POINT OF BREAK AND REPRODUCTIVE PERFORMANCE OF MERINO EWES

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Managing the point of break to optimise the price requires that those factors influencing position of break (POB) are known. A change in the relative wool growth rate and/or the timing of the break would move the POB on the staple. Reproductive performance will affect both the rate of wool growth (Lee and Atkins, 1995) and staple strength (Lee et al. 2003). This study examines effects of reproductive performance on POB, including any chronological variation.

In 3 consecutive years, dye bands were placed on midside wool staples of 97, 98 and 91 1993-drop Merino ewes described by Lee et al. (2003). Dye bands were inserted on 6 occasions throughout the year. The ewes lambed in July and were shorn in September. POB (% from tip) was determined at a commercial wool-testing laboratory on a midside sample. The ewes’ reproductive performances (no. of lambs born / lambs weaned) were recorded.

The mean POB was 54.0±0.4% along the staple. Pregnancy significantly moved the break down the staple, the effects of fecundity appearing to be additive (Table 1). Lower wool growth rates during pregnancy/lactation would contribute to moving the relative POB on the staple. However, there was also a significant (P<0.05) shift in the chronological distribution of the POB. In 81.7% of dry and 67.6% of 1/0 ewes, the POB occurred in late summer/early autumn, but in autumn for 63.9% of 1/1 ewes. Further, the POB in 65-69% of M/1 and M/M ewes occurred in late autumn/winter but in autumn for 72.9% of M/0 ewes. Thus, both differences in wool growth rate (Lee and Atkins, 1995) and time of break would have contributed to variation in the POB associated with reproductive performance. Presumably this reflects net nutrient availability to the follicle and physiological changes in the ewe.

Table 1. Deviations (± s.e.) from mean position of break (%) due to reproductive performance

<table>
<thead>
<tr>
<th>Reproductive performance (no. lambs born / weaned)</th>
<th>0/0</th>
<th>1/0</th>
<th>1/1</th>
<th>M/0</th>
<th>M/1</th>
<th>M/M</th>
</tr>
</thead>
<tbody>
<tr>
<td>0/0</td>
<td>-10.8&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-3.3&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-1.6&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3.4&lt;sup&gt;c&lt;/sup&gt;</td>
<td>5.7</td>
<td>6.6&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>1/0</td>
<td>(0.7)</td>
<td>(1.1)</td>
<td>(0.7)</td>
<td>(1.3)</td>
<td>(1.0)</td>
<td>(0.8)</td>
</tr>
</tbody>
</table>

<sup>a,b,c</sup> Unlike superscripts indicate a significant difference (P<0.05). <sup>a</sup> M indicates multiple lambs

References