Future Orchards Program
TAS trials update 2015-16

Sophie Folder: Front Line Advisor, TAS
(Pear Consulting)
Tas 2015-16 on ground activities

- Tas Focus orchard - Millers Orchards, Hillwood

- Trials / on ground activities
  - Achieving even growth in multi leader trees
  - Pedestrian Orchards: Single vs V-trellis case studies
Pedestrian orchard case studies
2015-16
Millers Orchard, Alvina Gala/ M9, Single trellis - double leader

7 Oct 15 (delay headed 2 weeks after planting)  
22 Oct 15 (after delay heading)

1 Feb 16 (headed treatment)  
May 16 (headed treatment)
October 16 (planting)

Jan 16 (above)

March 16 (end of season)

JW Kirkwood
Aztec Fuji on M26
V trellis - single leader
# Pedestrian orchard block details

<table>
<thead>
<tr>
<th></th>
<th>Millers Orchard</th>
<th>JW Kirkwood</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variety &amp; Rootstock</strong></td>
<td>Alvina Gala on M9</td>
<td>Aztec Fuji on M26</td>
</tr>
<tr>
<td><strong>Trellis</strong></td>
<td>Single – double leader tree</td>
<td>V-trellis – single leader tree</td>
</tr>
<tr>
<td><strong>Spacing</strong></td>
<td>2.5 x 0.6m per tree</td>
<td>4.5 x 1.5m per tree 2 rows per mound</td>
</tr>
<tr>
<td><strong>Trees per ha</strong></td>
<td>6666 trees /ha</td>
<td>3000 trees / ha</td>
</tr>
<tr>
<td><strong>Water use</strong></td>
<td>Irrigation: 1.4 ML</td>
<td>Irrigation: 3 ML</td>
</tr>
<tr>
<td></td>
<td>Rainfall: 310 mm</td>
<td>Rainfall: 20 mm</td>
</tr>
<tr>
<td><strong>Fertiliser applied</strong></td>
<td>N: 386 P: 48 K: 0 S: 3 Ca: 4</td>
<td>N: 49 P: 19 K: 19 S: 7 Ca:26 Mg: 6</td>
</tr>
<tr>
<td>Units nutrient / ha</td>
<td>*Poppy Meal additional: N:468 P:117 K: 99 S:36 Ca:180 Mg:45</td>
<td></td>
</tr>
<tr>
<td><strong>Total year 1 leader growth</strong></td>
<td>60 – 82 cm (depending on timing of heading)</td>
<td>55 cm</td>
</tr>
</tbody>
</table>
## Pedestrian orchard establishment costs

<table>
<thead>
<tr>
<th></th>
<th>Millers Orchard Hillwood, Tamar Valley</th>
<th>JW Kirkwood Campania, Coal Valley</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fertiliser costs</strong></td>
<td>$ 3,726 / ha</td>
<td>?</td>
</tr>
<tr>
<td><strong>Labour costs</strong></td>
<td>$ 16,516 / ha</td>
<td>$ 12,711 / ha</td>
</tr>
<tr>
<td>e.g. Ground prep, planting,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>trellising</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other establishment costs</strong></td>
<td>$ 62,097 / ha</td>
<td>$ 73,745 / ha</td>
</tr>
<tr>
<td>e.g. Trees, poles, wire,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>irrigation</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Year 1 establishment</strong></td>
<td>$ 82,340 / ha</td>
<td>$ 86,456 / ha (not incl fertiliser)</td>
</tr>
</tbody>
</table>
Pedestrian orchard – lessons learnt

Millers Orchard
- Would have had a better growing result if whole block was headed at planting
- Consistent attack from browsing mammals (wallabies) throughout season

JW Kirkwood
- Very dry
- Worst planting conditions I have ever seen
- Large rock slabs made pole erection difficult
- First time for staff so instruction took time and slowed work
Achieving even growth in multi-leader trees 2015-16
Heading trial

**Trial Aim:** To compare the effect of direct heading and delayed heading of trees on the evenness of double leader extension growth on a new apple orchard planting.

**Treatments:**
- **Heading** – Tree headed back at planning whilst still dormant.
- **Delayed Heading** – Delayed heading of tree. Wait until shoots are 5cm log and sap is flowing.
Leader Growth (Cm)

Leader Length (Cm)

1/10/2015  1/11/2015  1/12/2015  1/01/2016  1/02/2016  1/03/2016  1/04/2016  1/05/2016

Headed leader 1  Headed leader 2  Delay headed leader 1  Delay headed leader 2

0  18  34  65  82  74  67  60
Difference in leader length Feb & May 16

<table>
<thead>
<tr>
<th>Length difference between leader 1 &amp; 2 (Cm)</th>
<th>Minimum</th>
<th>Average</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headed - 1/02/16</td>
<td>1</td>
<td>8.3</td>
<td>22</td>
</tr>
<tr>
<td>Headed - 12/05/16</td>
<td>2</td>
<td>14.6</td>
<td>31</td>
</tr>
<tr>
<td>Delay Headed - 01/02/16</td>
<td>2</td>
<td>10.4</td>
<td>32</td>
</tr>
<tr>
<td>Delay Headed - 12/05/16</td>
<td>4</td>
<td>14.3</td>
<td>38</td>
</tr>
</tbody>
</table>

Legend:
- **Blue**: Minimum
- **Red**: Average
- **Green**: Maximum
2 weeks after planting – 22 Oct 15

Headed

Delay Headed
3 weeks after delay heading – 7 Dec 15

Headed

Delay Headed
Growth & evenness assessment – 2 Feb 16

Headed

Delay Headed
Growth & evenness assessment – 12 May 16

Headed

Delay Headed
Heading Trial: Conclusions

- Heading treatment had on average 7 cm greater growth than delay headed treatment.

- Little difference in evenness of leader growth between treatments at end of season.
  
  **Headed** = 14.6 cm average between leader 1 & 2
  **Delay headed** = 14.3 cm average between leader 1 & 2

- Fencing of trial block may have prevented damage from browsing mammals (wallabies).