The practical costs of transitioning to organic

Results from the Organic Focus Vineyard Project reveal meaningful, side-by-side comparisons of conventional and organic vineyard management. This report, from Erika Szymanski, was originally published in the US Wine Business Monthly – and is used here with permission.

MEANINGFUL SIDE-BY-SIDE COMPARISONS of conventional and organic vineyard management are hard to find. Organic Winegrowers New Zealand (OWNZ) set out to create that kind of data with their Organic Focus Vineyard Project, following three vineyards in major New Zealand regions where blocks were split in half, transitioning half to organic and leaving the other half to conventional management.

More precisely, OWNZ set out to convince growers that converting wouldn't bankrupt the farm; let disease and pests take over; or be a long-term hassle for staff or vines.

Every vineyard's experience was idiosyncratic – but patterns did emerge. The organic transition was easier than growers had imagined and helped them better understand their sites, but required patience. They advised proactive and even aggressive vigour and nutrition management. And though the winemakers involved were happy with wines from the experiment, not all felt that choosing organic was about wine quality.

PROJECT DETAILS

OWNZ recruited participation from three well-established companies: Wither Hills in Marlborough, Mission Estate in Hawke's Bay and Gibbston Valley in Central Otago. Each selected a block each of regionally iconic varieties (Pinot Noir and Sauvignon Blanc in Marlborough, Syrah and Merlot in Hawke's Bay, Pinot Noir and Pinot Gris in Otago) and managed half with conventional best practices and half with a certified organic transition regime advised by organic certifier BioGro and organic viticulture consultants. The vineyards were tracked for three years with soil composition; vine nutrition; and fruit and wine data collected by independent laboratories.

Vineyard managers also chronicled their experiences and observations. Small-batch test wines were made in every case, but as the bulk of the fruit was used was left to winemaker discretion, the commercial wines were made in different ways and therefore can't offer perfect comparisons. At the project's end in 2014, Mission Estate and Gibbston Valley are sufficiently pleased with the organic program to continue and expand it. Wither Hills is extending the trial, as yet uncertain that they can achieve their desired yields under organic management.

ORGANIC MORE EXPENSIVE TO ESTABLISH, NOT NECESSARILY TO MAINTAIN

Operating costs for the organic half-blocks paralleled the conventional in Hawke's Bay and Otago – lower yields contributed to higher costs per ton in Marlborough – with higher weeding expenses mostly balanced by agrichemical savings and less intensive canopy management for lower-vigour organic vines. The major financial cautions concerned initial planning for under-vine weeding and inter-row cultivating: lifting irrigation drip lines to a safe 40cm, protecting young vines and vineyard hardware and, if a contractor isn't being used, purchasing equipment.

UC Davis hasn't generated comparative cost analyses for organic viticulture since 2004 (for Sonoma-grown Chardonnay) and 2005 (for Napa Cabernet Sauvignon), but those reports show much the same thing: total production costs for organic and conventional management were nearly identical for Napa Cabernet, slightly higher for organic Sonoma Chardonnay than conventional, with higher weeding but lower disease spray costs in the organic model.

WEEDING & NUTRITION: BIGGEST CHALLENGES

Weeding – to reduce competition and maintain vigour – and supplying adequate nutrition were the two greatest challenges of going organic highlighted by vineyard managers at all three sites. Bart Arnst, the chief organic viticulture consultant on the project, encouraged growers to "keep on top of it" with frequent under-vine weeding, supplemented in most cases with at least some hand-weeding around trunk bases. Mowing wasn't a reasonable option for any of the sites: Wither Hills had concerns about vigour, Misson's Gimblett gravels are too stony, and equipment wasn't available in Otago at the trial's outset. Arnst observed that since under-vine mowing can decrease vigour over time, mowing might not have been a good choice for these sites in any case.

All three sites did note that organic practices brought decreased vigour, though the extent to which this was a problem differed widely. Wither Hills complained of uneconomic yields. They were also looking for crop loads (in the 28 tons/ha range) that most from outside the region found radically high, though Tim White from Cloudy Bay noted that those figures weren't uncommon for Marlborough. Mission Estate saw the least change in vigour and nearly identical yields, which their viticulturist Caine Thompson attributed to frequent passes with the under-vine weeder. A positive trade-off to both Wither Hills' and Gibbston's reduced vigour were significantly lower canopy management costs.

Arnst appealed to soil structure and the consequences of tractor-based viticulture to explain why vines seemed to go through "shock" early in the organic transition. On a conventional regime, vines develop shallow root systems in response to high supplemental nutrition, soils compacted by minimizing cover and, in these cases, frequent watering. Asking vines to source more of their own resources sends root systems broader and deeper. Moving laterally, however, they meet a "wall" of near-impenetrable compacted soil where frequent passes with heavy machinery have laid ruts. The only remaining option is straight down, and vines struggle a bit as they work to explore it.

Though Mission didn't make this complaint, both Wither Hills and Gibbston struggled to provide enough nutrition to keep leaves on organic vines from yellowing. Both used a combination of tilling (deep ripping in Marlborough, undervine discing in Otago) and soil and foliar nutrition successfully, though Gibbston's vineyard manager says that they would be more proactive in the future.

