

Future Orchard 2012 – Stanthorpe, Queensland Orchard Walk June 2007

Promotion:

- Growcom issued the press release and organised one advertisement in the Stanthorpe Border Post (31/0607).
- DPI&F staff faxed 40 plus growers the week before the OW and just prior to the OW with information and reminders.

DPI&F Involvement:

- Allan McWaters and Clinton McGrath act in the role of facilitator on behalf of Growcom.
- DPI&F provided the conference room venue for the seminar session of the OW at no cost.
- Allan McWaters and Clinton McGrath met with Ross Wilson, Garry Langford, Paul James and Alma Reynolds on Sunday 3 June near Stanthorpe. We all then proceeded to Pozieres for the Monitoring Block meeting held at Rizzato's Orchard between 3:00pm and 6:30pm.

Orchard Walk Notes

The orchard walk programme consisted of indoor presentations held at the DPI&F conference room at Applethorpe during the morning and the actual orchard walk took place at Tomasel's orchard in the afternoon.

The morning session had 28 people (20 growers) in attendance and the afternoon session in the orchard had about 32 (25 growers) in attendance. This orchard walk was the most successful to date in terms of grower participation and involvement.

Morning Programme: 10:00 am to 12:30 pm.

Garry Langford (General Manager APFIP)

- "Varietal Strategies for Future Success"
- "Nursery Tree Specifications & Tree Types Description"

Paul James (Rural Solutions SA)

- "Economic Performance of High Density Orchards under Australian conditions – A Snapshot."

Ross Wilson (AgFirst Consultant)

- "Block Profitability"

- “Pruning and Training to Maximise Marketable Yields”

Afternoon Program: 1:15 pm to 2:30 pm Ross Wilson (AgFirst Consultant) gave a practical pruning demonstration with assistance from Ugo Tomasel, Stephen Tomasel and Paul James (Rural Solutions SA).



Ross Wilson conducts a pruning demonstration in a Pozieres Orchard at the grower meeting held on Sunday 3 June.

Garry Langford (General Manager APFIP)

“Varietal Strategies for Future Success”:

- Garry Langford outlined the role of APFIP as an independent evaluator of pome fruit varieties. APFIP does not make variety recommendations.
- Historically, the apple industry has had free access to all the varieties it needed to ensure viability. This is no longer the case.
- Fewer and larger buyers have increasing influence in the marketing chain. This has resulted in greater competition between all involved to access an ever decreasing number of outlets. This has had a negative effect on prices and profitability of growers.
- In Australia, 80% of the retail price is post farm gate.
- The current and future trend is to variety management through the use of trademarks, plant breeders rights and plant patents.
- Variety management is here to stay. This alters the process by which growers make their variety planting decisions.
- Growers will need to adapt to this new environment and understand that a collective approach will be required to facilitate their success with new varieties. New varieties need planning, and support from others to make it work.
- A great deal of information is required to make variety decisions. Eg Variety characteristics which affect how and where it can be grown. Marketing questions concerning consumer appeal, growing fruit to specification, variety promotion, marketing chains and level of commitment by all parties concerned (contractual arrangements). Level of IP (USA Plant Patent, Plant Breeders Rights and Trademarks).
- Alliances with others in the marketing chain are important. These arrangements will ultimately determine what varieties can be grown in the future.

Also as part of his talk Garry spoke about:

- Garry outlined the impact of latent viruses on apple tree productivity. In Australia (Les Penrose Project 1988) showed that Virus tested Jonathan (56% greater), Richared Delicious (40% greater) and Granny Smith (41% greater) had higher yields compared to infected material. An Australian survey in 2005 of pome fruit growing districts found that 94.2% of the 173 trees sampled had one or more of the following viruses. (apple mosaic virus, apple stem pitting, apple stem grooving and apple chlorotic leaf spot virus).
- APFIP has a certification scheme for the supply of virus tested material. This material is available through licensed nurseries under the Certified APFIP trademark logo.

“Nursery Tree Specifications & Tree Types Description”

- Garry spoke about talking to nurseries about tree specifications in advance of ordering trees (before the trees are made).
- Sourcing trees on the basis of availability alone means that you have to accept what you get. I.e. tree quality is not guaranteed.

- The notes have detailed specifications and tree descriptions for summer budded trees, 1 year old whips, Knip trees and 2 year old spring budded trees.

Paul James (Rural Solutions SA)

“Economic Performance of High Density Orchards under Australian conditions – A Snapshot”:

Paul James gave a presentation about his high density orchard systems trial planted at Lenswood Horticultural Centre in October 1999. He gave the background to the trial, how data has been collected, results to date, and presented findings on the economics of the systems trialled.

Trial Objectives:

To evaluate the production performance, labour requirements and overall economic performance of high density orchard systems.

Trial Design:

The trial consists of 2 varieties (Cripps Pink and Cripps Red) planted in a total of 38 rootstock x planting system x spacing combinations per scion variety.

- The rootstocks include M9, M26, Ottawa 3 and MM 106.
- Planting systems include single row central leader/tall spindle, Open V and Closed V trellis, and European Super spindle.
- Planting densities ranging from 2000 to 6666 trees /hectare.
- Within row tree spacings of 0.75m, 1.0m and 1.25m.

Data Collected:

- Establishment costs for each system. Ranging from \$32,105 (Vertical trellis @ 2000 trees/hectare) to \$77,261 (Closed V @ 6666 trees/hectare). Figures show that establishment costs increase with increasing tree densities and that as the cost of trees increases so does the difference between systems.
- Yields have been measured in a number of ways to give a full assessment of each system. Total yield (tonnes/hectare), Cumulative yields tonnes/hectare) and Pack-out (which is really marketable yield).
- Labour costs are based on the cost of labour for each system per tonne of fruit produced. This is calculated for each system from planting onwards.

