Misha's Vineyards, Central Otago

PILLARS OF SUSTAINABILITY

NEW ZEALAND WINE
PURE DISCOVERY

SUSTAINABLE NEW ZEALAND WINEGROWING

SOIL, WATER, AIR — **SOIL**

Soil has a strong influence on both the style and character of a wine. Maintaining optimum soil structure and health is important to achieve consistent grape quality and ensure vineyard sites remain viable for winegrowing in the future.

New Zealand's vineyards thrive on many soil types, from heavy, water-retaining clay loams, to dry stony riverbeds, and more fertile flood plains, all of which require different management techniques to assist vines to produce superior fruit.

Careful soil management helps to maintain a balanced environment and assists with reducing erosion. Therefore, the better the structure soil, the cleaner and healthier the local environment will be.

With so much depending on the health of our soils, it's important that New Zealand's wine industry continues to use sustainable practices and look for new, innovative ways to help preserve and enhance this vital resource.

STANDARDS FOR VINEYARDS

Sustainable Winegrowing New Zealand members are required to establish a soil management programme, and review it every 3-5 years. This includes protocols for: soil sampling, management and sustainability; fertiliser and nutrient application and management; ground cover management; and biodiversity conservation.

SOIL MANAGEMENT

Member soil management plans are required to help enhance site soil properties by: employing monitoring protocols; increasing organic matter; reducing the risk of erosion, and working to improve soil structure and fertility, and decrease copper levels.

PRACTICES

- Members should:
  - Keep soil analysis records in order to monitor long-term trends and ensure soil quality is maintained.
  - Test soils every three years to provide a continuous sequence.
  - Identify soil types, and then map and manage them according to the soil properties.
  - Use practices that ensure organic matter is maintained or increased in soil, and record the practices they use (this is generally managed by such practices as the use of permanent inter row crops)
  - Follow guidelines on the maximum total amount of Nitrogen that can be applied annually to avoid excessive growth and the Nitrogen leaching through the soil.
  - Use guidelines for winery waste management, to ensure wastewater and marc used for mulching doesn't exceed allowable Nitrogen levels
  - Monitor and manage erosion risk and soil compaction. Practices that help reduce soil erosion and compaction include:
    - Using low-pressure tyres.
    - Avoiding driving on wet soils.
    - Minimising tractor passes through undertaking multiple operations in a single pass.
    - Use of permanent vegetation.
    - Using vehicles with the same tyre spacing.
  - Other strategies that members use to maintain or increase organic matter include:
    - Mulching prunings for compost.
    - Putting compost under vines.
    - Mowing between rows with a mower that throws clippings under the vines.
    - Planting undervine (such as a recent initiative trialed by the Greening Waipara programme for biodiversity).
  - Members should follow Sustainable Winegrowing New Zealand guidelines to help avoid wind erosion if cultivation for new plantings is required.
  - Members should record the amounts of copper spray used and monitor soil levels to ensure that the level of copper does not impact soil organisms or plant growth.
  - In the winery, members should engage in clean production processes and sound management of waste disposal systems to avoid soil degradation.

FERTILISER AND NUTRIENT MANAGEMENT

A fertiliser and nutrient management plan for the vineyard, including protocols and evidence base, should be established and reviewed on a regular basis. Fertiliser and nutrient applications should be made in response to plant requirements, and applied in a manner that promotes maximum uptake by the vines.

The New Zealand Nutrient Management Code of Practice assists in nutrient management decisions, including storage and application.

PRACTICES

Sustainable Winegrowing New Zealand members should:

- Maintain records of fertiliser and nutrient applications.
- Keep records of how much nutrient is removed as the fruit is harvested.
- Conduct regular soil tests.
- Conduct regular foliar tests, and record = results to monitor trends of plant nutrient requirements.
- Store fertiliser and nutrients safely, where they cannot mix with other products.
- Target application through foliar sprays or fertigation to reduce leaching and promote direct uptake by the plant.
- Ensure application equipment is calibrated and records kept ensuring that appropriate dosage is applied.
- Make sure that sensitive areas (such as waterways and neighbours) are identified on a property management plan and fertiliser is not applied in close proximity.
- Include all compost in the nutrient management plan, once the nutrient content of the compost is determined.
- Follow guidelines with regard to the maximum total amount of Nitrogen that can be applied annually.

GROUND COVER MANAGEMENT

Ground cover is important for maintaining a healthy soil environment. It helps preserve or enhance soil structure, assists in controlling erosion, helps to manage nutrients, improves weed control, and enhances water penetration and retention.

Cover crops also increase the biodiversity of the ecosystem and provide a habitat for beneficial insects.

Cultivation or bare soil is permissible in some circumstances, for example if the vineyard is in a high-risk area for frost.

VINEYARD PRACTICES

Members are encouraged to:

- Maintain permanent cover crops or sward between vine rows.
- Keep the strip underneath the vines as narrow as possible.
- Engage in alternate row mowing to encourage biodiversity.
- Plant cover crops according to their individual vineyard characteristics and management requirements, such as: water availability in the soil; viticulture objectives; pest management objectives; slope of the vineyard and whether soil erosion may be an issue.

* Source: Allan Hewitt. 'Soils - Diversity and uniqueness', Te Ara - the Encyclopedia of New Zealand, updated 1-Mar-09 URL: http://www.TeAra.govt.nz/en/soils/3

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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