



Compost for winegrapes – a case study from De Bortoli Wines, Yarra Valley, Vic

Who

Rob Sutherland, De Bortoli Wines

Where

Yarra Valley, Victoria

What

Wine grapes

Aims

- to eliminate the need for synthetic fertilisers
- to create a sustainable farming system

Outcomes

- no synthetic fertiliser use
- increased earthworm numbers
- high level of organic matter maintained
- increased soil fungal levels
- increased soil moisture storage

De Bortoli Wines

As a third generation family wine company, De Bortoli Wines' are determined to leave a good legacy for future generations. With vineyards in some of Australia's best known wine regions, including the Yarra Valley, Hunter Valley and the Riverina, De Bortoli Wines ensure their grapegrowing and winemaking practices are sustainable. De Bortoli Wines have been adopting biological farming practices in their Yarra Valley vineyards in recent years and compost is playing a key role.

Why compost?

In 2008 De Bortoli Wines began pursuing their growing interest in biological farming with the help of Rob Sutherland, Viticultural Manager, Yarra Valley. Biological farming is based on using natural processes as a first approach, removing synthetic inputs from the farming system and fostering and utilising micro-organisms to improve soil and plant health. The aim was to develop a balanced and sustainable system and for De Bortoli Wines, compost has become the cornerstone of that process.

Compost encourages the bacteria, fungi, protozoa, nematodes and earthworms in the soil that increase nutrient availability and improve soil structure and health. Mr Sutherland said that biological farming can be used to create a soil environment tailored to the particular crop. For vines, they've found that it is important to use compost high in beneficial fungi.



Compost application

For the last three years De Bortoli Wines have been making their own compost using grape marc, coarse wood chips and hay. The compost is either broadcast at 2.5t/ha or banded under vines at a depth of 10cm, using their own spreading equipment. Under vine banding occurs about every five years with applications more common in drought years. Compost is broadcast every two to three years – generally in wetter years.

De Bortoli Wines also brew compost tea from the compost they make and apply it to the soil about every three months. For De Bortoli Wines, using compost tea as a soil spray is a good way of dispersing and maintaining compost microorganisms in the soil, without the physical effort of handling compost.

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“Compost organisms help create a soil which is beneficial to plants in all three dimensions: physically, chemically and biologically”

Rob Sutherland, Viticultural Manager,
De Bortoli Wines, Yarra Valley vineyards

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Brewing compost tea at DeBortoli wines

The compost tea is brewed in 1000L batches, using approximately 24 litres of compost in a shade cloth bag that sits in the tank of water like a teabag. Usually some decaying wood with native fungal growth from underneath nearby native trees is added to increase microorganism levels. Humic acid, seaweed concentrate, fish and oatmeal are added as a food source for microorganisms.

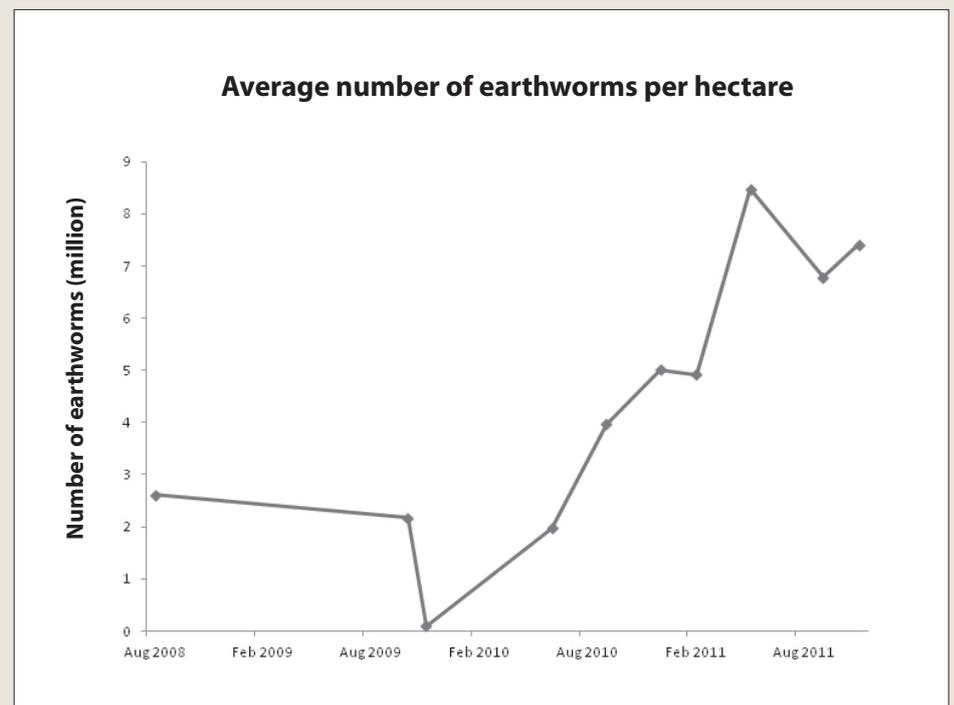
In early spring the mixture brews for approximately 48 hours, but when temperatures are warmer (over 25°C) the brew is usually ready in 24 hours.

