Future Orchards 2012
June 2010 Orchard Walk

“What we have achieved and what is my vision for 2012 and beyond?”

Where were we at the start of the FO1012 project?
Where were we at the start of the FO1012 project?

- First orchard walk September 2006
- 5 year goal “there will be a major uptake of intensive orcharding for new plantings, while older plantings have been managed to provide maximum profitability to the orchard business”

- What did our orchard look like in 2006?
  - 34 ha apples 1 to 22 yo
  - 4ha 1yo intensive 2666 trees/ha
  - 30 ha densities from 800 to 1600 trees/ha
  - Pruning & training; all central leader, various styles including central axis an slender spindle.

5 year goal is appropriate to measure personal and overall success of the project now. Objective was to lower costs and increase returns by improving yield per ha and quality to improve packout of No1 grade. Industry to be at “World’s best practice”
How we got there – some history:

From mid 60’s to mid 80’s– our plantings in this period were “Semi-Intensive” -500 to 800 trees per hectare, a rough version of NZ “McKenzie Central Leaders”

- big tonnages but as trees aged fruit quality & size deteriorated.
- good for G.Del.,GS & Red Delicious but not for the new varieties.
What did our orchard look like in 2006

Plantings mid 60’s to mid 80’s
• 500 to 800 trees/ha N.Spy or M7 rootstock
• Big tonnages but quality and size suffered as trees aged. Not suited to new varieties.

To mid 90’s
• Axis system M7 or MM111, to 1,200 trees/ha. Trees very tall and difficult to manage, over vigorous. Yields good but biennial bearing an issue with Fuji
1995 to 2002. densities to 1,600 trees/ha. Slender spindle with bottom layer; with some sort of support trellis. Rootstocks Mark 9 & Ottowa 3, later M26.
• Problems: Yields too low as planned height insufficient
  Early yields low dwarf stocks not pushed hard enough.
Trees support too low – 2.4m 40 tonne/ha typical.
Support systems too light.  2002 planting; Cripps Pink/M26
4.25m x 1.7m  1384 trees/ha
Contact with AgFirst and others through the FO2012 project and associated activities demonstrated that:

1. Even high density plantings need height approximately equal to row width to achieve high (economic) yields.

2. Training of branches to below horizontal transforms behavior of young and over vigorous older trees. “Rolling over the tops” of mature vigorous trees calms then and makes an overgrown planting more manageable.

3. Regailas™ growth regulator became available as an additional tool.

4. More aggressive spray thinning and use of ATS.

5. Importance of fruit bud & fruitlet counting
“Rolling over” tops to below horizontal calmed vigorous plantings which were becoming unmanageable. 16yo Fuji on M7 4.5m x 1.8m 1200 trees/ha
2005 planting – GS & Rosy Glow on M26 3.75m x 1.0m 2666 trees/ha
The Rosy Glow area of the 2005 planting became FO2012 monitor block VC-45. In each of last 2 years has yielded 70 to 80 tonnes/ha.
The adoption of the new hailnet/trellis system enabled additional height (5m) and strength to existing plantings and was also used on 6ha of new plantings in 2008, inc 4ha of Jazz™. 3.33m x 1.0m 3000 trees/ha
2yo Jazz™/M9 Pajam2 Carried the planned 30 fruit/tree to 2010 harvest of 12 tonne/ha. (After some pre-harvest fruit drop.)
Following a 2nd group trip to NZ, and some encouragement from Marcel Veens a root pruner was put to use last year (2009) after harvest, pruning about 17ha. The same blocks plus another 3 or 4 ha will be treated this year.
Another AgFirst contribution to the transformation of problem blocks was a pruning demonstration day conducted by John Wilton and attended by staff (ours and others) of local orchards. This was one of a number of activities associated with the FO2012 project and organized by the monitor block proprietors group.
Large lower branch removal, and single line long pruning method was the focus.
The result. High yielding, open and accessible orchard, which should, I hope become cheaper to prune in future!. Staff morale has improved by having simpler and better defined systems and objectives for pruning and tree training.
These systems also suit re-working. Pink Lady over Braeburn/M26 re-worked 2007.
And has enabled the use of a tower sprayer in most blocks.
Biennial bearing has been reduced, as demonstrated in this production chart for all Fuji and particularly in the block which received the most radical workover.
Other monitor block group activities.
Contact with other growers (networking?)

Orchard Walks have increased grower interaction.
Trips to New Zealand (2)
Brookfield Gala, Hoddy’s orchard, Nelson Area

This orchard block of about 15 yo trees was an inspiration to us all.
E E Muir & Sons Pty Ltd Developed a comparative growth measurement and recording system for new plantings, about 30 blocks of one and two yo trees were compared in the last 2 seasons.
Block R (Y); 1 & 2yo trees in the project.
Have we achieved the aims of the FO2012 project; or will we by 2012?

- Are we more competitive?
- Are we in a position to compete with imported fresh apples?

Obviously the position of each individual grower is different. The maturity of the business and the stage of generational change in particular will influence the capital situation.

The adoption of “world’s best practice” systems come at a cost to finance and liquidity at least in the short term.

The AgFirst “Hortwatch” analysis of 24 Australian orchards with monitor blocks in 2007/8 indicated that equity and financial strength was high at that point. However a wide range of performance (operating surplus) existed, even between average and top 25% shows that many, if not the majority would struggle with lower prices. (In our own case labour cost are relatively high).

Headwinds have I think strengthened since then:

- Supermarket chains have put more price pressure on growers (without always lowering retail prices).
- Imports of other competing fruits have increased.
- Profitable placement of reject fruit impossible due to imports of processed product.
- Labour costs have increased and flexibility has been reduced under award “modernisation”.
- Costs may be increased in the short run by intensive systems.
- Redundancy of producing orchards due to improve strains is increasing.

In our own business, profitability, or the lack of it has become an major concern; even without imported fresh apples. However after FO2012 we are growing more even crops of better quality fruit with a higher packout.

- Hail net has reduced risk

- The new systems are more manageable (scalable?) and will increasingly show productivity benefits.
Pink Lady on Mark(9) rootstock planted 1995 – 4.1m * 1.5m 1626/ha
100tonnes/ha each of last 2 years.
Strain now superseded. Photographed after 1st pick & leaf stripping. 2009. Large
% processed because of colour requirements.
2-D System – Nelson New Zealand
2012 and beyond?

- Predictions always difficult, especially about the future.
- I am no more qualified than anyone in the room to make them about the pome fruit industry.
- I would like to predict a stronger industry based on the technology we have acquired, plus new technology such as robotics with 2-dimensional row form and so on.
- It is difficult to be that optimistic in today’s environment: high labour costs and a difficult retail environment provide a challenge which maybe can only be overcome with innovation eg the France “tree wall”.
- It is difficult to see a successful business model when varieties and strains are quickly superseded by redder versions, requiring costly orchard replacement.
- Is achieving “World’s best practice” going to be enough?