

## Future Orchards Article for the Australian Fruitgrower October 2012

### Focus Orchard Update No 1

A unique component of this new “Future Orchards” project is the creation of two Focus Orchards in each region, giving the project a total of 16 Focus Orchards across Australia. These Focus properties give the project a "Regional Focus" as we strive to meet the local challenges that each property faces.

The Focus Properties were selected by a local Community Orchard Group (COG). Each Focus Property is working with a designated AgFirst consultant and the local Front Line Advisor (FLA).

The Focus Properties are as set out in the table below:

Region	Focus Orchard	Focus Orchard
Western Australia	Newton Bros	R and C Omodei
South Australia	Flavell’s	Oakleigh (Rob Green)
Tasmania	Calthorpe (Brad Ashlin)	Lucaston Park (A Griggs)
Southern Victoria	Sanders	Battunga (Mark Trzaskoma)
Northern Victoria	Matt Lenne	Plunkett’s
Batlow	Batlow Coop (Jilba)	James Oag
Orange	Micheal Cunial	Ross Caltabiano
Stanthorpe	Simon Favaro	Trent Vedelargo



Figure 1: Matt Flavell of Flavells Orchard, a Focus Orchard in the Adelaide Hills.

The plan with each Focus Orchard is to:

1. Participate in the Orchard Business Analysis
2. Complete and act on a business planning strategy
3. Monitor closely 4-6 blocks of trees
4. Identify and solve a local research need
5. Try to implement best practice for their own business and then extend that to their local growing community

## Business Planning

This subject was introduced at our winter orchard walks in July 2012. All Focus Orchards have attempted to run through this process and have generally found it a useful process to think about and document a pathway forward for their business. It was an intriguing and learning experience to put the theory of Business Planning into practice in an Australian fruit growing context. A number of topics that were discussed with each business were common through many of the properties. Many of the issues that the Focus Orchards face are common throughout Australia. This article gives you a taste of the challenges and solutions we have met to date.

## Succession Planning

With many Australian fruit growing businesses being family businesses, succession planning was a subject that came up regularly. It's a complex subject that requires a matrix of family wants and needs, to be dovetailed in with an economic model that is going to work for all concerned. Too often the succession plan is put into the "too hard basket" with most fruit-growers preferring to prune trees than commit to this often contentious issue.

However, delaying good succession planning can become very counterproductive to the businesses long term needs. The main family contributors to the business are often asked to work long unsociable hours at less than market rates in order to achieve good fruit growing outcomes. To do this with passion and motivation requires a clear vision of the end goal and the right financial drivers. Without an agreed, known succession plan, family members can lose motivation, which can be negative to the business and family harmony. A good, open succession plan is a positive outcome of any business plan and we would encourage those of you without one to seek professional help and make the time to get it sorted.

## Biennial Bearing

It is quite clear to see that many Australian orchardists are really struggling to produce consistent crops of the biennial varieties, eg, Fuji, Jonathan, Braeburn and, to a lesser extent, Granny Smith and Red Delicious. The hot Australian summers clearly make biennial bearing a more difficult issue to manage, however managing biennial bearing is a key pipfruit production issue anywhere in the world as Figure 2 below shows. Figure 2 shows the production history of a New Zealand block of Pacific Beauty that was

swinging between 75 and 30 tonnes per ha. If you can't manage biennial bearing on Fuji, you certainly won't on this variety; it's dynamite.

John Wilton's article in the September issue of "Australia Fruitgrower" is a good read on techniques required to manage biennial bearing. Typically you need to address the issue with a number of techniques as with a very biennial block, one technique just won't be enough.

The key components to manage biennial bearing include:

- A calm tree
- Sufficient fruit bud numbers to ensure a minimum of 50% are resting in any one year
- A good chemical thinning strategy that removes flower and fruit early in the on-year and just breaks bunches in the off-year
- A combination of tree manipulation using girdling, root-pruning and growth regulators, all aimed at reducing flower in the on-year and maximizing flower in the off-year.
- Good tree reserves, particularly in the on-year, which requires adequate nutrition, water and pest and disease control

