Management of Annual Pastures for Wool Production: Intensive Spring Grazing

Produced for the CRC for Premium Quality Wool undergraduate program by; Dr. Brad Crook, The University of New England.
Green Feed on Offer (FOO)

- FOO (kg DM per ha) is an indicator of the balance between pasture growth rate and rate at which it is consumed by stock:
  - growth > removal: FOO increases
  - growth = removal: FOO maintained
  - growth < removal: FOO declines

- FOO vs. production targets, example:
  - control wool growth: FOO 1000-1500
  - maximise liveweight gain: FOO > 2500
  - maximise legume seed set: FOO > 3500

- FOO relationships less reliable from flowering onwards

Source: Doyle et al. (1994)
Intensive Spring Grazing and Wool Production

- Mount Barker, WA:
  - approx. 700 mm annual rainfall
  - pastures: sub clover, annual ryegrass, capeweed

- experimental design:
  - all plots grazed by non-experimental sheep in winter
  - spring grazing: started FOO=1500, finished FOO=1000 (some plots)
  - all sheep grazed together (except in spring) and shorn Feb/March
  - young + adult wethers grazed to maintain spring FOO at 800 to 2800 kg DM per hectare
Green feed on offer in spring under different FOO targets

Source: Thompson et al. (1997)
Live weights of (a) hogget and (b) mature wethers grazing at different FOO in spring

Source: Thompson et al. (1997)
Wool growth rate of (a) hogget and (b) mature wethers grazing at different FOO in spring.

<table>
<thead>
<tr>
<th>FOO</th>
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<tbody>
<tr>
<td>2800</td>
</tr>
<tr>
<td>2400</td>
</tr>
<tr>
<td>2000</td>
</tr>
<tr>
<td>1600</td>
</tr>
<tr>
<td>1200</td>
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<tr>
<td>800</td>
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</tbody>
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Fibre diameter of (a) hogget and (b) mature wethers grazing at different FOO in spring

Source: Thompson et al. (1997)
### Annual wool production and quality attributes for adult wethers grazed at different FOO levels during spring

<table>
<thead>
<tr>
<th></th>
<th>FOO (kg DM per ha)</th>
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<tbody>
<tr>
<td></td>
<td>900</td>
<td>1200</td>
<td>1600</td>
<td>2000</td>
<td>2400</td>
</tr>
<tr>
<td>Clean wool per head</td>
<td>4.20</td>
<td>4.51</td>
<td>5.14</td>
<td>5.38</td>
<td>5.20</td>
</tr>
<tr>
<td>Fibre diameter</td>
<td>23.4</td>
<td>23.1</td>
<td>24.2</td>
<td>24.1</td>
<td>25.3</td>
</tr>
<tr>
<td>CVFD</td>
<td>21.8</td>
<td>20.4</td>
<td>19.2</td>
<td>19.5</td>
<td>18.4</td>
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<tr>
<td>Staple length</td>
<td>92</td>
<td>97</td>
<td>94</td>
<td>99</td>
<td>98</td>
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<tr>
<td>Staple strength</td>
<td>32</td>
<td>41</td>
<td>47</td>
<td>47</td>
<td>50</td>
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<tr>
<td>POB</td>
<td>75</td>
<td>65</td>
<td>61</td>
<td>47</td>
<td>52</td>
</tr>
<tr>
<td>Clean wool per ha</td>
<td>35.7</td>
<td>55.3</td>
<td>46.6</td>
<td>61.0</td>
<td>55.6</td>
</tr>
</tbody>
</table>

Source: Thompson et al. (1997); Doyle and Thompson (1992)
Conclusions

• Liveweight change, wool growth rate and fibre diameter can be manipulated via intensive spring grazing:
  – Most applicable to wools < 22 microns and in environments with long periods of excess green feed (medium-high rainfall areas)
  – Relationship between FOO and performance will depend on:
    • Physiological condition: age, condition score, genotype
    • Growth patterns of pasture, esp. early vs. late spring
  – But need to consider lower condition score and liveweight of sheep going into summer-autumn after low FOO grazing

• Pastures:
  – Pasture growth rates not decreased if FOO > 1000
  – With favourable late rains, pastures matured later at high stocking rates, so prolonged availability of green pasture (what if early finish to season?)
  – Grazing to low FOO decreases legume and grass seed production, so pasture composition in following year could be markedly different
  – Management of “undergrazed” pastures