

Future Orchards Trial: Final Report – Young Kanzi Pruning 2018/2019

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| Project title: | Comparison of two approaches to pruning young Kanzi trees to encourage canopy establishment |
| Region: | Orange NSW |
| Contact: | Kevin Dodds & Jessica Fearnley NSW DPI |
| Projective Objective: | <p>Background At the Orange Region 2018 June OW on Ian and Prue Pearce’s property, there was a lively discussion about the best approach to pruning a young Kanzi block to optimise canopy establishment. Walk leaders Ross Wilson and Mark Ericksen had dramatically different views and it was agreed by the growers present and the local COG, that this would make a really interesting local trial/demo.</p> <p>Objective The comparison will be two treatments as follows; 100% Poling (Ericksen) vs Selective branch retention (Wilson). Greater detail of the two treatments is provided in the outline/method below. The trial will attempt to identify which method produces the best outcome in terms of canopy establishment.</p> <p>The objective of this pruning trial/demo is to implement the two Winter pruning strategies (Wilson and Ericksen) side-by-side in Pearce’s Kanzi block and monitor the outcomes. The site will feature at an OW in 2019, with growers getting the opportunity to see the outcome of the two pruning approaches.</p> |

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| Outline/method/ (what you did): | <p>Block location Ian & Prue Pearce, Stoneleigh Orchards Intersection of Ophir Rd and Pearce Lane, Clergate, Orange NSW 2800</p> <p>Block Details Block Name : New Kanzi Rootstock : M9 Density : 3.5m x 1.1m =2597 Tr/Ha Year Planted / Age : 2017 (coming into 2nd leaf)</p> <p>Ross Wilson Treatment</p> <ul style="list-style-type: none"> • Remove all shoots that are greater than 50% of the diameter of the trunk • Remove all duplicates ie 2 shoots coming from the same area of leader • Remove all shoots and fruit bud within 0.5 m of the tree apex. • Remove all shoots below 0.8 m above ground |
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| | <ul style="list-style-type: none"> • Avoid too many shoots in the same zone to avoid leader strangulation • Aim for no more than 10-12 shoots per running m of trunk. • Then tree train the stronger shoots to 30o below the horizontal. • Ensure the chemical thinning program removes the fruit asap without debilitating the tree (maybe 1 or 2 ATS followed by a BA/Carb/ANA super brew). <p>Mark Ericksen Treatment</p> <ul style="list-style-type: none"> • Remove all growth (flush cut) below 1m • Any Growth in desired area but too strong at present then toilet seat (stubbed) cut leaving around 2cm to protect growth points. • Make sure there is no competition with the leader to maximise height in the first 2 years <p>Records & Measurements</p> <p>Establishment</p> <ol style="list-style-type: none"> 1. Photograph each treatment to show appearance at establishment 2. Measure and record the trunk circumference (just above the graft) and height of each tree post pruning <p>Early Summer (after shoot termination)</p> <ol style="list-style-type: none"> 1. Photograph each treatment to record progress 2. Selectively remove any vertical shoots from the Ericksen treatment <p>Late Summer</p> <ol style="list-style-type: none"> 1. Repeat the establishment measurements of trunk circumference and tree height. 2. Limb train new branches in both treatments and lightly thin out surplus branches in the Ericksen treatment. |
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Results

Establishment Photos



Figure 1. Ericksen Treatment trees after pruning in Winter 2018 (Left) and toilet seat cuts used to encourage new branches with flat angles (Right). Images taken 15.08.2018



Figure 2. Wilson "retained limb" treatment showing minimal branch removal and training of existing limbs. Image taken 15.08.2018



Figure 3. Early season shoot growth in the Ericksen treatment was excellent, with plenty of new shoots of uniform length being produced, providing options for limb selection and training later in the season. Branch angles were also good. Date taken 27.10.2018



Figure 5. Wilson treatment trees typically had fewer limbs which were less uniformly distributed. Date taken 13.03.2019



Figure 4. Ericksen treatment trees following late summer limb selection and training. Surplus limbs shown on ground near the source tree. Date taken 13.03.2019

Measurements of trunk diameter and tree height were collected at establishment (August 2018) and repeated in early autumn (March 2019). In addition, branch numbers per tree were counted in both treatments prior to the March 2019 limb selection and training.

Table 1. Average tree trunk diameter and height for the Ericksen vs Wilson winter pruning treatments, including average branch number per tree in March 2019.

| | Ericksen Poling Treatment | | | Wilson Retained Branches Treatment | | |
|-----------------------------|---------------------------|------------|--------|------------------------------------|------------|--------|
| | August 2018 | March 2019 | % Gain | August 2018 | March 2019 | % Gain |
| Avg Trunk Diameter (mm) | 21.3 | 28.8 | 35 | 20.4 | 26.7 | 31 |
| Avg Tree Height (m) | 1.8 | 2.6 | 43 | 1.8 | 2.4 | 33 |
| Avg Branches per tree (No.) | | 19.3 | | | 12.9 | |

Observations

The measurements summarised in Table 1 confirm our visual observations of the two treatments.

1. Ericksen (Poled) trees gained more height than the Wilson (retained limb) trees
2. Poled trees gained more trunk diameter
3. Poled trees produced a greater number of new limbs providing more options for limb selection and a more balanced canopy.

Implications (What did we learn? How will this impact on the business? What will we change? What are the road blocks/obstacles to change?)

This demonstration clearly showed the differences in the pruning techniques discussed at the spring 2018 Future Orchard Walk. Growers may choose to adopt the poled pruning method for trees that may need to gain more height after viewing these trial results. Ian Pearce, the focus grower was convinced of the value of Mark Ericksen’s treatment, pruning the rest of the block under his guidelines. The Ross Wilson treatment was more time consuming and labour intensive and growers who may like this method of pruning can compare this to the time efficient Mark Ericksen treatment, and also get better results.

The opportunity to share the demo data with growers at the orchard walks was important in extending this method of pruning to growers in the Orange district. The April 2019 Orchard Walk gave us the opportunity to take growers to look at the plots and give the measured results in a presentation on the day. The Orchard Walk was well attended and generated some useful discussions about managing young trees for canopy filling. Whilst the demonstration outcomes were very positive for the Mark Ericksen’s treatment, it should be noted that this method was successful in this situation and may differ in other growing conditions.