Zimbabwe, the leaves harvested at 12 weeks after an initial harvest and dried at 70°C for 48 h. The CP and acid detergent fibre content of CC, FC and SS were 212·6 and 165·3; 193·7 and 300·9; 251·6 and 99·4 g/kg DM respectively. The DMD for CC, SS and FC were 0·671, 0·972 and 0·633 respectively while the CPD for CC, SS and FC were 0·57, 0·97 and 0·58 respectively. The condensed tannins in CC, SS and FC were 27·4, 0·0 and 6·0 g/kg DM respectively. Lectin activity was only seen in CC and was similar to that of *Phaseolus vulgaris*. It is notable that CC and FC had similar DMD and CPD but different tannin and lectin contents. The variation in nutritive value may be attributed to the associative effects of fibre and antinutrients. SS which had the lowest fibre and antinutrient content had the highest DMD and CPD. The nutritive value of the species studies shows that they have substantial potential as foodstuffs for tropical arid zones. However, their ubiquitous use may be restricted by their fibre and antinutrient contents.

204. Effect of feeding groundnut hay as supplement to a basal diet of sorghum stover on intake and growth rate of zebu cattle

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A feeding trial was conducted to assess the potential of groundnut hay as supplement to cattle fed a basal diet of sorghum stover. Sixteen growing zebu cattle aged 15 months and weighing on average 214 kg were individually fed for 84 days to measure the effects of three levels of groundnut hay supplement on dry matter (DM) intake (DMI), DM digestibility (DMD) and growth. The animals were blocked for live weight and offered chopped sorghum stover *ad libitum* or supplemented with hay at 0 (control), 1 (L), 2 (M), or 3 (H) kg DM per head per day. The values for DM (g/kg), crude protein and neutral-detergent fibre (g/kgDM) were 900, 46·6 and 665; 890, 122 and 550 for stover and hay respectively. Mean DMI of stover declined ($P < 0·001$) as hay intake rose, although total DMI (TDMI) and digestible DMI (DDMI) were increased ($P < 0·001$). Mean stover DMI, TDMI and DDMI were 3·46, 3·07, 2·46 and 2·05 (s.e. 0·12); 3·46, 4·15, 4·46 and 5·05 (s.e. 0·14); 1·70, 2·16, 2·42 and 2·83 (s.e. 0·08) kg/day for control, L, M and H respectively. For the same treatments, growth rates were 107, 143, 226 and 310 (s.e. 10·8) g/day. The results indicate that, groundnut hay fed as supplement has potential for improving the intake and growth of cattle fed sorghum stover-based diet.

205. Effects of accession and cutting frequency on the rumen degradability of nitrogen in the foliage of *Sesbania sesban* var. *nubica*

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Sesbania sesban var. *nubica* is a tropical tree legume. The rumen degradability of foliage nitrogen (N) of (1) four accessions selected on the basis of high dry matter (DM) yield from a collection of 200 accessions and managed under a 4-month cutting frequency and (2) one accession managed under 1, 2 or 4-month cutting frequency regimes was established. The foliage was from plants grown on a single site (Maseno, western Kenya) and was cut in the same month (August). The degradability values were established by incubating dried, ground material in nylon bags in the rumens of four sheep for 6, 12, 24 and 48 h using a balanced design where all bags were removed from each sheep at one time. The four accessions had mean $a + b$ values of 0·88 (s.e. 0·044), 0·86 (s.e. 0·015), 0·83 (s.e. 0·019) and 0·84 (s.e. 0·014) and mean c values of 0·07 (s.e. 0·016), 0·11 (s.e. 0·010), 0·08 (s.e. 0·009) and 0·10 (s.e. 0·009) per h. The three cutting frequencies had mean $a + b$ values of 0·89 (s.e. 0·018), 0·85 (s.e. 0·019) and 0·84 (s.e. 0·019) for 1, 2 and 4-months, respectively. The c values were 0·09 (s.e. 0·009), 0·10 (s.e. 0·013) and 0·11 (s.e. 0·014) per h for 1, 2 and 4 months, respectively. A high proportion of the N was rumen-degradable. Neither accession nor cutting frequency had substantial effects upon rumen degradability.

206. Comparison of the *in vitro* rumen fermentation of forage legumes *Sesbania rostrata* and *Sesbania aculeata*

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A study was performed using a continuous batch culture (CBC) technique to examine the digestibility of tropical forage legumes, *Sesbania rostrata* (SR) and *Sesbania aculeata* (SA), grown in Bangladesh. Compared with SA, SR is a newly introduced, high yielding and vigorous variety of *Sesbania*. Samples were cut at normal (first cut) and regrowth stage (second cut) and sun or oven dried. Chemical analysis showed no significant differences in crude protein, ether extract and acid detergent fibre content between SA and SR. In CBC over six sequential transfers and consecutive incubations mean DM losses (g/kg) were similar ($P > 0·05$) for both sun dried and oven dried samples of SA (518·0 *v.* 537·6 respectively) whereas DM losses from oven dried SR were significantly lower ($P < 0·01$) than that in sun dried samples (491·8 *v.* 552·3 respectively). DM losses from second cut samples of both varieties were higher ($P < 0·01$) than from first cut samples (555·6 *v.* 499·9 for SA and 543·5 *v.* 500·6 for SR respectively). There were no significant differences in total volatile fatty acid (VFA) concentration in the supernatant liquid between sun dried and oven dried samples of SA or SR. Similarly, cutting had no effect on VFA concentration from SA or SR. Ammonia concentration (mmol/l) was higher ($P < 0·05$) for oven dried samples (23·9) than sun dried (20·4) in SA but not in SR, however, first cut samples of SR had higher ($P < 0·05$) values than second cut samples. Irrespective of drying method or cutting stage, DM losses and VFA concentration were strongly correlated for both SA and SR ($r = 0·822$ and 0·893 respectively). DM losses and gas production were highly correlated for SR ($r = 0·937$) but not for SA ($r = 0·347$). There was poor correlation for both varieties between DM loss and ammonia concentration (0·399 and 0·040 for SA and SR respectively). These results suggest that there is little difference in nutritive potential of the two varieties of *Sesbania*.

207. Milk production and rumen measurements in crossbred cattle fed napier grass *ad libitum* supplemented with two levels of leucaena and maize bran

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Crossbred (Ayrshire × Sahiwal) cattle were offered napier grass *ad libitum*, alone (N) or supplemented (dry matter (DM) basis) with 1 kg (LL) leucaena, 2 kg leucaena (LH) or 2 kg leucaena and 1 kg maize bran (LM). Food intake, milk yield and diet digestibility were measured using eight cows in early lactation (initial live weight, 384 (s.e. 41) kg in two 4 × 4 Latin squares. Intake and rumen fermentation were measured using four rumen fistulated steers weighing 352 (s.e. 12) kg in a 4 × 4 Latin square. Food intake