

Getting a Vineyard right, the first time round by Nick Hoskins

In the early days of commercial development, the New Zealand vineyard relied a great deal on Kiwi “can do.” Most problems were solved by trial and error – we learned what worked and what didn’t the hard way. Things have changed a great deal over the past 20 or 30 years, however, and today the would-be vineyard developer has an arsenal of expertise and technology at his or her fingertips.

Unfortunately, many people enter the wine industry without realising that modern viticulture is more of a science than an art. All too often, I receive calls from would-be investors/developers who haven’t the foggiest notion about the steps required for proper site development – they’re ready to order grafted vines before they’ve tested their soils or found their water supply.

At a time when the cost of developing a vineyard hovers above \$50,000 (NZ) per hectare, this lack of preparation is unsettling to say the least. In my experience, it’s not just “the little guy” with a romantic dream who doesn’t understand the process. I’ve seen so-called “commercial” vineyards covering hundreds of hectares suffer from the same errors of omission. The sad fact is that many people simply don’t understand the lead-in time required to investigate a site, plan the development, secure materials (including the vines) and line up suitable contractors.

When key preparatory phases are completely overlooked (or executed in the wrong order), the resulting problems often come to light two, three, or even four years after planting. By then, the losses of time and money are horrific; in many instances, the vineyard is saddled with problems that can never be corrected.

She’ll be right – well, maybe not

I was curious to know if my experiences were shared by others working in the viticultural arena. The answer – a resounding “Yes!” – came from a broad spectrum of industry players, all of whom confirmed that many clients call them after the fact to fix problems that could easily have been avoided in the first place.

Stuart Powell, a climatologist at Microclimate New Zealand Ltd., suspects that a “do-it-yourself” mentality may be partly to blame for the situation. “People don’t like to ask, because they feel they should already know,” he says. “It’s a particularly Kiwi sort of shortcoming.”

Rich Galloway, technical support manager at Netafim, offers another possible factor. “The New Zealand industry is extremely price sensitive, but this doesn’t always work to the vineyard’s advantage,” he says. “Five years down the line, they compare their yields and their plant health with their neighbour’s, and they’re not happy with what they see.”

Real-estate speculation may also play a role. Keith Vincent, an independent soil scientist, observes that in recent years he’s seen an emerging trend toward “out of town” investors. “You get people who really don’t have a clue, but they want to make a buck,” he adds. “It takes about seven years to see the results of a vineyard development, but they’re looking to sell the whole thing after five.”

I suspect that all of these issues help to keep at least a portion of New Zealand viticulture back in the dark ages. But vineyard development has certain basic stages that need to be covered no matter how much money is going to be spent – and every dollar paid to do it right the first time will result in future benefits.

Region, climate and site

The very first question a developer should address is, “Where will the fruit and/or wine be sold?” In the past, a vineyard was usually developed in association with a winery, but that is no longer the case. If fruit is to be contracted, the grower may be locked in to a winery’s requirements for specific combinations of variety (or clone) and rootstock. Deciding what to grow will also be influenced by the intended site and region. Increasingly, however, vineyards are being developed in new and sometimes marginal areas, which present additional challenges. A thorough assessment of climate, water and soils is imperative, and most of this work should be done *before* purchasing the land.

If a site is under consideration, there’s a long list of climate-related questions that need to be addressed. Are long-term weather records available on site or close by? If not, how are you going to analyse the necessary data? Temperature and rainfall between February and April are the critical factors, although wind should also be considered as it can have a major impact on vine vigour. Stuart Powell notes that inland developments in several regions (notably the Awatere Valley in Marlborough and certain parts of Hawkes Bay) present sharper risks for frost and potential wind damage.

“With some of the newer regions, people may not realise just how site-specific these aspects are,” says Powell.

Microclimate measures temperatures and compares on-site readings to the nearest weather station. A report detailing the severity and the expected number of frost events, along with recommendations on the best form of frost control, is provided in the assessment.

Powell notes that, traditionally, many growers have made such decisions simply by watching to see what “the big boys” are doing across the road. “But just because Montana has installed sprinklers doesn’t mean that’s what you’ll require,” he adds. “Conversely, if you’ve got a site without an inversion layer, it just doesn’t make sense to decide that you’re going to use windmills for frost protection.”

