Results

Progeny of the Texel (TXL) and Canadian Arcott (CAR) had the lowest shear values (P < 0.05) and the highest trained sensory panel ratings for initial and overall tenderness although the panel ratings were not significantly different (P > 0.05) from the other breeds (Table 2).

The progeny of the Charollais (CHR) and Suffolk (SUF) rams had the highest shear values (P < 0.05) and the lowest numerical sensory panel ratings for initial and overall tenderness ratings. All of the loin samples had shear force values less than 5 kg (Graph 2), which is regarded as tender by consumers (Shorthose et al. 1986).

The taste panel evaluated six lambs out of the 142 (4.23%) as Slightly Tough in Overall Tenderness (Graph 3). All six of these lambs had shear values of less than 3.75 kg.

The relationship between shear values and the taste panellist scores for both initial and overall tenderness was moderate (r = -0.63; P = 0.0001).

The overall cooking time for the Texel progeny were marginally longer (P < 0.05) than the progeny of the other sires (Graph 4), which was not

Table 2. Least-square means for loin composition traits

<table>
<thead>
<tr>
<th>Sire Breed</th>
<th>CAR</th>
<th>CHR</th>
<th>IDF</th>
<th>SUF</th>
<th>TXL</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Lambs</td>
<td>26</td>
<td>30</td>
<td>26</td>
<td>30</td>
<td>30</td>
<td>78</td>
<td>64</td>
</tr>
<tr>
<td>Fat</td>
<td>0.45 abc</td>
<td>0.51 a</td>
<td>0.40 bc</td>
<td>0.38 c</td>
<td>0.47 ab</td>
<td>0.45</td>
<td>0.44</td>
</tr>
<tr>
<td>Depth</td>
<td>2.45</td>
<td>2.43</td>
<td>2.57</td>
<td>2.34</td>
<td>2.39</td>
<td>2.45</td>
<td>2.48</td>
</tr>
<tr>
<td>Length</td>
<td>21.00 a</td>
<td>21.14 a</td>
<td>20.78 a</td>
<td>21.45 a</td>
<td>19.70 b</td>
<td>20.62</td>
<td>21.01</td>
</tr>
<tr>
<td>Color</td>
<td>3.71</td>
<td>3.67</td>
<td>3.67</td>
<td>3.63</td>
<td>3.60</td>
<td>3.77 a</td>
<td>3.54 b</td>
</tr>
<tr>
<td>Marbling</td>
<td>3.84</td>
<td>3.83</td>
<td>4.40</td>
<td>3.91</td>
<td>3.99</td>
<td>3.96</td>
<td>4.09</td>
</tr>
<tr>
<td>Cook Loss</td>
<td>16.46</td>
<td>17.88</td>
<td>17.42</td>
<td>17.79</td>
<td>18.27</td>
<td>17.12</td>
<td>18.00</td>
</tr>
<tr>
<td>Seconds per gram</td>
<td>4.87 b</td>
<td>4.88 b</td>
<td>4.80 b</td>
<td>4.86 b</td>
<td>5.36 a</td>
<td>4.96</td>
<td>4.95</td>
</tr>
<tr>
<td>Shear Force (cm²)</td>
<td>2.09 b</td>
<td>2.62 a</td>
<td>2.33 ab</td>
<td>2.47 a</td>
<td>2.08 b</td>
<td>2.30</td>
<td>2.34</td>
</tr>
</tbody>
</table>

a,b,c Means in the same row, within trait, with different letters differ (P < 0.05).
attributable to gross differences in shape dimensions. This slight increase in cooking time may be related to muscle fibre type or moisture content, analysis which were not measured in the present study.

The length of the short loins of the Texel progeny were slightly shorter (P < 0.05) than that of the other lamb breeds. Measurements for loin thickness and depth were related to hot carcass weight and not to breed or gender effects (Table 2).

The fat thickness measurement on the loins from the Suffolk lambs were significantly less (P < 0.05) than the other sired lambs and the Charollais lambs the greatest, although on several of the loins fat the surface was cut or partially removed making the accuracy of this measurement questionable (Table 2). The GR measurement and the fat thickness measurement had a positive correlation (r = 0.22; P = 0.007).

There were no significant differences between breeds or genders for lamb flavour intensity, off-flavour, juiciness or overall palatability ratings (Table 3).

This is in agreement with other authors (Crouse et al. 1983; Dransfield et al. 1979; Ellis et al. 1997) that differences in lamb flavour or eating quality due to breed of sire were not observed.

Also differences in flavour intensity due to gender were not observed (P > 0.05) which supports reports by Jeremiah et al. 1998; and Ellis et al. 1997. Although numerically small, the only significant difference (P = 0.04) by gender was on the subjective colour attribute of the loin muscle prior to roasting, with means of 3.77 for the ewe lambs and 3.54 for the wether (Table 2). This small difference would likely not be noticeable to consumers as it is less than one full unit in difference. A slightly higher (P
proportion of the loins from the ewe lambs were rated as Slightly Dark Red compared to the wether lambs (62 vs 53% respectively; Graph 5).

**Results**

Based on the results of this study there are no differences in eating quality by gender or amongst progeny from these five terminal sires within the hot carcass weight range of 22–27 kg (50–60 lb).

Certain terminal sire breeds may be suited to different production systems for such traits as rate of gain, carcass weight, and level of fat cover without detriment to sensory traits.

However, the trend towards even larger leaner carcasses continues, more research will be required to determine its effect on lamb eating quality.

**References**


