Diversity in the Australian subtropics – meeting the challenges

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Australian subtropical production areas
Australian banana production changes

<table>
<thead>
<tr>
<th>Year</th>
<th>Queensland</th>
<th>New South Wales</th>
<th>Western Australia</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>149 300</td>
<td>49 100</td>
<td>16 200</td>
<td>215 700</td>
</tr>
<tr>
<td>2005</td>
<td>253 000</td>
<td>7 900</td>
<td>3 500</td>
<td>264 500</td>
</tr>
<tr>
<td>2015</td>
<td>353 500</td>
<td>16 000</td>
<td>1 000*</td>
<td>371 000</td>
</tr>
</tbody>
</table>

All figures are in tonnes
* Cyclone Owen destroyed production in Carnarvon
The challenges
Highest and lowest mean temperatures
Cold effects on leaves
Cold effect on fruit
Wind damage to leaves
## Subtropical vs Tropical production 2013

<table>
<thead>
<tr>
<th></th>
<th>North Queensland</th>
<th>New South Wales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total harvested/ha (t)</td>
<td>34.7</td>
<td>14.4</td>
</tr>
<tr>
<td>Total labour costs/13kg carton (A$)</td>
<td>5.75</td>
<td>12.45</td>
</tr>
<tr>
<td>Cartons handled /day/ 1FTE</td>
<td>30</td>
<td>14</td>
</tr>
<tr>
<td>Total producing hectares/1FTE</td>
<td>3.03</td>
<td>3.45</td>
</tr>
<tr>
<td>Return/(EBITDA)/Ha (A$)*</td>
<td>9339.07</td>
<td>-4800.76</td>
</tr>
</tbody>
</table>

* Total earnings before interest, taxes, depreciation and amortization
Fusarium wilt
Lady Finger production Murwillumbah
Cavendish production Coffs Harbour
Advantages of the subtropics
Monthly rainfall
## Key climate indicators

<table>
<thead>
<tr>
<th>Region</th>
<th>Rainfall</th>
<th>Mean days rain &gt; 1mm</th>
<th>Daily sunshine hours</th>
<th>No. clear days</th>
<th>Wind speed 3pm (km/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innisfail</td>
<td>3581</td>
<td>141</td>
<td>6.3</td>
<td>72</td>
<td>13.1</td>
</tr>
<tr>
<td>Carnarvon</td>
<td>232</td>
<td>26</td>
<td>10</td>
<td>211</td>
<td>25.7</td>
</tr>
<tr>
<td>Murwillumbah</td>
<td>1601</td>
<td>111</td>
<td>7.1</td>
<td>108</td>
<td>15.2</td>
</tr>
</tbody>
</table>
Population density of Australia 2016

15 million of a population of 25 million live within this area.
Local brand loyalty
Country of birth

![Chart showing country of birth for different years and countries: China, India, Vietnam, Philippines, Malaysia. The chart compares data from 2006, 2011, and 2011+ (2011 for China, 2011+ for the others). The y-axis represents the number of people (in thousands). The bars for China and India are the highest, indicating a significant number of births in these countries.]
Australian citizens by country of birth 2016

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Travel
Meeting the challenge
The past
Previous interventions

Variety evaluation project late 80s early 90s
Varieties from international collections and breeding programs
FHIA-01 ‘Goldfinger’ released to industry in a ballot system in 1995
Insufficient marketing and market research led to market failure
Goldfinger was:
• Less sensitive to winter chill
• Longer shelf life
• Less ripe fruit rots
• Better colour and visual appearance

But softened quicker due to poor ripening practices

(Seberry and Harris, Acta Horticulturae 490, 1998)
The present
Rossi Lady Finger

Leanne Gentle
Ducasse (Pisang Awak)
Pacific plantain
Those who cannot remember the past are doomed to repeat it

George Santayana
Variety evaluation

Two 3 year programs

Recommenced with the Banana Plant Protection Program – 2011 to 2017

Continuing with Better Plant Protection for the Australian Banana industry – 2017 to 2023

Funded by industry levy and national and state governments
Fusarium wilt Race 1 evaluation
Best bet density plantings
Consumer acceptance testing
A tale of two offtypes
LG-1

Goldfinger offtype
Selected by a grower near Murwillumbah
Under plant breeders rights in Australia
Little Gem
FLF-1

Large bunch

Robust plant (no props?)

Good leaf disease resistance

Yield potential (t/ha/yr)

• 50 vs 37 (Lady Finger)

Dessert - Lady Finger type
FLF-1 vs Lady Finger
FHIA-25

‘If this variety doesn’t replace potatoes in Africa, I’m not a banana breeder’ Phil Rowe, 2000
It has begun!

Peter Molenaar
I have a dream