MEAT QUALITY OF SHORT SCROTUM LAMBS FINISHED ON FORAGE RAPE AND SILAGE

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Within the Prime Lamb Program (McLaughlin 1992) a number of different finishing systems have been used in an attempt to produce heavy lean lambs. Of the systems, 2 have been studied in Tasmania, forage rape and grass-clover silage. As a part of preliminary experiments, the meat quality of a representative sample of the lambs from the different systems was monitored.

Twenty carcasses were sampled from 54 lambs which had been grazing forage rape (cv. Rangi) for 6 weeks prior to slaughter and 18 from another mob of 92 lambs that were offered a grass-clover silage (60.8% organic dry matter digestibility) ad libitum as a supplement to a summer grass-clover pasture for 8 weeks. Full details of the management of the lambs are given by Hopkins (1991). All lambs were short scrotum (testes retained under the skin and the scrotal sac removed).

The lambs were slaughtered under commercial conditions and hot carcass weight and GR obtained, where GR is defined as the tissue depth over the 12th rib 110 mm from the midline. The carcasses were chilled at approximately 4°C for 20 hours and the M. longissimus thoracis et lumborum (LD) and M. semimembranosus (SM) were removed from both sides of the carcass and held frozen at -10°C until testing. The pH of the LD and SM was measured using a pH meter with the electrode inserted into the muscles. The meat colour was measured using a chroma meter and the lightness \( L' \) of the LD is reported here. Values from both sides of the carcass were averaged. The tenderness of samples of the LD and SM from the right side of the carcass was measured by applying standard procedures and using a Warner Bratzler (WB) shear blade.

The rape and silage finished lambs had mean (s.d.) hot carcass weights of 21.9 (1.25) kg and 19.4 (1.27) kg respectively and GR measurements of 13.0 (2.26) mm and 7.7 (2.45) mm respectively. Critical levels were set for \( pH \), \( L' \) and WB values based primarily on previously established relationships between these 3 variables, which for the LD showed that above a \( pH \) of 5.8 the meat is usually unacceptably dark and between 5.8 and 6.0 is at maximum toughness (Hopkins 1993). The LD and SM from the rape and silage finished lambs had mean \( pH \)s of 5.50, 5.49, 5.64 and 5.56 respectively. Three of the carcasses from the silage fed lambs had a \( pH \) level above 5.80 for the LD. None of the LD samples from rape finished lambs had \( L' \) values below 32 a value which is commonly indicative of dark meat. The mean value was 37.4, compared to the silage finished lambs with a mean of 35.3 of which 1 sample was below 32. The mean shear force values for the LD from rape and silage finished lambs were 2.89 and 3.94 respectively with no samples exceeding 5 kgs a level that can be used to indicate tough meat, whereas for the SM the mean values were 4.13 and 4.66 respectively with 3 samples from each group exceeding 5 kgs.

Overall the number of samples which exceeded the critical levels was small and the rape finished lambs produced tender, light coloured meat. The \( pH \) of the LD for the silage fed lambs was high but it is not possible to determine whether this was due to the diet per se or other factors such as stress. It should be noted that these lambs were particularly lean, due to slow growth and this may have had resulted in depleted glycogen reserves. This type of monitoring is important for new production systems and has been continued to investigate the effect of diet per se by use of control groups, so as to ensure new systems of finishing lambs do not have detrimental effects on meat quality.

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