

R5188 (X0151) Improving the use of sorghum stover as feed (31 January 1990 - 30 June 1993)

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Background

Cereal stovers are relatively poor in nutritive value but are widely used for feeding ruminants, often when other feeds are inadequate or unavailable. This project considers a number of aspects of the nutritive value of sorghum stover in the context of their existing utilisation in Ethiopia and the potential of farm-based approaches to their improvement.

Objectives

To quantify variation in aspects of sorghum stover quality and to evaluate and improve methods of stover feeding

Previous Achievements

Survey work carried out in the early stages of the project showed that farmers preferred to grow local varieties of sorghum in the belief that the quality and quantity of stover produced was better than with varieties selected for bird resistance. Agronomic trials showed that there was no clear difference in stover yields between resistant and non-resistant varieties and there appeared to be no difference in nutritive value of stover from bird resistant and non-resistant varieties, provided the ratios of leaf-plus-sheath:stem were comparable. Grain yields were higher for the bird resistant sorghums. The trials also confirmed that the farmers' practice of stripping leaves to feed to livestock did not affect grain yields at harvest.

Animal feeding experiments demonstrated that stover intake increased when animals were offered in excess (approx 50%) of intake to allow selection of the more nutritious components. Chopping stover also increased the intake of stover by small ruminants but had a negative effect in cattle. In an experiment with cattle, supplementation of long stover with cotton seed cake (16 or 32 g DM/kg LW^{0.75}/day) improved growth rate. Supplementation at the lower level increased intake relative to the unsupplemented animals but doubling the amount of supplementary cottonseed cake reduced intake.

Achievements in 1993

Data analysis was completed and the work written as a Ph.D. thesis which was accepted. The General Discussion of the thesis points out that the results will be particularly useful in developing strategies for the more intensive livestock farms which are developing on the outskirts of many towns in Ethiopia.

Dissemination

Osafo, E.L.K. (1993) *Sorghum stover as a forage: Cultivar effects on yield and effect of chopping, amounts offered, supplementation and variety on intake, selection and liveweight gain in Ethiopian sheep and cattle*. PhD Thesis, University of Reading.

Abstracts published:

Osafo, E.L.K., Owen, E., Said, A.N., Gill, E.M., McAllan, A.B. (1993). Feeding sorghum stover to Ethiopian sheep and cattle: Effect of chopping and amount offered on intake and selection. In: *Animal Production in Developing Countries* (Gill, M., Owen, E., Pollott, G.E. and Lawrence, T.L.J. eds). Occasional Publication No 16 British Society of Animal Production. 204-206.

Osafo, E.L.K., Owen, E., Said, A.N., Gill, E.M., McAllan, A.B. and Kebede, Y. (1993). Sorghum stover as ruminant feed in Ethiopia: Effect of cultivar, site of growth, pre-harvest leaf stripping and storage on yield and morphology. In: *Animal Production in Developing Countries* (Gill, M., Owen, E., Pollott, G.E. and Lawrence, T.L.J. eds). Occasional Publication No 16 British Society of Animal Production. 188-198.

Osafo, E.L.K., Owen, E., Said, A.N., Gill, E.M., McAllan, A.B. and Sherrington, J. (1993). Use of chopped sorghum stover as feed for Ethiopian sheep: Effects of sorghum variety and amount offered on intake, digestibility and live-weight change. Abstract No 253. World Conference on Animal Production. Edmonton, Canada.

Osafo, E.L.K., Owen, E., Said, A.N., Gill, M., McAllan, A.B. and Sherrington, J. (1993) Feeding chopped sorghum stover to Ethiopian sheep: effects of sorghum variety and amount offered on intake, digestibility and live-weight change. *Animal Production*, 56: 470 (abstr.)