New Zealand Avocados
Quality and technical issues

Jonathan Cutting

Sociedad Gardiazabal y Macdonald Ltda.

Where are we?
Major avocado production areas

Industry Information

- Ca. 4,400 ha with 2,300 ha less than 5 years old
- 1,150 registered avocado orchards
- Third largest fresh fruit sector in New Zealand
- 98% Hass cultivar
- New Zealand Avocado Growers’ Association is the peak industry body
Key industry statistics

Total crop

<table>
<thead>
<tr>
<th>Year</th>
<th>1997</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop (tons)</td>
<td>6000</td>
<td>8000</td>
<td>10000</td>
<td>12000</td>
<td>14000</td>
<td>12000</td>
<td>10000</td>
<td>8000</td>
<td>6000</td>
</tr>
</tbody>
</table>

Key industry statistics

Planted acreage

<table>
<thead>
<tr>
<th>Year</th>
<th>1997</th>
<th>1999</th>
<th>2001</th>
<th>2003</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bearing (ha)</td>
<td>1500</td>
<td>2000</td>
<td>2500</td>
<td>3000</td>
<td>3500</td>
</tr>
<tr>
<td>Non-bearing (ha)</td>
<td>500</td>
<td>1000</td>
<td>1500</td>
<td>2000</td>
<td>2500</td>
</tr>
</tbody>
</table>
Key industry statistics

Export market allocation

Key production statistics

Market share by destination
Key Industry Issues

• Fruit quality in the USA and Australia

• Falling yields
Key Industry Issues

- Fruit quality in the USA and Australia
- Falling yields
- Strong and growing domestic market

Key Industry Issues

- Fruit quality in the USA and Australia
- Falling yields
- Strong and growing domestic market
- Market access
Key Industry Issues

- Fruit quality in the USA and Australia
- Falling yields
- Strong and growing domestic market
- Market access
- **Compliance costs**

Fruit quality in the USA

- November/December 1999
- Affected all growers and all exporters
- Affected hard green fruit
- Appeared to be pathological
Approach to address the problem

• Understand the problem
• Develop strategies and Plan
  – Ownership by industry at large
  – Work with the USA handlers
  – Secure good information
    • USA
    • New Zealand
  – Resource
  – Address systems, compliance and knowledge

Key strategies

• Handling systems
Example of systems compliance

Onshore consolidation times have been updated yearly by the avocado industry

<table>
<thead>
<tr>
<th>Year</th>
<th>Australia Container</th>
<th>Other (USA etc) Container</th>
<th>Reefer</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>14</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>2001</td>
<td>14</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>2002</td>
<td>12</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>2003</td>
<td>11 (31 Dec)</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>9 (Jan)</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7 (Feb)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* days to scheduled sailing.

Dixon, Pak and Cutting
Key strategies

• Handling systems
• Outturn monitoring
Relationship between fruit age and unsound fruit

\[ y = 0 + 0.02762 \times \exp(\text{days}/5.203) \]

\( r^2 = 0.82, n=50, p<0.001 \)

Dixon, Pak and Cutting

Issues identified from outturn monitoring

- Harvest maturity
- Fruit age in the market
- Cold chain management
- Spore inoculation using pre-pack dipping (Phytosanitary requirements)
Key strategies

- Handling systems
- Outturn monitoring
- Library trays
A comparison of packer performance (2002/3)

Key strategies

- Handling systems
- Outturn monitoring
- Library trays
- Best practice
Influence of rainfall prior to harvest on stem end rots

Dixon, Mandemaker, Pak and Cutting
Influence of rainfall prior to harvest on body rots

Key strategies

- Handling systems
- Outturn monitoring
- Library trays
- Best practice
- Relationship with USA handlers
Key strategies

- Handling systems
- Outturn monitoring
- Library trays
- Best practice
- Relationship with USA handlers
- **Research**
Key research issues

- Research plan and strategies
- Funding
- Resourcing
- Key research areas
  - Fruit age
  - Maturity
  - Rots
  - Storage environment
Key horticultural constraints

- Low mean annual temperature (16-17°C)
- Very wet winters (1,000-1,500mm)
- Risk of frost
- Marginal pollination conditions
- Alternate bearing
- Seedling rootstocks (Zutano)
- Wind
Key horticultural advantages

- Excellent soils - drainage
- Cool summers
- Heavy flowering
- Reliable rainfall and excellent quality irrigation water
- “Out of season” production relative to Australia
- Long harvest season
The root environment as a limitation to yield

Thank you for the opportunity to present to you

I am happy to answer any questions