Utilization of short rotation coppice crops for multiple uses (economic and environmental benefits)

Kevin Snowdon
What is SRC willow?

- Short Rotation Coppice (SRC) crops are defined as woody crops such as willows, poplars, Robinia and Eucalyptus with coppicing abilities.
Key uses of SRC willow on farm

- Biomass for Heat
- Fodder
- Anthelmintic
- Nitrate management
- Pollen
- Biodiversity
Biomass for Heat/ cogen

- Fit scale to utilisation
- SRC is cost effective

<table>
<thead>
<tr>
<th></th>
<th>Per ODT</th>
<th>Per GJ</th>
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<tbody>
<tr>
<td>Cost of production</td>
<td>$57</td>
<td>$3</td>
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<tr>
<td>Cost including land</td>
<td>$85</td>
<td>$4.5</td>
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Fodder

• SRC willow used on farms in Taihape, Wairarapa and Hawkes Bay to provide late summer feed.

• Various techniques
  – Tree willows where branches must be cut
  – SRC willows to ensure sheep can graze the shrub. Animals graze leaves and woody material up to 1cm in diameter.
Anthelmintic

• Tannins in willow leaves paralyse worms
• Regular use required
• Reduces cost of animal welfare
• Target natural or organic meat market

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Nitrate management

Treatment of waste water.
• Proven in Sweden/USA
• 200 – 400kg N uptake per ha per year
  – (Wairarapa dairy effluent)
• Engineered solutions are highly expensive
• Some councils are considering the use of SRC crops to treat waste water.

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Catchment management

• Requires large scale
• SRC is low in nitrogen discharge
  ➢ This is **not** about soaking up nitrogen in riparian strips
  ➢ But an alternative low N land use

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Pollen

- Willows provide spring pollen
- Suited to hive development
- Substitute for sugar
- Sets up hives for honey production

Passive use of willow
Biodiversity

• SRC willows provide habitat for birds
• SRC a good substitute for shrubland forests
• Eg Birds use SRC to over-winter
• Farm and forest mean less shrublands in the NZ environment
SRC limitations

- Contour - enable mechanical establishment and harvest
- Seasonal harvest
- **Willows** require adequate summer rainfall
  - Average ~100mm per month
- Not a 1 stop shop
 SRC strengths

• Proven silvicultural techniques
• Applied in NZ
• Lower cost per tonne than tree biomass
• SRC Financial model (SUNY) #
• NZ Handbook updated last week
• Adaptable outcomes