

Future Orchards Article for the Australian Fruitgrower January 2012

Getting the Basics Right!

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As in all fruit growing areas around the world, most orchardists get excited by new innovation and Australian growers are no different. In the six years that the Futures Orchards 2012 project has been running, many growers have made big strides in their orchard by adopting innovation and new technology in everyday Australian orcharding practices. Some of this innovation includes adoption of multi-row sprayers, growing trees using biological practices, more intensive planting of new varieties under hail netting, 2D fence growing systems and the adoption of bi-axis (double stem) growing systems; the list goes on.



Figure 1: Multi-row spraying

Innovation is exciting but don't forget about getting the basics right.

Often it is the simple things that get overlooked while we yearn for more information on new technology and exciting innovation. We should spend as much time and energy (if not more) on making sure the basics are being done to the best of our ability and to maximise the local environmental conditions for the locality the orchard is growing in.

“Getting the basics right” is usually the area where the biggest impact on the bottom line can be made. We always encourage growers before the busy harvesting season commences to take some time out and walk their orchard and cast a critical eye to identify areas that can be improved upon and identify any areas that may be letting their orchard production down. Honesty is the best policy when doing this review. Make sure you allow plenty of time to really identify important issues that need addressing. Waiting until packhouse records become available after harvest can often be too late to initiate any effective change in management as these results often become available late in the pruning season making change difficult to implement. Also you may only need to improve small areas of a block to significantly increase the bottom line, and packout results often won't identify which part of the orchard is causing the reduction in packout and or yield.

By thoroughly walking your orchard, you will have a better idea of where meaningful improvements can be made. Once you have completed your walk ask for an advisor or suitable senior staff member/colleague/friend that you respect and whom will provide you with honest feedback, to do the same, and then compare notes. These walks have proved most valuable to us and our clients over many years. The areas that need addressing can be easily seen just prior to harvest.

Consistency of fruit cropping is one of the key areas we have noticed affecting many growers' production. By this, I mean are the fruit numbers per tree the same all the way across the block or are there significant differences between trees? It can be quite common to walk into an orchard and note that the outside row trees are fully laden with fruit, and then as you walk further into the block, fruit numbers rapidly decline. Then the last one or two rows into the block, fruit numbers begin to increase rapidly again as they are located closer to another variety. This is especially noticeable in orchards that have recently installed hail netting over the past three years and had previously relied on native bee populations for pollination.



Figure 2: Bi-axis planting

Hail netting often restricts bee pollination effectiveness and it is now common practice to supplement native bees by introducing pollination hives to ensure consistent fruit set. This is especially important when the weather conditions over pollination are marginal as some growers experienced this year. Take the time to check your pollination isn't limiting your production. Getting the basics right includes risk mitigation and introducing supplementary bee hives for pollination is a good, cheap insurance against crop failure from lack of adequate pollination. If the difference is only confined to a spasmodic row or two, then staff supervision at hand thinning time may be the reason.

John Wilton in the June 2011 edition discussed other factors affecting fruit set and pollination that is worth reviewing if inconsistent cropping is a problem.

Next look at fruit quality and colour development. Often if colour development on red or partial red varieties is uneven and less than what you would expect, tree form may be the cause. To determine if this is the case, take time to look at where the best colour fruit (and size) are growing in the tree. Usually they are on weaker, calmer, well thinned branches that are falling towards the ground (below the horizontal). Then take a note of where the low coloured fruit are situated. Often they can be found on vigorous upright branches that have excessive shoot growth or on the underneath of branches. If this is the case, make a note in your pocket diary to change the way you prune your trees and review your fertiliser inputs, as this too might be creating excessive vigour. Over-irrigation can also increase tree vigour to the detriment of fruit quality. Poor hand thinning technique or supervision may also be the cause for poor colour development. Either way, identify the cause and make a note to remedy next time.



Figure 3: Modern Jazz planting with overhead hail netting

Root pruning is increasingly being utilised by growers to control vigour and you may want to trial this on your orchard to learn how it can assist by increasing production and colour development of fruit. It will also advance maturity several days which may be beneficial.

Fruit finish can also be easily seen at this time of year. As you walk up and down your block, you might find that in some of the low lying areas the fruit have more russet and therefore may be subject to frost damage. If russet is an issue all the way across the block, then review your spray program with your chemical representative as your spray product choices and timings may be causing your russet. Talk with your neighbours and friends and compare spray programs. A very old advisor once told me that most russet he'd seen was often man made. Check that you are not the cause of your russet.

Fruit size is becoming more important and growing to maximise the market returns becomes more critical. Take your measuring records and callipers and carry out an audit across your blocks to check that earlier fruit size monitoring is correct. If not, review where it is going wrong and set about to make changes for next year. You may want to alter the number of blocks measured or increase the number of fruit measured to increase its accuracy. Maybe a change in monitoring method is warranted.

Pest and disease outbreaks can have a significant effect on lowering packouts. By walking your orchard now, you can critically review that your earlier pest and disease monitoring and spraying has successfully kept these controlled. Be on the lookout for any pest or disease hot spots that haven't been picked up in earlier monitoring.



Figure 4: Tree growing utilising biological growing methods

Sun burn can also lower packouts and fruit production, so take the time to assess where the worst sunburn is located in the trees and make a note on where the worst damage is and undertake to review your strategies on how to lessen its impact next year.

Often we notice that tree size is limiting fruit production and ultimately tree yield. When walking your blocks, take a note of the characteristics of your best yielding blocks. We have pointed out at many of our FO2012 orchard walks that the blocks with the fuller tree canopies that are not too dense, consistently yield the highest. The exception to this is that some larger trees can be too dense and crop loads suffer because of the lack of even sunlight distribution. Make sure the balance between tree size and sunlight distribution is optimum for maximising quality fruit production. Dr Simon Middleton and Dr John Palmer have covered this in earlier FO2012 meetings and papers.

Increasing yield can often be as simple as adding posts extensions to support taller trees which in turn will produce more fruit. Often we see tree height being overlooked as a possible way to increase fruit yields. By carefully studying the characteristics and traits of your best performing blocks, the improvements needed to the other blocks will become clearer.

Tree health can fluctuate across a block and often between blocks. Leaf tests are a useful tool at this time of year to identify possible mineral deficiencies that may be limiting production. Taking a comparative leaf test from your best block of a variety and comparing it to poorer performing blocks is a useful tool for quickly identifying nutritional imbalances that may be limiting production or lowering packout.

With the wetter spring and autumn growing conditions experienced in some parts of Australia, improving soil drainage may be required.

Innovation can be very exciting and certainly stimulate lots of discussion and motivation to “get cracking”. However getting the basics right is every orchardists challenge. In the majority of instances, it is by far the most beneficial way to improve the orchard bottom line in the quickest and often cheapest way possible. Using honest and timely self-assessments of your orchard can truly lead to significant improvements in profitability. Once you have identified areas that need improving, write a new action plan for this winter. Once harvesting is completed, pull it out and review as more information becomes available from packhouse records. Use this to enhance your earlier plan. Be observant and you will be rewarded.

“Past experience, if not forgotten, is a guide to the future”: Chinese proverb.