PEST AND DISEASE MANAGEMENT: NO PROBLEMS

All vineyards experienced low disease incidence across the board. A warm and wet 2013 vintage in Marlborough actually resulted in more Botrytis in the conventional Pinot Noir than the organic, likely due to the former's denser canopies. Hawke's Bay also experienced a wet 2013 with an atypically high incidence of powdery mildew, but Mission reported very good success with their organic regime – a mixture of the organic fungicides Serenade and BOTRY-Zen, plus the conventional sulfur and copper – and saw less than 1.5 percent loss to Botrytis for both conventional and organic crops.

SOIL STRUCTURE: CLEAR BENEFITS

After three years, soils in the organic blocks had higher bacterial counts than those just several rows away on the conventional side. Soils were less compacted visually and per analyses by Dr. Tim Jenkins, who dug pits on either side of the organic-conventional dividing line. Mission Estate's vineyard, whose history as a conventional orchard and whose 'bare earth' management policy had left very compacted soils indeed, saw the most drastic improvement. Though Gibbston had been concerned about their light soils eroding with the additional cultivation organics brought, they actually saw the opposite: less erosion in the organic half-block.

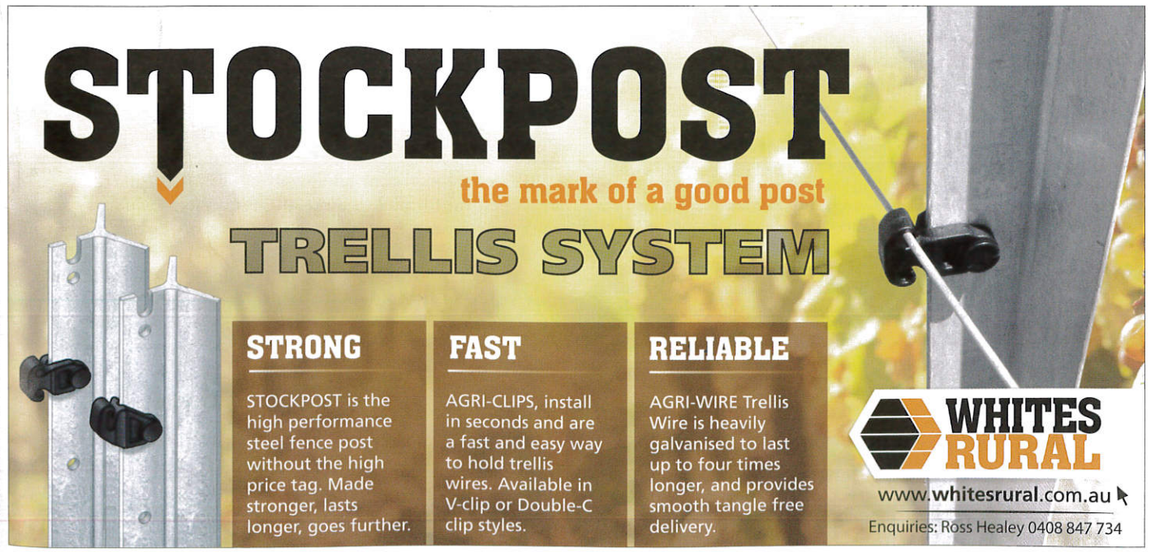
EFFECTS ON THE WINES?

By the numbers, the organic and conventional wines paralleled each other for Baume at harvest and final alcohols, pH and acidity (analyses were all run independently).

Qualitative differences have been a matter of individual site and wine. Mission found the 2014 organic Syrah riper and more concentrated than the conventional. Wither Hills described quality as excellent, though saw style differences in the organic wines: Sauvignon Blanc followed a typically fruity profile in the conventional case with more green flavours and more body in the organic; their Pinot Noir is riper and heavier in the conventional case, more refined in the organic. The consensus among the group of mostly local viticulturists and winemakers at the Otago event was that Gibbston Valley's organic Pinot Gris had a more complex aroma and richer mouthfeel than the conventional wine, though their two Pinot Noirs were judged very similar. All winemakers involved in the trial attested that organic grape and wine quality were high, although Gibbston's Christopher Keys commented that he didn't feel that the organic choice was about wine quality.

MOVING FORWARD: MIXED DECISIONS

Mission Estate and Gibbston Valley have both elected to continue and expand the organic program.

The growers agreed that organic management did require different skills: staff were required to be more proactive, more observant and better educated, in part to ensure their buy-in. They emphasized the value of gleaning advice from as many other organic growers as possible, heeding paid consultants and starting small. But, in the end, neither the viticultural staff's skill set nor wine quality was the ultimate factor in evaluating project success. Yield was. At least in the short term, transitioning to organics did decrease vigour and yield which, depending on site and winery demands, was either a gentle positive or a strong negative.

While the bottom line of sustaining high production superseded any less financially tangible benefits for Wither Hills, the balance might well be different for vineyards that show higher-vigour vineyards or under less pressure to generate high yields. Nevertheless, the final consensus – that transitioning to organic is a very learnable curve; that staying ahead of weeding is important, as is supporting vines through at least a few lower-vigour years; that organic management improves soil health demonstrably and quickly - are generalisable lessons that speak well for vineyards considering an organic transition, regardless of their situation.