

#### 4. FEED SELECTIVITY STUDIES IN SHEEP AND GOATS OFFERED MUTIPURPOSE TREES (MPT)

**Khama, I.R.S., MSc (Agric.)(1996)**

***Supervisor: Prof. L. E. Mtenga***

Four experiments were conducted to evaluate voluntary intake, nutritive value and selectivity of three browse species (*Albizia lebbek*, *Glyricidia sepium* and *Tamarindus indica*) offered in form of fresh branches to confined sheep and goats. In experiment 1 voluntary intake of the browses offered as sole diet to the animals was studied. Experiment 2 examined voluntary intake of the browses offered with a basal ration of *Chloris gayana* hay. Preference ranking of the browse species was carried out in experiment 3. In experiment 4, DM degradability of botanical parts of browse species and basal ration (hay) were determined using fistulated sheep and goats. Twelve mature Black Head Persian (BHP) sheep aged between 21 and 90 months with initial liveweights ranging from 24.4 to 33.2 kg and twelve Small East African goats aged between 31 to 86 months with initial liveweights of 24.8 to 30.2 kg were used. Eight animals (4 sheep and 4 goats) were randomly allocated to each browse type in experiments 1 and 2. In experiment 3, six sheep and six goats selected from animals used in experiments 1 and 2 were used for preference study. In degradability study (experiment 4), three fistulated sheep and three fistulated goats fed a standard diet were used to determine DM degradability of individual browse parts and hay. In experiment 1 total DMI of browses (Leaves and bark) in sheep were 46.50, 79.40 and 48.43 g/kgW<sup>0.75</sup>/day, for *A. lebbek*, *G. sepium* and *T. indica* respectively. The respective values for goats were 39.68, 56.79 and 48.66 g/kgW<sup>0.75</sup>/day. In experiment 1 sheep consumed more *A. lebbek* and *G. sepium* (bark and leaves) than goats (P<0.05) in terms of DMI (g/kgW<sup>0.75</sup>/day). There was no significant difference between sheep and goats for the DMI of *T. indica* (P>0.05). In experiment 2 when *Chloris gayana* hay was offered in addition to browse species, DMI of *A. lebbek* in sheep increased to 66.06 whereas that of others declined to 64.64 (*G. sepium*) and 34.61 (*T. indica*) g/kgW<sup>0.75</sup>/day. However, total DMI (browse and hay) of sheep and goats observed in this experiment

were higher ( $P < 0.05$ ) than those of experiment 1 (sole browse). In experiment 3 when all browse species and hay were offered together to individual animals goats consumed more *T.indica* and *G. sepium* ( $P < 0.05$ ) than sheep. The DMI ( $\text{g/kgW}^{0.75}/\text{day}$ ) of sheep for *A. lebbek* was higher than that of goats ( $P < 0.05$ ). However, total DMI (brownses and hay) for sheep and goats were not significant ( $P > 0.05$ ). Leaves of all browse species had significantly higher ( $P < 0.05$ ) contents of soluble ( $a = 32.2-38.6$  vs  $18.4-30.7\%$ ) and potential (total) degradable matter ( $a+b = 67.5-85.6$  vs  $62.9-79.6\%$ ) than barks and hay. Species comparisons showed significant difference in these parameters. It was concluded that *A. lebbek*, *G. sepium* and *T. indica* fed with low quality roughage could improve animal productivity through increased DM intake if mixed brownses are offered simultaneously with hay. There is need for further studies on protein degradability and factors limiting browse intake and their effects on actual (growth rates, milk yield etc) animal performance.