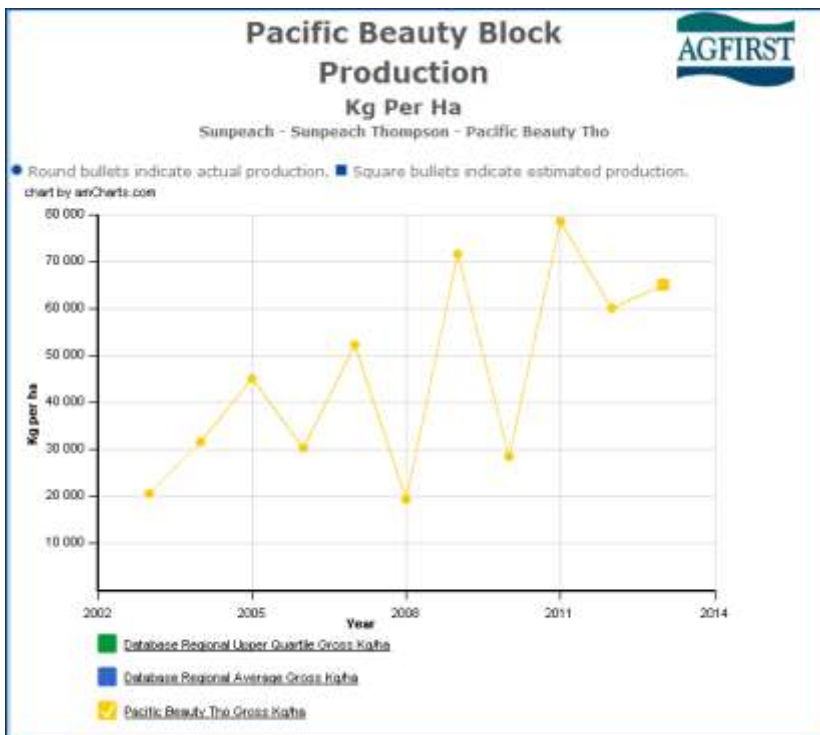


Figure 2

## How many buds is optimum?

During our rounds with the 16 Focus Orchards, a continual question was 'What is the optimum number of buds required per fruit?' There was even a debate about which buds to count. The answers to these questions will become part of the monitoring on many of the Focus Orchards. The FLAs and the Focus Orchards will be counting buds to start to build up a good database of what is actually occurring.

But before we do this, it's important we all count the same type of buds. Our recommendation is that you count all spur buds and terminals. Don't count the lateral buds on one year wood. Some growers think they can tell which spur buds are vegetative and don't count them. We think you're better to count all spur buds as this is more repeatable and easier for a staff member to pick up. Figure 3 as an example has 10 winter buds on the marked branch.



Figure 3: Counting Fruit Buds - can you count 10?

Paul James, the FLA in South Australia, has counted fruit buds on the two Focus Orchards in the Adelaide Hills with some interesting results. On Fuji for example, Oakleigh has pruned to 2.5 buds per fruit while Flavells have some Fuji blocks pruned to 1 bud per fruit. With Fuji being a biennial variety and the Flavell trees being on vigorous rootstocks, our recommendation is that this variety/rootstock combination would be much better served at 2.5 buds per fruit than 1 bud per fruit.

The higher bud number then gives the grower the potential to chemically thin so that at least 50% of spur buds are resting in any one year.

Company: Oakleigh Orchard Property: Focus Orchard Blocks Block: Lot Pa 11-FUJI												
<b>Winter Pruning Report</b> Season Ending 2013												
Blockname	Ssn	Gross Kg/ha	Class1 Kg/ha	Fruit Harvested Weight (g)	Fruit /Tree	TCA (cm <sup>2</sup> )	Fruit /TCA	Target Buds/ Fruit	Actual Buds/ Fruit	Target Buds/Tree	Monitor Buds/Tree	Actual Buds/Tree
<b>Focus Orchard Blocks</b>												
<i>Fuji</i>												
Lot Pa 11-FUJI	2013	50,000	42,500	200	228	120.8	1.9	2.5		571	-	600
	2012	51,371	41,097	200	235	-	-	-		-	-	-
	2011	30,337	24,270	200	139	-	-	-		-	-	-

Figure 4: Oakleigh Orchard Fuji Pruning Report

In another Focus Orchard, Pink Lady has been pruned to 1.1 buds per fruit. The previous thinning history under this regime is that bunches of 2s and 3s are required to achieve the necessary fruit number and fruit size as not all buds set fruit. The question that needs to be answered is, 'Would it be better to prune to say 1.5 - 2.0 buds per fruit and then be able to thin the crop to predominately singles'. A well spaced crop typically has a higher class 1 recovery and is easier to harvest at optimum maturity.

As more and more growers, including the Focus Orchards, monitor bud numbers, the ability to be more precise with bud numbers and wood density will become higher and higher.