Samples of the compost tea are examined microscopically to ensure good levels of microbial activity in each batch.

Results

During flowering each year De Bortoli Wines test the physical, nutritional and biological status of their soils and the nutritional status of their vines. Testing each year is important so that trends rather than one-off improvements can be detected.

By using compost De Bortoli Wines have increased earthworm numbers and beneficial soil fungi. They have also maintained high levels of organic matter and increased moisture retention in their soils.



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“Using compost will help ensure future custodians of this land are able to farm for many, many years to come”

Rob Sutherland, Viticultural Manager, De Bortoli Wines, Yarra Valley vineyards

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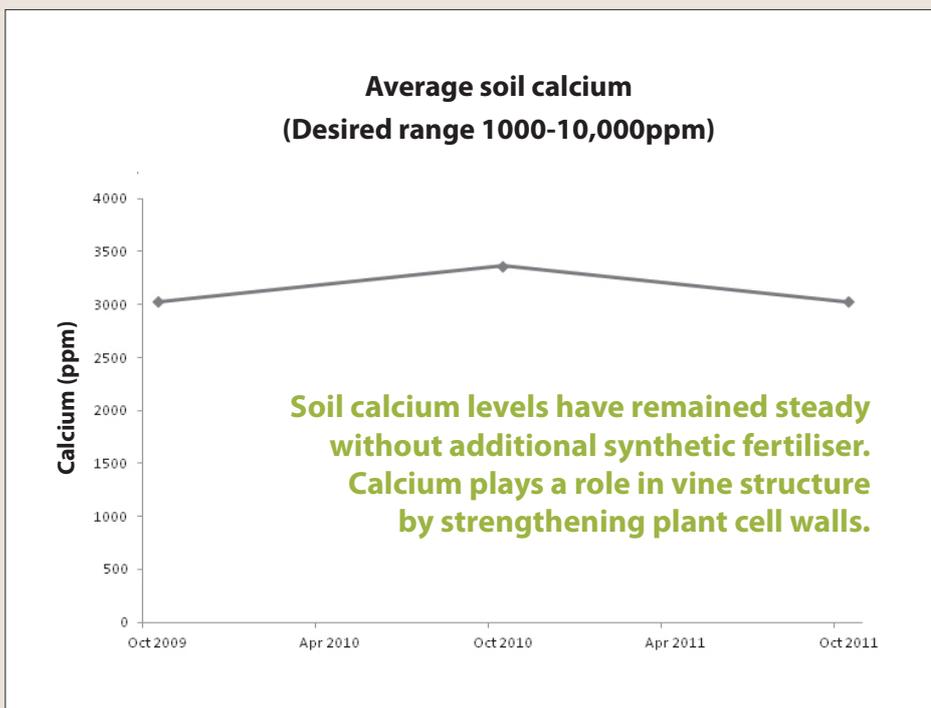
Making compost at DeBortoli wines

The main feed stocks are grape marc, hay and coarse wood chips. Each new pile is seeded with some compost from the previous year as a starter culture, to provide the bacteria and fungi needed to start the composting process. Crushed scallop shells, lime, oatmeal and hydrolysed fish are added where necessary to provide a food source for the micro-organisms in the compost.

The compost is made using aerobic windrows, the same technology used by most commercial composters. Windrows are approximately 60 metres long, 2 metres high and 2 metres wide and are assembled in layers. Temperature levels are monitored and piles are turned using a compost turner to maintain the temperature below 65°C. If temperatures are allowed to go higher than 65°C, demand for oxygen exceeds supply and the piles become anaerobic and start to smell.

De Bortoli Wines can produce their own compost for a cost of \$25 – \$30/m³.

De Bortoli Wines no longer need to use synthetic fertilisers on their Yarra Valley vineyards. For the majority of nutrients, levels have stayed within the desired range without the use of synthetic fertilisers. Even though organic or soft fungicides are still used in the vineyards when necessary, applications of compost and compost tea ensure that good levels of soil fungi are maintained.



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“Compost has helped produce healthy, sustainable vineyard conditions for vine growth and quality wine production”

Rob Sutherland, Viticultural Manager, De Bortoli Wines, Yarra Valley vineyards

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The bottom line....

De Bortoli Wines' shift to biological farming is maintaining healthy soils and healthy vines in an increasingly sustainable production system whilst producing high quality wines.

Mr Sutherland says it is important to remain flexible when adopting biological farming in a commercial setting. As long as they are heading in the right direction, some compromises can be made along the way where necessary to ensure productivity is maintained.



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“Compost allows for a balanced sustainable system to almost control its self, without knee jerk reactions to specific problems”

Rob Sutherland, Viticultural Manager, De Bortoli Wines, Yarra Valley vineyards

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Where to from here

Mr Sutherland and the team at De Bortoli Wines will continue to work on increasing their compost products and application processes to ensure they are getting the most from their compost.

Annual monitoring of soil conditions will also continue to ensure that the system is stable or improving each year. The ultimate aim is to maintain the health of their soils and the sustainability of their farming system.

For more information on the program contact:



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