Case Study: Maximising Tree Crop Investment through sound Forest Establishment Practices

Dean Witchire
Friday 19th November 2010

Introduction
- General Principles
- Establishment Operations
- Reporting
- Issues
An analogy

- Home Garden
- Tree Crop

<table>
<thead>
<tr>
<th>Similarties</th>
<th>Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivate</td>
<td>✓ Scale Large</td>
</tr>
<tr>
<td>Good planting Stock</td>
<td>✓ Timeframe &lt;1yr vs 30yrs</td>
</tr>
<tr>
<td>Manage weeds</td>
<td>✓ Costs ?</td>
</tr>
</tbody>
</table>

General Principles

- Forest Establishment an “Investment” and not a “cost”
- Understand your site:
  - The soils, vegetation, climate
- Experienced professional Forester significant factor to establishment success
- The small things can and do make a difference
- Maintain high standards of performance and monitor results
Mechanical Land Preparation

Site Preparation
**Land Preparation Trials (age 2)**

<table>
<thead>
<tr>
<th>Cpt 1053</th>
<th>Mean Diameter (mm)</th>
<th>Mean Height (M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>35.6</td>
<td>1.26</td>
</tr>
<tr>
<td>Line</td>
<td>43.8</td>
<td>1.63</td>
</tr>
<tr>
<td>Spot</td>
<td>40.3</td>
<td>1.53</td>
</tr>
</tbody>
</table>

- Strong indication LRM favorable to SRM
- Similar results in other trials
- Doing nothing “not an option”
- More work required

**Planting**

- Labour
  - The “worker”
  - Crew Management
  - Adequate supervision
- Quality
  - Planting method
  - Consistent Spacing
- Treestock quality
Tree Stocks

- Tree Specification
  - Well conditioned, robust and healthy
- Root length
- Bareroot vs Container
- Tree handling/delivery
- Genetics
  - Full expression not fully realized unless Forest Establishment optimized

Genetics & Deployment

- CP vs Clones
- Assuming $300 differential, MAI of 23t/ha, TRV @ 30yrs of 690t/ha
- DR 8% (x10)
- $3,000 gain required
- @$50t stumpage require
  - +60 t/ha at rotation (8.7%)
  - Or
- @$55 → +54.5 t/ha (7.9%)
1978 Genetic Gain Trial
Cpt 1210

\[ y = 11.21x + 743.34 \]

\[ R^2 = 0.8527 \]

Aerial Operations

- Effective preplant & releasing important

Opportunities:
- Application Technologies
- Agrichemicals
  - Type & effectiveness
  - Appropriate timing
**Issues**

- Environmental factors
  - Frosting
  - Wind
- FSC and chemical use
  - Derogations
  - Prohibition would seriously compromise establishment of Tree Crop
- Production costs

**Conclusion**

- Auditing establishment investment important to reconcile activities or seek improvement
- Benefits from consistent establishment flow through to subsequent operations
  - Tree selection in thinning’s or pruning
- Sound forest establishment will optimize investment return