## Length of growing season

Another observation that has come up is the premature leaf defoliation that is happening in the autumn, particularly on some orchards in the Adelaide Hills. The length of growing season has a major influence on the reserves a tree can store away for the following season. If the growing season is cut short, then marketable yield potential is lost. Conversely inadequate autumn chill as in Western Australia, delays leaf drop too long and the tree can suffer higher respiration losses and lower chill unit accumulation although this is still being debated. As with all things to do with nature, the key is to find the right balance.

In the Adelaide situation, the Focus Orchards are going to place emphasis on making sure their trees carry good leaf through their entire growing season. This will be achieved through the optimal use of water, increasing nutrition inputs, and ensuring that pest and diseases are controlled. Water availability is always challenging in the Adelaide hills, but this season supplies look to be adequate, which is a good place to start.

This year particular attention will be paid to nutrition. This will be done through a good soil and leaf testing regime, as well as good tree observations. Trees have the remarkable ability to limit themselves to the availability of nutrient and often the concentration of the element in the leaf won't tell the whole tale. Observations of factors such as spur leaf size, vigour, fruit size and colour combined with soil and leaf tests will all help in the diagnosis. There is a general belief that Nitrogen inputs may need to be lifted. South African growers have recently lifted their mid-summer N leaf test goal from 2.2% to 2.5%. By increasing the Nitrogen inputs they have noticed better fruit set, better leaf size, tree health and a significant increase in marketable yield.

Applying nitrogen to pipfruit trees must be done with caution as too much N can be negative, in terms of tree vigour and fruit colour. Growers must work closely with their respective agronomists to identify the amount, timing and form of N that will result in a positive outcome. Nitrogen applications in autumn can build reserves and give only minor impacts on vigour and fruit colour. Fertigation, as practiced on Oakleigh, can be very precise and optimally timed as it is not limited by rainfall which can be very unreliable. Foliar N can also be used to target the tree during the most optimum time so these are all possibilities that we will be investigating.

## How skinny is too skinny?

You may have heard the term, “long and skinny” being used to describe a type of branch pruning style. Another term to describe the same thing is long pruning or straight lining. This pruning style aims to keep the fruiting branch as a rod of fruit, rather than becoming a complex wide unit which becomes large and prone to shading underneath very quickly. Smaller trees on dwarfing rootstocks can achieve long skinny branches relatively easily. Many growers are using this concept with good results, particularly in dwarfing trees and have introduced the concept into their standard plantings as well.

During the Focus Orchard setup phase it became apparent to us that there were instances where the technique had developed to such an extreme that a new term has to be coined called, “long and anorexic” (see Figure 5). Steve Spark had some good pruning rules in his July 2012 notes and the No 1 rule is you “must have buds”. John Wilton reckons he’s never seen fruit grown in thin air yet!



Figure 5: Nice "long and skinny"



Figure 6: A “Long anorexic” branch

The concept of long, skinny branches is just not appropriate on the larger branches in the bases of widely spaced trees. The bud numbers are far too low for the size of the branch. Fruitfulness will be poor and branch vigour far too high. Under a bud extinction program as discussed by the PIPs researchers last winter, the guideline they were working to is 4-5 buds per  $\text{cm}^2$  branch cross sectional area. The branch in Figure 6 would be lucky to have 2 buds per  $\text{cm}^2$ .

The above situation has arisen through a staff member thinking he/she was doing the right thing going “long and skinny”. To avoid this situation happening, you will have to do one of two things:

- Treat the bottom limb as permanent framework and let “long skinny” fruiting units come off it, or
- In the bottom of the tree give the pruners the ability to leave more width. You may for example have a rule that states “keep the branches in the upper tree no wider than 1 secateur width” but in the bottom “up to arm length”.

Whatever way you achieve it, long and anorexic is not good.

The Focus Orchard concept is a new one for Future Orchards and it will take 6 months to bed down, but watch this space - it’s going to be a great addition to the project.



Figure 7: Mark Trzaskoma of Battunga Orchards, Focus Orchard Victoria



Note: All growers have the ability to participate in the OrchardNet tools discussed in this article. Contact your Front Line Advisor to get involved.

<b>Region</b>	<b>Front Line Advisor</b>	<b>Phone No</b>
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Tasmania	Nigel Bartells	0419304769
Southern Victoria	Virginnie Gregoire	0400795539
Northern Victoria	Micheal Crisera	0418379746
Batlow	Kevin Dodds	0427918315
Orange and Stanthorpe	Stephen Tancred	0407762888



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