

# Striving for uniformity

Emma Leonard, AgriKnowHow

**G**undagai Vineyards, located on the banks of the Murrumbidgee River, near Nangus, NSW, was established in 1998. Over a five year period manager Peter Morath and his team developed 240 hectares of vineyards, 100 hectares of which is planted to Shiraz. The remainder of this undulating land, which has soil ranging from free draining gravels on the upper slopes, to heavy clays on the lower land, is planted in blocks consisting of Cabernet Sauvignon, Merlot, Chardonnay and Verdelho.

Soil pit maps were used to plan the original layout of the vineyard and these identified substantial differences in soil types across blocks, which can vary from 215m to 310m above sea level. These variations give rise to issues relating to water infiltration, run-off and frost.

Consequently, the irrigation system was designed to allow differential irrigation across all blocks and within individual blocks. The use of this practice allows management

to improve the uniformity of block performance as the vines mature.

Yield monitors linked to GPS, were installed in the grape harvesters. The yield maps highlighted high and low yielding areas but it was not until the yield data was overlaid with soil type, irrigation blocks and vigour images (NDVI) that a precision management strategy was developed.

“Working with PA consultants we identified a strong inverse relationship between vigour and yield,” explained Peter.

“With all our produce contracted to Foster’s and Casella’s, the uniformity and consistency of our product is paramount to ongoing relationships with these companies.”

Initially, irrigation practices were revised by using the inbuilt flexibility of the irrigation system. Vines on the free draining, upper slopes were given more water than those growing on the heavy clays lower down.

“Vines can give the appearance of being similar and uniformly

cropped but the vigour data combined with yield mapping provided us with results we were not physically seeing.”

High vigour vines are now pruned to leave more fruiting buds and foliage wires have been trialled to manipulate the canopy structure. Both of these changes aim to improve quality through improving the uniformity and consistency of grape production across a block.

While Peter is pleased with the results to date he feels some of the changes in uniformity could be linked to the vines maturing.

He has assessed the feasibility of using precision harvesting, which has been shown to pay dividends in some vineyards, but has found the viability of such an investment is very dependent on the level of demand for grape quality by the end-market.

**For more information**  
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