Site Ripping and Mounding

Advances in Spot Cultivating in First and Second Rotation Forestry Sites

Selection of site cultivation method influences:

● Seedling survival rates and early growth
Selection of site cultivation method influences:

- Root development
14 month old P. radiata trial N/E Tasmania

- Radiata planted in rip line
- Radiata planted in Rotree Spot

Selection of site cultivation method influences:

- Nutrient uptake
Selection of site cultivation method influences:

- Tree stability
Selection of site cultivation method influences:

- Early canopy closure
Selection of site cultivation method influences:

- Turbidity and water run-off quality

Selection of site cultivation method influences:

- Future site integrity
Selection of site cultivation method influences:

- Productivity of future operations.

Selection of site cultivation method influences:

- Return on investment
Future Operations

Contribution to Future Operations

- Chuck Norris is capable of photosynthesis, site cultivation can’t help you with that
Contribution to Future Operations

- Silviculture – Access for: spraying, pruning, firefighting, surveying.

Soil Disturbance %

Wilco = 22%
Rotree = 6%
Mound Plough = 40%
**Contribution to Future Operations**

- Thinning – 5 row spot pattern clears stumps and debris for out-rows

**Contribution to Future Operations**

- Final Harvest – excavator based buncher follows similar geometric patterns to spot cultivator
Contribution to Future Operations

- Next rotation site prep productivity gain

Soils = Our Future

- Maintaining site integrity should be the number one priority while considering methods of cultivation.
Land use changes

- Native forest
- Converted to dairy
- Converted to plantation
- Converted back to dairy
- In 30 years
Land use changes

- Effects of climate change?

Modern Methods of Spot Cultivation
VH Mulcher

Wilco (rip mounder)
Chuck Norris

Bracke Planter Mounder
Light Weight Rotree Spot Cultivator

Maintaining Soil Horizons
Soil & Site Disturbance

- Comparison of soil disturbance % between 3 cultivation methods
Benefits of Low Site Disturbance

- Drainage – Turbidity and run-off water quality is directly affected by the level of site disturbance.
Benefits of Low Site Disturbance

- Retained Nutrients – Broadcast slash and careful spot placement maintains valuable nutrients on site.

- Moisture Retention – Slash degrades and forms a mulch retaining soil moisture.
Benefits of Low Site Disturbance

- Weed Suppression – Less soil and slash disturbance equates to natural weed control.

Track density patterns for different site cultivation methods
Dozer mounding plough

Wilco 3 spot pattern
Rotree/Bracke 5 spot systems

New Developments

- The Bracke Planter – A single pass mounding mechanical planting machine.
Bracke Planter

New Developments

- The Light Weight Rotree Spot Cultivator – A vertical tilling cultivator mounder
Lightweight Rotree Spot Cultivator

Rotree Tine System

- Low Cost
- Quick Change
- Reversible
- Self Adjusting
- Variable Depth
Simple & Strong

Cost reductions are significant when reducing carrier size

Less is more
Rotree Weight Reduction

Weight reduction Kg

- Rotree Spot Cultivator
- Lightweight Rotree Spot Cultivator

Excavator Capacity

Excavator Carrier Capacity Reduction

- Rotree Spot Cultivator and Wilco
- Lightweight Rotree Spot Cultivator
Bracke and Rotree have developed accessories to decrease the costs associated with site preparation.

Reduce fertilizer deposition cost by 50%
Fertiliser Attachments

The Bracke Fertiliser unit injects a dose of fertiliser in one area beside the tree at time of planting.
Rotree Fertiliser

- The Rotree Spot Fertiliser mixes Fertiliser into the top 10 to 15 cm of the outside of the spot.
Cost Saving

- By incorporating fertiliser into the mound itself you prevent the effects of oxidisation and leaching.

Fertilising at time of cultivation
### Average Tree Height

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<thead>
<tr>
<th>Row No.</th>
<th>Height (cm)</th>
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<tbody>
<tr>
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<td>Rotree</td>
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### Average Tree Diameter

<table>
<thead>
<tr>
<th>Row Number</th>
<th>Width at Base</th>
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<tr>
<td></td>
<td>Rotree</td>
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Into The Future

Demand for spot cultivation increases because

- Chuck Norris says so
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- Additional value adding components become commercially available for spot cultivators

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- Plantation forestry forced onto more marginal sites
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- Forest owners demand higher return on investment

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- Forest certification demands greater care for the soil
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- Manual labour becomes scarce and expensive

Thankyou for your attention