FOCUS ORCHARD UPDATE APRIL 2020
GOULBURN VALLEY AND STANTHORPE

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ACKNOWLEDGEMENTS

A big thank you to Alex Turnbull and Rosie Savio for providing the block data and their continued support for the Focus Orchard program. The ongoing creation, maintenance and monitoring of these orchard blocks is made possible due to the ongoing participation of the Focus Orchard growers across Australia and the Front-Line Advisors who support them.

GOULBURN VALLEY – TURNBULL BROTHERS

Block profile: Turnbull Brothers Findon Buckeye Gala

Variety: Buckeye Gala
Rootstock: M26
Row spacing: 4.8m
Tree spacing: 0.625m (V-trellis; 1.25m tree spacing per side)
Age: Planted winter 2006

Figure 1 Turnbull Brothers Findon Gala pre-harvest 2020
**Results to date**

This Buckeye block is a nice V-trellis with consistent full canopy. As can be seen in the production history (Figure 2), this block continues to improve its performance with a solid increase in the 2020 season (year 14 in the graph).

Chemical thinning within this block is relatively aggressive; for 2020 the program was:

- ATS (full bloom/petal fall kings)
- ATS + cytolin (full bloom + ~2 days)
- ATS + NAA (one year old wood full bloom)
- BA + NAA as a secondary thinner

![Buckeye Gala Production vs Age](chart.png)

**Figure 2** Turnbull Brothers Findon Gala historical results (gross kg, class 1 kg and average of all Australian gross kg in OrchardNet by tree age)
Fruit size

With this block targeting the early market, 80 t/ha gross tonnage is a great result. With a generally poor year for fruit size in the Goulburn Valley for early season varieties this block only achieved an average fruit size of 144 grams which will be a focus to lift in the future. Back-calculating results would suggest there was an average of 166 fruit per tree based on the average fruit size and yield (see ”Harvested Fruit per tree relative to Fruit post-thin” in Figure 3).

The post thinning fruit counts indicated an average of 130 fruit per tree which in hindsight was misleading. Continuing to focus on fruit count accuracy will be a key factor to optimise the fruit size/yield dynamic into the future in this high performing Gala block.

To achieve this a few key areas will be focused on for the next year:
- Continuing to focus on detailed pruning
- A relatively aggressive chemical thinning program
- Early hand thinning, ensuring an optimised fruit number per tree is achieved consistently throughout the block
  - This may require an increased focus on tree-to-tree variability
  - Run audits of fruit count accuracy
- Maintaining tree health with a good nutrition and irrigation program and continued use of this block’s overhead cooling system to minimise the effect of extremely hot days on the tree and fruit.

![Fruit size data table]

Figure 3 OrchardNet’s thinning report for the Findon Buckeye Gala block.
Block profile: Turnbull Brothers Wallace Granny Smith

Variety:  Granny Smith
Rootstock:  MM106
Row spacing:  4.8m
Tree spacing:  1m (twin-stem V-trellis)
Other details:  Planted winter 2006

Significant challenges with biennial bearing and in its "off year" in the 2019/20 growing season

When the Turnbull Orchard first became a Focus Orchard, one of the challenges posed to the team was how could we fix the biennial bearing pattern that had become established in the Wallace Granny Smith block. Al went into the “2018 ON Year” and made the following changes: Aggressive chemical thinning using Ethrel, ATS and BA, hand thin early and a summer NAA program.

![Granny Smith Production comparison: National, Type - Granny Smith](chart)

**Figure 4** Turnbull Brothers Wallace Granny Smith historical results (gross kg and average of all Australian gross kg in OrchardNet by tree age)
Season 2019/20 - biennial bearing; managing the "off-year"

With this block in its "off-year" this season a few different strategies were employed to try to minimise the yield and fruit size swing. These strategies were:

- Not pruning as aggressively (leaving some additional bud in the tree this year)
- Less chemical thinning
- Leaving fruit in bunches of 2’s and 3’s

Whilst this block is still somewhat biennial with a yield of 60t/ha this year (2020), down from 80t/ha, this "off-year" yield was significantly higher than the 36t/ha yield two years ago (Figure 4). A solid improvement!

Coming into the "on-year" this next season some techniques that will be considered to help ensure a great return bloom in the 2021/22 growing season include:

- More aggressive prune to approx 2.0 buds per fruit
- Removal of any big wood this year as there will be limited removal next winter
- Aggressive chemical thinning with ethephon, ATS and BA to promote return bloom
- Earlier than usual hand thinning to an optimised cropload target
  - This could be completed in two passes to ensure the "bulk" of the excess crop is removed early and then detailed to a final cropload at a later date
- Late-November girdling will be trialled
- Summer NAA program

Whilst biennial bearing is a major challenge; persistent management and corrective techniques can help to minimise, or eliminate, the issue entirely. For further info on biennial bearing, go to the FO archive library.

Also for further information (and to see the results of the great looking Pink Lady block below) login to OrchardNet (user: focus password: focus). After harvest check each block's results.

Figure 4 Pre-harvest pictures of the Turnbull's Ruby Pinks (Ratcliffe's Focus block at harvest)
Variety: Scifresh (Jazz)
Rootstock: M26
Row spacing: 4m
Tree spacing: 1.2m
Other details: As with the rest of the Stanthorpe region, the drought has made the 2019/20 season extremely difficult with limited water now for two growing seasons and this summer’s late season rain causing splitting in a number of varieties

Figure 5 Vecchia Jazz yield results for the last three years. Despite difficult conditions (drought) in both the 2019 and 2020 years, yields continue to lift in this block
Results to date

Following a tough 2019 harvest with significant pre-harvest fruit drop a few changes were introduced to try to minimise the drop issue this season.

The strategies to minimise preharvest drop were:

- Thinning fruit to singles (to minimise risk of fruit being "pushed off" when in doubles
- Cytolin (GA4/7) application targeting elongation of fruit and stem length
- Improve pollination conditions
  - Top half of Granny Smith pollinators (poor synchronicity with Scifresh) were grafted to Cripps Red (Sundowner) last winter (2019)
  - Manchurian polliniser trees planted throughout block
  - Hail netting was opened over bloom to assist bee movement
- Continued use of a pre-harvest stop drop program (Retain, NAA and/or Harvista)

It would appear that these approaches, despite an extremely challenging year, may have contributed to the reduced fruit drop (there was still some) in this block.

Figure 6 Scifresh (Jazz) fruitlet with Cytolin (GA4/7) induced stem/fruit elongation (right) relative to a fruitlet that was not affected (left) in November 2019
2019/20 Trial Update – Northern Victoria and Queensland

This year the regional Future Orchards trials for each region are still being finalised with reports to be published on the APAL Future Orchards Library once completed.

This year in Northern Victoria trials to develop pear fruit size growth curves and an evaluation of primary thinning approaches (chemical vs mechanical) were undertaken. Data has now been collected and results of the trial will be discussed during the winter 2020 Goulburn Valley Future Orchards talk.

In Stanthorpe, crop loading trials for drought conditions were undertaken on both Gala and Pink Lady. Results of these trials will be discussed during the winter 2020 Stanthorpe Future Orchards talk with the final report uploaded to the Future Orchards Library on the APAL website upon completion.

Keep an eye on all Focus Orchard block progress through OrchardNet using the focus orchard login (username: focus password: focus) and trial updates on the APAL website.