



Wind Management Take a New Twist in Central Otago

A Central Otago vineyard finds an innovative way of using shelter cloth to protect delicate Pinot Noir vines from harsh spring winds.

CROMWELL, New Zealand 29th January, 2007– Managing fierce spring winds that drive through a valley bounded by steep topography has seen a Central Otago vineyard borrow wind protection techniques that are normally the domain of orchardists and horticulturalists and give them a new twist with impressive results.

Misha's Vineyard, situated on steep eastern slopes and terraces of Lake Dunstan, is prone to unusually strong wind buffeting during spring and early summer due to the effect of the Dunstan Mountains in the north-east and the Pisa Range to the west which cause channelling of airflow along the valley and lake.

There are positive and negative factors associated with wind in a vineyard. On the positive side, disease is minimized - especially botrytis, and it can also provide useful natural devigoration in fully established vineyards. On the negative side, it can slow canopy growth in the early years, cause damage to young vines, and therefore can increase your overall costs.

Robin Dicey, viticulturalist for Misha's Vineyard has found a solution to mitigate the negative effects of the wind through an unusual application involving shelter cloth. Shelter cloth is generally used to protect crops from unfavourable weather conditions or pests, and typically erected as a canopy across the top of crops. However Dicey's idea was to stretch the shelter cloth the full length of the vineyard posts and along every fourth row to provide shelter for young Pinot Noir vines from the harsh north and north-easterly winds.

"Prior to the installation of the shelter cloth, we were seeing leaf tatter, sandblast desiccation and general damage to the growing tips of the Pinot Noir vines in the exposed areas" said Robin Dicey. "But in just a few weeks since the shelter cloth has been erected,



we have seen a marked improvement in the vines as evidenced by the longer internode length and larger leaves. We know that the benefits of this meso-climate we're establishing behind the shelter will continue to provide benefits in reducing mechanical damage, and improve flowering, fruit-set, and eventually yield".

It was during the initial evaluation of this potential vineyard site that the issue of wind management was first raised by consulting viticulturalist Dr Richard Smart. He praised this high altitude location as one of the best he had seen in Otago due to its excellent cool air drainage and especially given that frost is an issue for most vineyards in the area. However he specified that the north-west facing vineyard should be established with row directions running east-west down the steep slopes so that they were perpendicular to the wind, and that wind breaks should be installed to protect the vines and to retain the warmth.

When the second stage of the vineyard was planted on the most wind-prone lakefront terraces and slopes in 2005, the option of wind protection was raised again as one of the key ways of optimizing vine growth in the fledgling vineyard. Dicey had become very familiar with the wind patterns on the vineyard but the site posed some issues for a natural shelter belt given its multiple levels, the steep slopes on much of the planted area, not to mention the council protection requirements of this "outstanding landscape" zone prohibiting the establishment of shelter belts and the planting of any non-native vegetation including trees along the edge of the gullies.

The considerations for wind protection were both practical and aesthetic. Not only did the shelter need to provide protection for the delicate Pinot Noir vines but also given land protection issues and the fact that the vineyard was highly visible from across Lake Dunstan, there had to be minimal visual impact.

Dicey considered the extensive use of artificial shelter used by the surrounding cherry and stone fruit orchards and consulted with Lindsay Scott from NetPro who provides protective canopies primarily used by horticulturalists and orchardists. Scott confirmed that running



the shelter cloth along the vineyard rows would be an effective solution for the vineyard's wind issues.

The shelter cloth selected was an HPDE monofilament known as "Smart shade" which provides up to 50% wind reduction, and the cloth was customised in NetPro's Australian factory to a 1.6 metre width, to match the post length with just enough gap at the base to relieve the wind pressure, and specified as sand coloured to blend with the surroundings.

By creating wind shelter using shelter cloth, the negative effects generally associated with natural shelter belts are minimised and they are effective as soon as they are erected. When creating natural shelterbelts of trees, often valuable vineyard land has to be sacrificed, they require regular maintenance, they provide a habitat for birds, and they often compete for water and nutrients with the vineyard unless their root structures are kept in check. Additionally natural shelter belts require time to establish.

The specific benefits of erecting the artificial shelter using the shelter cloth on Misha's Vineyard have been:

- Protecting the soil – the weak structure of the brown-grey earths which have a topsoil cover of schist loess, means the topsoil can easily be blown away on a windy day, and the dusty, floury soils are susceptible to wind erosion.
- Conserving soil moisture – less wind across the soil means less drying out and there is an improvement in irrigation efficiency
- Better working conditions for vineyard staff during spring when the winds are at their worst
- And of course, better conditions for the vines during spring, particularly when they are young and you require vigour in order to get them well established.

Dacey has also modified the trellis system on Misha's Vineyard to further mitigate the wind issue, to a system with one fruiting wire and three pairs of foliage wires, instead of the usual two pairs, which provides additional canopy support for the young vines.



The innovative application of the shelter cloth along the rows is a first in the area with two other vineyards already following the lead. Generally with vineyards, protective structures are primarily designed for use against bird attacks during the growing season, but the design of a structure to protect against wind is a management tool that vineyards in exposed and windy sites should seriously consider.

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A range of high resolution photos available on request.

About Misha's Vineyard Wines Limited

Established in 2004 by Andy and Misha Wilkinson, Misha's Vineyard is situated on 57 hectares of Bendigo Station's most visually spectacular sites located on the north-west facing terraces overlooking Lake Dunstan. With 10 hectares planted in 2004, and a further 12 hectares in 2005, Misha's Vineyard plans further planting as well as the construction of an underground wine cellar and winery. Currently two-thirds of the vineyard is planted in Pinot Noir, with the remainder comprising a selection of white varieties including Pinot Gris, Riesling, Sauvignon Blanc and Gewürztraminer. The primary market for Misha's Vineyard Wines will be Asia and the full range of wines is scheduled for launch in early 2009.

About NetPro Protective Canopies

NetPro Protective Canopies, Australasia's leading installer of horticultural netting structures, has its headquarters and R&D facility in Stanthorpe, Queensland and offices across most states of Australia. NetPro have many years of experience in building structures to protect crops and other products against damage or loss. Using Computer Aided Design (CAD), solutions are custom- designed to solve specific issues whether it be to protect against general weather elements, climatic extremes or pests. The New Zealand agent is NetPro Protective Canopies South Island Ltd, based in Cromwell, Central Otago which is owned and operated by Lindsay Scott. www.netprocanopies.com
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