Key Points and Conclusions:

- Single row trellis systems perform no better or worse than V trellis systems.
- Paul’s work indicates that tree densities of 2500 to 3500 trees per hectare are the most economic to grow. Ross Wilson highlighted how well these tree densities

correlate to optimum planting densities presented in previous Orchard Walks from Italy, NZ, South American and the USA.

- Paul stressed that tree spacings up to 1 metre could be best managed to obtain optimum yields and canopy development.
- M9 and M26 gave the best results for Cripps Pink and M26 was best for Cripps Red.
- MM 106 is too vigorous under SA growing conditions. While MM 106 accumulated early yields in the trial it became the worst performer in subsequent years due to excessive vigour.
- Ottawa 3 performs better at higher densities. It is more difficult to manage and grow.
- Surprisingly, the total labour costs for the different systems are fairly similar in terms of cost per tonne of fruit produced. Paul found that the main differences between the labour costs for the systems was in where the labour is required to produce the fruit (e.g. tree training, pruning etc).
- Total orchard production costs per hectare are not as crucial to profitability as fruit pack-outs and quality. Marketable yield and price are more significant.

Ross Wilson (AgFirst Consultant)

“Block Profitability”

- The concept of Block Profitability is about analysing the financial performance of orchard blocks and using that information to make informed orchard management decisions. This could include goal setting for individual blocks (e.g. setting up higher crop-loads and improving fruit quality and pack-out).
- Block Profit = Income less {Cash Expenses (including overheads), Interest and Lease costs, and Depreciation}. “This figure is therefore prior to tax, reinvestment and drawings”.
- The Future Orchards 2012 project compiles orchard block data from participating growers on the website for block comparisons of orchards systems and varieties. The growers fill out a simple form which collects tree statistics of the block, production data, returns and basic labour costs. All growers can participate if they wish. Growers should also crunch the numbers on their own orchard blocks to better manage their business.
- The “drivers” of Block profitability include Variety, Productively (gross yield in kgs), Pack-out, Price and Expenditure.
- While these factors all act together and impact on each other, the pack-out of class one fruit (premium quality) and price have the greatest effect on Maximising Profitability. Ross quoted the saying “Maximise Income and Manage the Expenditure.” The point was made that Maximising Income is a higher priority rather than cutting costs. This point also came through in Paul James presentation when he said that cutting orchard production costs should not be at the expense of fruit pack-out and quality.

- Ross showed graphs based on orchard stats in the Future Orchards 2012 project. A graph showing Cripps Pink Tree Age versus Profit showed that block profitability increases with tree age and gross yield. It also showed that there is a wide variation in profitability of similar orchards planted at the same tree densities. **It is not enough to just increase planting densities to ensure profitability.**
- From the notes - “Block profit analysis should assist the grower to set the management objectives of the block. These should include: market strategy, target prune, thin and harvest costs, pruning strategy, set optimum crop loads for the block, chemical and hand thinning strategies, vigour management techniques e.g. use Regalis™, cincturing, need for reflective mulches, harvest strategy etc etc.”

“Pruning and Training to Maximise Marketable Yields”

The key points discussed in the seminar room and demonstrated during the orchard walk include:

- “Having a calm tree is the key to early production, regular and high yields and good fruit quality.” This involves controlling tree vegetative vigour with cropping and minimal pruning (pruning which does not encourage unwanted growth).
- Pruning and tree training should have objectives and purpose. There should be an overall “vision” of what form and structure the trees will have. Tree height to row width ratio should be no more than 1 to 1. Tall trees should have narrow tops to allow for good light distribution in the tree canopy. A “saw-tooth” appearance is desirable along the tree row (gaps for light penetration). Continuous hedge rows of trees have poor light distribution in the canopy due to shading.
- The fruiting units (branches) should be simple structures tending to be horizontal or pendant.
- Uniformity of tree structure makes it possible to systemise pruning operations and reduce costs. This also maximises yield and overall orchard efficiency.
- Pruning operations can be systemised by dividing the job into roles for staff with varying degrees of skill. For example, skilled pruners quickly go through the block making strategic cuts. Other less skilled people follow behind doing tidy up cuts that follow a “recipe”.
- Straight lining of fruiting units to narrow the branch profile (reducing growths to one).
- Bud counting involves pruning to a target number of fruit buds to achieve the desirable crop loading, quality and fruit size. In NZ for example, Ross quoted figures of 1- 1.5 buds per fruit for Gala and up to 3 buds per fruit for more biennial varieties like Braeburn.
- The desired crop-load can be worked back from the target yield per hectare, to the fruit number per tree to achieve this. This approach can be used to “fine tune” production in apple blocks.
- Tree growth response to pruning cuts is predictable. Cutting back wood (particularly vertical growth) gives the tree the signal to grow new wood at that point. Heading cuts at the end of branches promotes growth that is mostly not usable for cropping because it is too strong and in the wrong place. This practice tends to bring about a cycle of growing wood and cutting it off again. Vegetative

vigour can reduce yield and fruit quality due to shading and poor light distribution the tree canopy.

- Flatter to pendant branches are more productive because the tree response is to initiate fruit buds on these branches. The tree response to strong vertical growth tends to be vegetative (apical dominance of vegetative buds) rather than reproductive (fruit spurs).
- Bending branches in an arch will promote strong growth at the highest point of the bend and corresponding smaller growth either side.