160. Feeding sorghum stover to Ethiopian sheep: effect of stover variety and amount offered on growth, intake and selection

A. A. O. Aboud1, E. Owari2, J. D. Reed1 and A. B. McAllan1
1International Livestock Centre for Africa, PO Box 5689, Addis Ababa, Ethiopia; 2Department of Agriculture, University of Reading, Earley Gate, Reading RG6 2AT; 3The Gambian Agricultural R & D Project PMB19, Banjul, The Gambia; 4AFRC Institute for Grassland and Animal Production, Harlow Research Station, Harlow, Essex CM20 2LS.

Experiment 1 used 48 Ethiopian Lowland rams of 15-3 kg weight and ca. 15 months old. They were individually fed 100 g/day of cotton seed cake meals and ad libitum sorghum stover (straws) from a bird-resistant (BR) or non-bird-resistant variety (NBR) offered at 25, 50 or 75 g/kg live weight daily in a 2 x 3 factorial design. The experiment comprised 21 days of adaptation and 75 days of test to measure growth, intake and selection. No variety x offer-rate interactions occurred. Growth was not affected (P > 0.05) by stover variety but increased (P < 0.01) with increasing amount of stover offered (39.5, 56.8, 76.7 g/day). Stover dry-matter (DM) intake (g/kg metabolic daily weight) was not affected (P > 0.05) by variety, but increased (P < 0.01) with amount offered (51.2, 65.2, 67.1 g/kg s.e. 1.99). Stover refused (g/kg) increased (P < 0.01) with increasing amounts offered (65, 415, 600 g/kg s.e. 9-41). Concentrations (g/kg) of leaf, and leaf sheath in offered stover and refusals from the three offer-rates were 167, 252; 2; 5; 20; 43; 29, 128 respectively for NBR sorghum; 250, 220; 0, 0; 49; 120; 102, 254 for BR sorghum. Leaf sheath in BR stover appeared to be unpalatable. Nitrogen digestibility measured in experiment 2 was lower in BR stover. Increasing the amount of stover offered improved growth by promoting greater intakes and selection. Varietal effects need more research.

161. The effect of dietary protein : energy ratio during food restriction on the size of the digestive tract and subsequent growth of lambs

A. R. Manteca1, G. R. Jason1 and A. D. M. Smith1
1Departamento de Produccion Animal, Universidad de Leon, 24007 Leon, Spain; 2Present address; 3Macaulay Land Use Research Institute, Pendlefield, Roslin, Midlothian EH25 9RF.

The effect of the proportion of dietary rumen-degradable protein during food restriction on the weight of components of the digestive tract and subsequent growth was investigated in 37 Scottish Blackface wether lambs (initial live weight (LW) 25 kg). Lambs were individually fed ad libitum for 4 weeks on a complete straw-based pelleted diet containing 150 g white-fish meal per kg (HP), 10.4 MJ metabolizable energy (ME) per kg dry matter (DM), 195 g crude protein (CP) per kg DM. Seven lambs were then slaughtered, 15 continued to receive the HP diet at 18 g DM per kg LW and 15 were switched to a diet containing no fish meal (LP, 10.4 MJ ME per kg DM, 122 g CP per kg DM) fed at the same rate, i.e. sufficient to maintain constant LW. After 6 and 12 weeks, five lambs on each diet were slaughtered. At 12 weeks the remainder received the HP diet ad libitum for a further 7 weeks before slaughter. At slaughter, the empty components of the digestive tract after removal of fat and the carcasses were weighed. There was a significant (P < 0.05) interaction between slaughter date and dietary treatment for reticulorumen weight as a proportion of empty body weight (EBW); it was smaller in lambs on the HP diet after 12 weeks of restriction (HP: 0.022, LP: 0.026). A similar pattern was observed for the small intestine and the total digestive tract. During the 7-week realimentation, lambs previously on HP and LP diets had similar intakes (1208 and 1343 g DM per day) and digestive tract components were unaffected by previous treatment. A high dietary protein: energy ratio during restriction reduced the weight of some of the components of the digestive tract, but the effect did not persist following realimentation.

162. Comparative performance of spring and summer born lambs grazing two sward types

L. M. Mitchell, M. E. King and C. M. Mackie. North of Scotland College of Agriculture, 51 King Street, Aberdeen AB9 1UD.

A better continuity of lamb supply may be achieved by lambing a proportion of the flock during summer. One hundred and ninety-two spring (April) or summer (May) born Suffolk x Mule twins lambs were used to compare growth performance of lambs grazing grass fertilized with a total of 300 kg N per ha in five dressings from April to August or oversown with clover in April 1989 and receiving no fertilizer nitrogen and to investigate the relative decline in mid-season growth rates. Grazing treatments were duplicated with equal numbers of spring- and summer-born lambs per treatment and commenced on 20/6/89 (day 0). Throughout the grazing period sward surface height (SSH) was monitored twice weekly using a sward stick and was maintained in the target range 5 to 7 cm by moving additional ewes and lambs on and off pastures. Nitrogen and clover swards required means of 3.4 (s.e. 0.6) and 6.9 (s.e. 1.6) additional livestock units respectively. Spring- and summer-born lambs were weighed at fortnightly intervals until weaning on days 41 and 70 respectively. Mean live weights of spring- and summer-born lambs grazing nitrogen or clover swards were 27.8 (s.e. 0.4), 28.2 (s.e. 0.4), 15.4 (s.e. 0.4), and 15.6 (s.e. 0.4) kg respectively on day 0 and mean daily live-weight gains from 0 to 41 days were 0.243 (s.e. 0.011), 0.239 (s.e. 0.013), 0.275 (s.e. 0.017), 0.265 (s.e. 0.012) kg/day. For days 0 to 28 the gains were 0.309 (s.e. 0.009), 0.336 (s.e. 0.010), 0.307 (s.e. 0.006), 0.323 (s.e. 0.016), and 0.317, 0.203 (s.e. 0.013), 0.155 (s.e. 0.012) kg/day respectively. Thus lambing date but not grazing treatment significantly (P < 0.001) affected daily live-weight gain over the initial 41-day grazing period and despite differences in live weight, spring- and summer-born lambs showed a retardation in growth rate from day 28. Summer-born lambs grazing the nitrogen sward grew significantly faster than those grazing the clover sward (0.224 (s.e. 0.006) and 0.203 (s.e. 0.006) kg/day respectively: P < 0.001) from day 41 to 70.