

Future Orchards Trial: Interim Report

Project title:	Lenswood Young Tree Growth trial
Region:	Adelaide Hills
Contact:	Paul James
Projective Objective:	To observe and monitor the performance of young Aztec Fuji trees trained 6 different ways and how these methods influence the growth of the trees in an orchard set up for netting.

Outline/method/ (what you did):	<p>Four replicates of 6 different tree training methods were used to establish Aztec Fuji trees on M.26 rootstocks. All trees were planted on the same day and have been trained according to the principles of each training system.</p> <p>The trees were planted at 3.5 x 1m (2857 trees/ha) in 2014 and the initial tree training work has focussed on growing the trees to maximise tree height which is essential to maximise commercial performance in a netted orchard.</p> <p>Tree training was carried out on a regular basis and most aspects of tree growth have been measured and recorded.</p> <p>The 6 treatments are</p> <ul style="list-style-type: none"> • Pink = planted as provided by nursery – no limb removal or adjustment • Yellow = planted and all side limbs removed (whipped) no heading • Blue = planted and all side limbs removed (whipped) no heading • Orange = planted and all side limbs removed – headed @ 900 mm • Red = planted and all side limbs removed – headed @ 900 mm • White = planted and all side limbs removed – headed @ 900 mm <p>The trial will run for 5 years and at this stage is considered to be progressing according to expectations. 2017 will see the first harvest of fruit although these figures have been upset due to bird damage as the net is currently not in place.</p>
--	---

Results So Far

Table 1 below shows the tree growth results in 2017, 2016 and 2015, the 2nd, 3rd and 4th leaf growing periods of the trial. Interestingly there is not a lot of difference between the treatments in measured figures but there is considerable difference in commercial characteristics of the trees. These characteristics are reflected in Table 2 where the branching and shoot length measurements have been calculated.

Table 1. Aztec Fuji Young Tree Growth Trial - Comparative Growth 2017

Treatment		Tree height 2015	Tree height 2016	Tree height 2017	TCSA At planting	TCSA 2015	TCSA 2016	TCSA 2017
Blue	W-NH	2.40	2.91	3.22	1.91	5.39	11.01	13.93
Red	W&H	2.24	2.81	3.25	1.99	4.67	10.15	12.93
Orange	W&H, W	2.23	2.94	3.23	2.11	4.43	8.94	12.82
White	W&H, W	2.46	3.02	3.53	2.24	4.05	8.52	13.02
Pink	NP	2.35	2.78	3.09	2.19	5.41	10.10	13.22
Yellow	W-NH, W	2.40	3.01	3.30	1.92	5.61	10.15	14.28
Average		2.35	2.91	3.27	2.07	4.93	9.81	13.37

Table 2 Branching Characteristics.

Treatment		Branches >15cm	Sprigs	Spurs	Total Growth points
Blue	W-NH	24.6	3.3	9.8	37.7
Red	W&H	21.6	3.9	12.8	38.3
Orange	W&H, W	22.6	6.7	14.0	43.3
White	W&H, W	29.0	4.4	12.0	45.4
Pink	NP	21.0	5.6	9.8	36.4
Yellow	W-NH, W	28.5	4.8	9.4	42.7
Average		24.6	4.8	11.3	40.6

The measurements in table 2 have been measured to try and describe some of the commercial differences observed in the trials. The non-headed trees (Blue, Yellow and Pink) tend to have more branches and less small growth (sprigs and spurs) than the headed treatments (Red, Orange and White) which has resulted in better commercially structured trees. The Pink (control) treatment has the lowest number of total growth points which reflects the influence of the dominant lower limbs in the tree which resulted from the non-pruning at planting.

Yields

This season was the first the trees carried fruit. This fruit was harvested **however the results (presented in table 3) should only be considered as a guide only as the trial was severely impacted by bird damage which has distorted the results obtained.** By the 2018 season the trial block will be fully netted which should alleviate this problem.

Table 3 2017 Yields

Treatment		Total Kg harvested per tree	Average Fruit size gms	Yield /TCSA
Blue	W-NH	9.0	230.7	0.64
Red	W&H	7.2	241.5	0.56
Orange	W&H, W	5.0	283.3	0.39
White	W&H, W	5.2	255.6	0.40
Pink	NP	8.1	222.6	0.61
Yellow	W-NH, W	5.3	243.5	0.37
Average		6.6	238.7	0.50

The fruit quality from these trees was highly variable in quality, pale in colour and as shown by the average fruit size - very large.

Is this trial likely to be completed on time

The trial is on track but it is an on-going project for another 2 years so this report can only be considered as an interim report.

Does it appear this trial will yield useful results

The trial is already providing some valuable results and insights into what training methods to use for apple varieties that are considered basatonic in their growth habit and therefore have trouble attaining the tree heights required to maximise their growth and tree height for use in netted orchard systems.