Like many of the services mentioned in this article, Microclimate is often perceived as being an expensive extra. “A typical assessment and report by the company amounts to 2% to 5% of frost protection costs,” Powell says, “but our findings enable the developer to purchase the right system for the site – that saves an awful lot of money down the road.”

Irrigation for the nation

Water is often the biggest issue facing a vineyard development. Taking water from a bore, stream or river requires resource consent, which must be organised well in advance. Water source is particularly important: volume and pump tests must be conducted in mid-summer when water flow is at its lowest. The last thing anyone wants is an irrigation system that can’t deliver the necessary water quantity during the 24 hours when it’s needed most.

“Irrigation brings into play every aspect related to water quality and supply,” says Rich Galloway at Netafim. “A properly designed system means that 95% of a client’s problems are already solved.”

Galloway observes that a developer needs to consider the installation as well as the design of an irrigation system. “It’s possible to buy very good equipment, yet if it’s improperly installed, the grower is no better off,” he continues. “The best thing is to get advice as early as possible.”

Netafim asks clients to fill in a detailed form about their water requirements, with information on contour heights, soil surveys, the available flow rate for the project, preferred primary filtration, pump power supply, and so on. "If a grower can answer these kinds of questions, then I can design a good system," Galloway says. "If they don't know the answers, then it highlights the work that still needs to be done."

Jamie Pickford, Hastings branch manager at Water Control Solutions, has a similar questionnaire for prospective clients. Having spent a significant portion of his career covering irrigation in Australia, he believes New Zealanders are shockingly complacent about their water requirements. "This is a country where people believe that the rain will carry them through," he says. "Often, they don't understand that a vineyard must ensure that the water is there and deliverable in the first year of growth."

According to Pickford, Australians do a great deal more research and go to greater expense to ensure water availability. "In Australia, all water usage is metered," he explains. "You would therefore never see a do-it-yourself irrigation system, because it might be drawing more water than is needed and the grower will be charged for it."

Major irrigation suppliers will normally verify and comment on a design at no cost, and they welcome new clients who want to talk to their existing customers. Like Galloway, Pickford urges people to shop around. "Ask for referrals, and talk to clients whose systems are already two or three years old," he says. "Choose an irrigation provider based on their track record."

In recent years, Pickford has seen a number of marginal developments, especially in Marlborough and the Martinborough hills. "Because of land speculation, people aren't

willing to wait," he adds, "yet there's less water and the quality is not always satisfactory."

Similarly, in Hawkes Bay, where most of the existing vineyards are fed by unfiltered bores, water quality has become more of an issue. "Lately, we seem to be doing a lot of retrofitting for automatic filtration there," he explains. "Water may still be coming through those original bores, but frequently it is sandy or has bacterial contamination."

Vineyard mapping

Vineyard layout and the irrigation system should be designed around the physical properties of soils at the site. An EC map (short for "electrical conductivity"), such as those provided by Frontier Mapping, will provide valuable information on soils' moisture-holding capacity and will define the boundaries of each soil type – enabling an extremely precise determination of where to dig soil pits for assessment and sampling.

Like a number of the companies mentioned in this article, Frontier is a relative newcomer to the industry. "In our first three years of existence, all of our work was on established vineyards, typically for soil contour and site maps," says Bruce Bell, a trained geologist who spent the early part of his career in mineral exploration in Australia. "Now we're seeing more of a trend towards getting the information before development begins."

The company has already proven invaluable for proposed developments on marginal land. "The Awatere district is a mass of fractures splitting off the alpine fault," explains Bell. "That's where you'll find some of the most mobile land in the country, except in the spots where a thick layer of alluvium covers the splintered bedrock."

Recalling a recent job, Bell outlines how a salt incursion was found along one of those fractures.

“The EC map just screamed out what the problem was and pinpointed where soil samples were required for assessment,” he adds. “The client then called in the soil specialists to determine what portion of the site was going to be usable.”

It's the (soil) pits

Soil specialists come into their own in determining where the soil pits should be dug and which soil and subsoil samples should be taken and tested. Some newer developments are already showing problematic soil chemistry, with issues such as high sodium or high pH. Without testing, subsoil problems may not become apparent until roots reach that subsoil horizon; by then, the problems are difficult (if not impossible) to fix.

