

Cherry soil health, how does this affect fruit quality?

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The HIA funded project '*Improving fruit quality and consistency in cherries through maximised nutrient availability*' or as we call it for short, **Cherry Soil Health Project** has the long term goal of improving soil health and ultimately fruit quality through an alternative nutrient management regime.

Soil health has different meanings to different people and situations. Most define soil health as being fit for a purpose, in this case cherry production, whilst sustaining soil biodiversity and the soil ecosystem. At the same time a healthy soil maintains or enhances water and air quality. It's a complex system that is complex to measure. What we can do is measure how different management practices affect indicators of soil health and how these impact on longer term tree productivity and fruit quality. Trial sites are commercial cherry orchards in the Derwent Valley and Huon Valley and include the cultivars 'Sweetheart', 'Staccato' and 'Lapins'.

Fruit set, pack out and cracking

In our 2015 harvest, there were some encouraging results from the alternative nutrient regime and supplementation with microbes. Interestingly, the variety 'Lapins' proved to be the most responsive of the 3 varieties tested. Good fruit set underpins yield. At this harvest, we recorded small but positive increases in fruit set from the alternative nutrient regime compared to conventionally managed trees (Figure 1). This improved fruit set was backed up by improvements in pack out and a reduction in reject and cracked fruit. The percentage of A-grade fruit for Lapins increased by 7% with Effective Microbe (EM) application and there was a trend across all cultivars for a greater percentage of A-grade fruit from the alternative nutrient regime (Figure 2). There was also less cracked fruit from EM treated 'Lapins'.

Post harvest fruit quality

Treatments had no effect on the fruit quality parameters: stem retention force, total soluble solids content (brix) malic acid content and flesh colour. However, there were indications that the alternative nutrient regime was having some effect on fruit quality. Skin puncture force of 'Lapins' fruit was higher under the alternative regime compared with conventional. 'Lapins' also exhibited a lighter skin colour in the EM treatments compared to conventional.

After 5 weeks in cool storage the results were similar, with skin puncture force of both 'Lapins' and 'Sweetheart' fruit higher under the alternative regime compared to conventional.

What's next?

Soil health is not a quick fix or instant response but is the result of complex relationships between physical, chemical and biological soil properties. During the coming winter we will monitor some of these indicators of soil health including soil organic matter, total and active bacteria and fungi, protozoa and nematodes, cation exchange capacity, soil compaction and water infiltration to see just how far we have come.

Special thanks to Howard Hansen and Ryan Hankin (Hansen Orchards) and John and Peta Cenin (Nicholls Rivulet) for being so accommodating of our research intervention in their orchards.

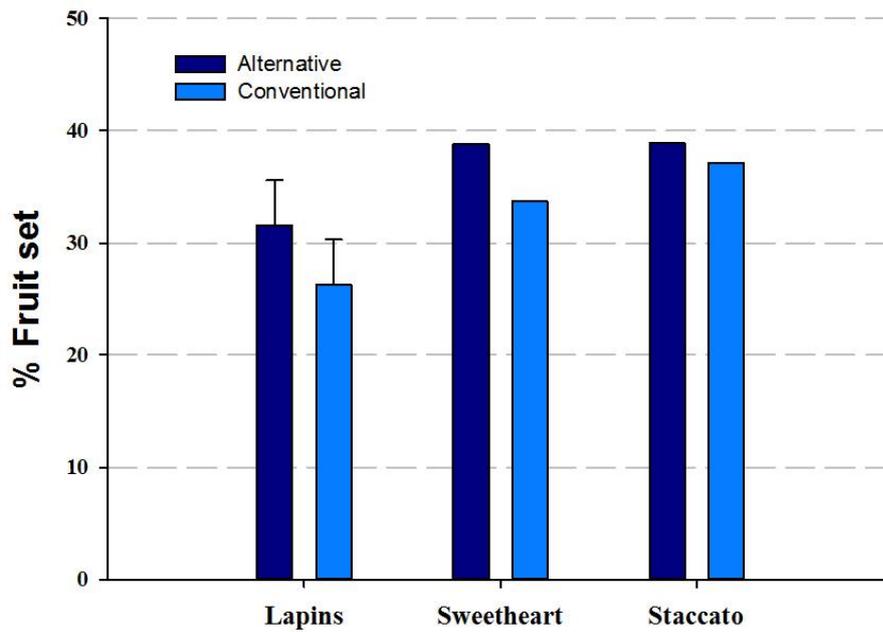


Figure 1: Effect of nutrient management regime on fruit set in ‘Lapins’, ‘Sweetheart’ and ‘Staccato’ cherry trees.

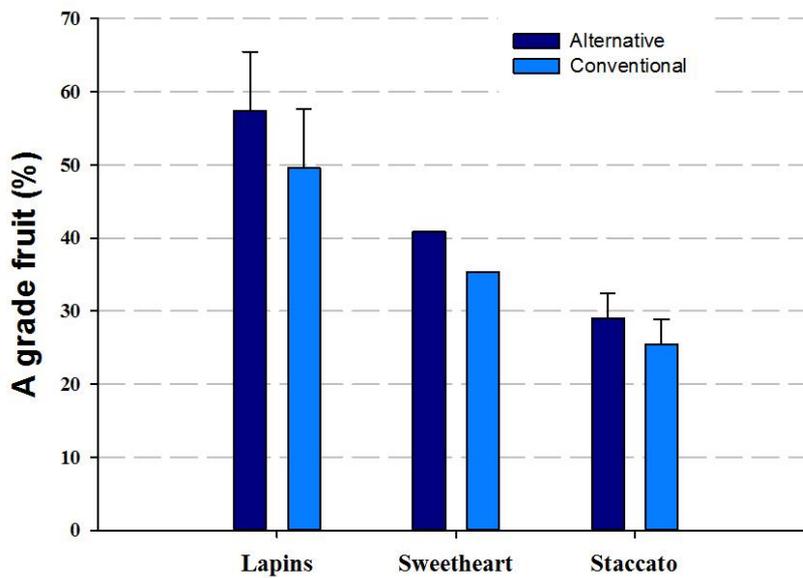


Figure 2: Effect of nutrient management regime on the percentage A-grade fruit in ‘Lapins’, ‘Sweetheart’ and ‘Staccato’ cherry trees.