Mechanical thinners
Darwin
How to spray better
Better means:

• Better coverage (control).
• Lower mix volumes.
• Lower drif and contaminations.
• Higher speed.
Trunk application bar (TAB)

Local development
A dream............
The team........ (most important than the machine)
How many kilos / picker / hour?

- Limit: 400 kilograms.
- At size 80, means 29 fruits / minute. One every 2.0 seconds.
- At size 100, means 35 fruits / minute. One every 1.7 seconds.
- At size 135, means 49 fruits / minute. One every 1.2 seconds.

- Chilean range: 90 to 320 kilograms / picker / hour.
- The better one, in a 55 tons / ha, one pass, Scarlett Spur.
- The bad one, multipass in a Cripps Pink with 83 tons / ha.
Mechanical pruning
Up and down
Side, top, bottom bar

Fa-Ma, Italia
Bad cuts, phitosanitary problems ?:
Reflecting material locating machine
Replanting same row:
Mowing the grass, herbicide applying simultaneous:
Herbicide spray booms:
The goal:

- Yield : 80 tons.
- Fruit packed class 1: 80 %
- 18,2 kg boxes / ha: 3500.
- Labor force: 1000 hours.
- Hours / ton class 1 exported: 15,6.
- Chile today ( gross numbers ): 37 tons /ha, 50% packed, 1500 hours, 85 hours/ ton class 1 exported.
- Australia ?.
- To use all mechanical equipment that is possible, more efficient, no complaining, 24/7/365.
- Not less cost /ha, but making the apple, pear production possible and profitable.
Labor cost reduction using as many machines is possible in a modern orchard: 60 t/ha.

<table>
<thead>
<tr>
<th>Labor</th>
<th>Normal orchard, hours</th>
<th>Modern orchard 2</th>
<th>Efficiency increases, 2/1</th>
<th>Modern orchard + machines, 3</th>
<th>Efficiency increases, 3/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter prunning</td>
<td>200</td>
<td>150</td>
<td>25%</td>
<td>100</td>
<td>33%</td>
</tr>
<tr>
<td>Opening branches, managing the canopy</td>
<td>80</td>
<td>50</td>
<td>37%</td>
<td>30</td>
<td>40%</td>
</tr>
<tr>
<td>Summer prunning</td>
<td>200</td>
<td>150</td>
<td>25%</td>
<td>50</td>
<td>66%</td>
</tr>
<tr>
<td>Fruit thinning</td>
<td>320</td>
<td>200</td>
<td>37%</td>
<td>100</td>
<td>50%</td>
</tr>
<tr>
<td>Feromones</td>
<td>100</td>
<td>60</td>
<td>40%</td>
<td>7</td>
<td>88%</td>
</tr>
<tr>
<td>Opening and close nets</td>
<td>60</td>
<td></td>
<td></td>
<td>20</td>
<td>66%</td>
</tr>
<tr>
<td>Harvest</td>
<td>(2.0) = 631</td>
<td>(4.0) = 316</td>
<td>50%</td>
<td>(6.0) = 210</td>
<td>33%</td>
</tr>
<tr>
<td>Total</td>
<td>1,431</td>
<td>986</td>
<td>31%</td>
<td>517</td>
<td>52%</td>
</tr>
</tbody>
</table>
Many thanks