“High sodium and high chloride are the two main issues I'm seeing in Marlborough's newer wine regions,” says Gerard Besamusca, an independent soil scientist. “Typically, however, we receive a soil report from a rep whose client already has a purchase contract and it's 10 days before closing.”

Many people test soil only for its pH level and organic matter, according to Besamusca. “It's important to know what other chemical levels are there, what degree of compaction they have from previous land use, what the ratio of stone to soil is in the vineyard,” he continues. “People tend to forget that on a stony site, a soil test may be telling them about only 30% of their vineyard – but it could become a critical issue for nutrient uptake.”

Soil scientist Keith Vincent notes that the vast majority of his work comes after a site has already been purchased. “Having said that, many

of my jobs are good sites chosen by viticulturists who know what they're about,” he adds.

Vincent conducts what he calls a conventional soil survey. A deep pit is dug in the ground, and he diagnoses the layers of soil for permeability, water storage and drainage. He too, voices some concerns about the trend toward developments on marginal land. “On the last two jobs, I've rejected the sites because of poor soil quality,” he says. “In one case, the real estate brokers were pushing the block as a prime viticultural site.”

The price-point consciousness of New Zealanders struck a chord with almost everyone interviewed for this article. “Oh yes, I'm regarded as being very expensive,” says Vincent. “New Zealand is consultant-phobic.”

In the overall scheme of things, however, the costs attached to such services can only be described as modest. “I don't know how many times I've seen a vineyard developer come out to the site in the latest model Range Rover, and then start screaming, ‘What! This is going to cost me \$2,000!’” laughs Bell.

It's not really a laughing matter. Last year's Rabobank report, “New Zealand Wine – Retaining the Focus,” questioned just how much more land was available for grape production. The report continued, “There is of course a natural hedge against further mass vineyard development: the associated cost of suitable land, which has experienced a phenomenal increase in valuation in many of the wine regions in New Zealand, combined with the subsequent cost of development.”

Establishing a vineyard is a long-term investment, and doing it right the first time is just about the only way of making sure there's a

decent return. I now have a standard line I use whenever I get a call from someone in a hurry: the success of any vineyard should not be measured by the length of time *to* full production, but the length of time *in* full production.

Te Muna Road goes to the top of the class

The first plantings at Craggy Range Vineyard's Te Muna Road site in Martinborough took place in 1999 – well before New Zealand viticulture had its own EC mapping or microclimate services. Yet the details surrounding Te Muna's site selection, assessment, and vineyard development (all of which can be read on Craggy Range's website at www.craggyrange.com) provide a snapshot of how to do it right.

Peter Wilkins, the viticulturist responsible for managing the vineyard, describes how even before the site was purchased, the Craggy Range team mapped the soils, digging 280 soil pits down to a depth of 2.5 metres. Similar care was taken in collecting climate data and determining water requirements.

Wilkins regards the frost events of 2003 as a wake-up call to the industry. "The big thing for me is frost control," he says. "After 2003, it just doesn't make sense not to build frost control into the capital expenditure for a new vineyard."

Another issue that Wilkins says can trip up even experienced viticulturists is weed control. "You have to come to terms with the fact that young grapevines are very, very susceptible to

competition by weeds and grasses," he adds. "If you don't keep on top of this, a young vineyard can be set back by five years – in some cases, it may never recover."

Wilkins acknowledges the romantic ideal of sitting on your veranda in the middle of a vineyard sipping your very own wine, but he quickly puts it all in perspective. "You won't be sitting on your veranda for very long," he adds. "Building a vineyard is bloody hard work!"

A wealth of info on websites

Many of the companies mentioned in this article offer valuable information on vineyard design through their websites:

- Riversun Nursery Ltd.
www.riversun.co.nz
- Water Control Solutions
www.wcsolutions.co.nz
- Microclimate New Zealand Ltd.
www.microclimate.co.nz
- Frontier Mapping
www.frontiermapping.co.nz
- Netafim
www.netafim.com.au

Contact: Nick Hoskins t 06 377 2412 m 027 248 7724 e nickvineman@xtra.co.nz