Radiata pine forestry returns under the ETS, and potential impacts on land use change

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Objectives

• Recent trends in land use returns, and drivers of forestry land use-change
• Potential impact of the ETS on land-use change involving forestry
Introduction

• Foresters can increase sequestration and revenue from carbon credits by lengthening rotations, and by selecting regimes and species that maximise volume.
• However, the exclusion of forests planted on pre-1990 forest land, (or approximately two thirds of the current estate), shifts the focus to new land planting, or land use change towards forestry.
Land use in New Zealand, by area

Source: Ministry for the Environment (2007)
Motu model of land use change

Economic return ($/ha)

Horticulture

Dairy

Sheep / beef

Plantation forests

Land ‘quality’

Source: Hendy et al. 2007
Land use change

Horticulture

Dairy

Sheep / beef

Plantation forests

Economic return ($/ha)

Land ‘quality’
Returns to dairy farming

Source: Evison, 2008; MAF Farm Monitoring Reports
Sheep and beef farm returns

Source: Evison, 2008; MAF Farm Monitoring Reports
“...demand for land suitable for dairy conversion...

or dairy support, such as heifer grazing, cow wintering or making silage crops...

sheep and beef farmers who have sold land for dairy conversion have purchased hill country sheep and beef properties and this has underpinned values where dairy support is not an option...

Properties with special features, such as coastlines or proximity to cities, attract purchasers from a range of sources, including overseas interests...”

MAF Farm Monitoring Report, Sheep and Beef, 2007
An opportunity for forestry?

$14,804 per ha!

HAWKES BAY COASTAL FARM

331ha (817 acres) 17 Titles
Approx 3.5km of beachfront land, Elsthorpe Hawkes Bay.
Ideal sheep, beef, forestry unit or stunning waterfront lodge.
Magnificent land bank of coastal property with 17 titles that can be sold separately.
Asking: $4,900,000 plus GST.

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Source: Sunday Star-Times, 10 May 2009
## Future land use change?

<table>
<thead>
<tr>
<th>Land Use Type</th>
<th>Capital value ($/ha)</th>
<th>LEV ($/ha, @ 4%)</th>
<th>Difference</th>
<th>Land use change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy (National average)</td>
<td>$47,161</td>
<td>$93,220</td>
<td>$46,059</td>
<td>98%</td>
</tr>
<tr>
<td>Sheep and Beef (National average)</td>
<td>$6,311</td>
<td>$2,595</td>
<td>-$3,716</td>
<td>-59%</td>
</tr>
<tr>
<td>Viticulture (Marlborough)</td>
<td>$362,940</td>
<td>$543,697</td>
<td>$180,757</td>
<td>50%</td>
</tr>
<tr>
<td>Kiwifruit (Bay of Plenty)</td>
<td>$341,022</td>
<td>-$83,509</td>
<td>-$424,531</td>
<td>-124%</td>
</tr>
<tr>
<td>Arable (Canterbury)</td>
<td>$23,021</td>
<td>$29,588</td>
<td>$6,567</td>
<td>29%</td>
</tr>
<tr>
<td>Deer (South Island)</td>
<td>$15,428</td>
<td>$8,286</td>
<td>-$7,142</td>
<td>-46%</td>
</tr>
<tr>
<td>Forestry</td>
<td>$6,311</td>
<td>$1,229</td>
<td>-$5,082</td>
<td>-81%</td>
</tr>
<tr>
<td>Forestry incl. carbon ($30/T CO₂ₑ)</td>
<td>$6,311</td>
<td>$7,680</td>
<td>$1,369</td>
<td>22%</td>
</tr>
</tbody>
</table>

Source: Evison, 2008; MAF Farm Monitoring Reports
Expected direction of land use change

- Dairy (National average)
- Sheep and Beef (National average)
- Viticulture (Marlborough)
- Kiwifruit (Bay of Plenty)
- Arable (Canterbury)
- Deer (South Island)
- Forestry including carbon
Preliminary results, forestry LEV vs new land planting

Relationship between new land planting and calculated LEV return from forestry

\[ y = 0.0013x + 11.529 \]

\[ R^2 = 0.4777 \]

Source: Evison (unpubl), after Horgan (MAF presentation)
Future

• Will the ETS be implemented?
  – at all
  – for all land-based industries

• Will economic returns be realised for forestry, and will they influence investment decisions?

• Will option values for sheep and beef farms be sustained?
Long term trend in export unit values

Export log unit values (2008$NZ/m3)

Source: StatsNZ, MAF
Conclusion

• Without increased investment returns from carbon or some other driver of increased output prices, land use change towards forestry may be limited
Acknowledgements

• Motu Economic and Policy Research (Wellington) for their support for part of this work
References

• Ministry of Agriculture and Forestry, (various years) MAF Farm Monitoring Reports (various). MAF, Wellington