Sheep performance on Perennial Lupins at Sawdon Station, Lake Tekapo

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Note:
This presentation was made by Snow Loxton on 7 Nov 2014 in Alexandra at the New Zealand Grassland Association Annual Conference.

It is associated with the following scientific publication:

Sawdon Station

• 7500 ha – 6500 ha undeveloped, 300 ha lucerne, 500 ha pasture, and about **200 ha in lupins**
• Climate – rainfall 600 mm, 100 frosts per year
• Altitude 700 m
• 4500 Merino ewes, 1200 replacements
• Some trading cattle
• 14 years into Tenure Review
Mt John Research Centre, Tekapo

Photo: Kate Wilson
Lupin stand at Sawdon Station
Objectives

1. Animal performance on lupins
2. Seasonal growth and feed quality
# Tailing to weaning 2011-12

<table>
<thead>
<tr>
<th></th>
<th>Lupin</th>
<th></th>
<th>Control</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Live weight (kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Dec</td>
<td>56</td>
<td>19</td>
<td>55</td>
<td>18</td>
</tr>
<tr>
<td>10 Feb</td>
<td>53</td>
<td>28</td>
<td>60</td>
<td>31</td>
</tr>
</tbody>
</table>
## Flushing 2012

<table>
<thead>
<tr>
<th></th>
<th>Lupin</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Live weight (kg)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 Mar</td>
<td>54</td>
<td>53</td>
</tr>
<tr>
<td>18 May</td>
<td>61</td>
<td>62</td>
</tr>
<tr>
<td><strong>Scanning %</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 August</td>
<td>156</td>
<td>156</td>
</tr>
</tbody>
</table>
## Wool growth (Sep 2012)

<table>
<thead>
<tr>
<th></th>
<th>Lupin</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greasy fleece wt (kg)</td>
<td>4.64</td>
<td>4.92</td>
</tr>
<tr>
<td>Staple length (mm)</td>
<td>79</td>
<td>80</td>
</tr>
<tr>
<td>Mean micron (µm)</td>
<td>18.6</td>
<td>18.5</td>
</tr>
</tbody>
</table>
# Lambing on lupins

<table>
<thead>
<tr>
<th></th>
<th>Lupin</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lambing %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>103</td>
<td>93</td>
</tr>
<tr>
<td>2013</td>
<td>111</td>
<td>105</td>
</tr>
</tbody>
</table>
Lamb growth (Dec – Feb)

- Lupin lambs
- Control lambs

2011 2012 2013

kg/hd

40
35
30
25
20
15
10

2011 2012 2013
JULY 2012

Winter survival
Lupin recovered after winter – 2 t DM/ha
Cover during lambing – 6.1 t DM/ha
Sheep ate the flowers first – 6.6 t DM/ha
JANUARY 2013

Post-grazing cover – 4.6 t DM/ha
New leaves regrow from basal shoots
FEBRUARY 2013

Pre-grazing – 6.3 t DM/ha (24% other species)
Pre-grazing cover – 4.9 t DM/ha
## Lupin nutritive value

<table>
<thead>
<tr>
<th></th>
<th>ME value</th>
<th>Crude protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lupin leaf</td>
<td>11.2</td>
<td>20.0%</td>
</tr>
<tr>
<td>Lupin stem</td>
<td>10.7</td>
<td>19.5%</td>
</tr>
<tr>
<td>Other species</td>
<td>10.5</td>
<td>16.0%</td>
</tr>
</tbody>
</table>
Conclusions

1. Animal performance was similar on lupins and lucerne

2. Perennial lupins can persist, and produce high quality and quantity forage