materials), to ensure that the wastewater system is able to cope.
- Ensure the actual volumes of liquid waste fall within consented limits, and if not, action must be taken.
- Demonstrate evidence of efforts to limit waste.

In addition to the above, for onsite wastewater systems (irrigate onto land), members must:

- Show robust design calculations that demonstrate the volume limits of their wastewater system to ensure it can cope with peak flow (the current residence time requirement for wastewater).
- Have robust design calculations that show the volume limits of their irrigation system.
- Conduct soil surveys for wastewater irrigation management and record results.
- Comply with volume/residence settling time requirements for current wastewater volumes, ensuring that appropriate settling occurs.

- Remove sludge from settling tanks regularly and dispose of it in accordance with regional and district requirements.

## MINIMISING WINERY WASTEWATER AND CLEANING PRODUCTS

Winery wastewater is generally not considered harmful, but it can interrupt the normal functions of treatment disposal systems.

Under the Sustainable Winegrowing New Zealand programme:

- Wash additives should be controlled and/or limited to minimise the effects on the receiving environment.
- Water use should be controlled and limited, in accordance with the residence time of waste within treatment systems, and the resting time between land applications of wastewater.
- Standard operating procedures should be followed to minimise treatment of wastewater when it comes to cleaning equipment.
- Staff are trained to:
  - Limit the amount of water used per wash (using nozzles on hoses and switching them off when not in use).
  - Fix leaking valves, joins and lines.
  - Prevent water from flowing unsupervised during cleaning operations. 

Central to our sustainability policy is a commitment to keep improving, as new research is undertaken and new technologies are developed. The New Zealand wine industry is actively involved in both of these areas, with an ongoing leadership role in research and development projects. Looking to the future, we will continue to protect the places that make our exceptional wines.

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