EXTREME EWES: THE EFFECTS OF THE WOOL/MEAT TRADE-OFF ON LAMB PRODUCTION

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Present pricing of wool and sheep meat means that the Merino is under pressure to become a dual-purpose ewe breed. However, the negative genetic correlation between clean fleece weight (CFW) and fat depth (Fogarty et al. 2003) may make changes difficult. This genetic relationship is reported to impact negatively on fertility and weaning weight when CFW is considered per kg LWT (Cloete et al. 2002). However, among the phenotypic correlations there are positive relationships. The importance to industry is that returns from lamb are predicted to remain high at a time when fleece value is low (Banks 2002). The challenge for the sheep industry is to continue to utilise the dominant wool producing characteristics of the Merino breed while also increasing fecundity and fertility to improve meat production options. This paper reports preliminary data on lamb production parameters from a 2 year field trial studying the consequences of CFW selection on ewe and lamb performance.

Daily rounds during lambing in mid-August to mid-September 2005 of the field experiment described by Refshauge et al. (2006) recorded the birthweight, sex, birth type and birth date of each lamb born into each of the 4 phenotypic groups in both the high and low nutrition (stocking rate) treatments. Weaning weights were recorded in late November 2005 when the progeny were approximately 13 weeks old. Linear mixed models using restricted maximum likelihood (REML) were used to analyse these data using ASReml (Gilmour et al. 2002). Included in the fixed effects in the model were birth type, lamb sex, birth date, phenotype, nutrition level and the phenotype x nutrition interaction.

Lamb sex and birth type significantly affected birthweight (P<0.001), as did the lamb sex x phenotype x stocking rate interaction (P=0.048). Among the phenotypes, birthweight was not found to be significant but differences emerged by weaning (Table 1). Birth type (P<0.001), lamb sex (P=0.002) and phenotype (P=0.02) all significantly affected weaning weight.

Table 1. Birthweight and weaning weight for phenotype, with High and Low stocking rate pooled

<table>
<thead>
<tr>
<th>Phenotype (CFW, LWT)</th>
<th>Birth weight</th>
<th>Weaning weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>HH</td>
<td>4.77</td>
<td>20.37 a</td>
</tr>
<tr>
<td>HL</td>
<td>4.43</td>
<td>18.81 ab</td>
</tr>
<tr>
<td>LH</td>
<td>4.70</td>
<td>21.10 a</td>
</tr>
<tr>
<td>LL</td>
<td>4.35</td>
<td>17.46 b</td>
</tr>
<tr>
<td>Av s.e.d.</td>
<td>0.30</td>
<td>1.06</td>
</tr>
</tbody>
</table>

High LWT ewes had heavier lambs at weaning but CFW had no significant effect. This finding is in contrast to those of Cloete et al. (2002), and requires further evaluation. This preliminary evidence suggests that phenotypic selection for increased CFW has not had a negative influence on lamb weaning weight. Further studies are justified to determine if this is consistently true over a number of seasons.

The effect of performance to weaning is showing up elsewhere (Refshauge et al. 2006). HH ewes have a significantly lower fat score from marking to pre-joining as a consequence of lambing. A change to the partitioning of nutrients among HH and other ‘extreme’ phenotypes may result in HH ewes that fail to conceive more often through their lifetimes. An indication of these effects, for example, is in the 2005 weaning percentages; the HH ewes weaned fewer lambs per ewe joined (97%) than the other phenotypes (100-103%).


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