

Sweet Corn Stover Silage Production

A.B. Idris, S.M. Yusoff and A. Sharif

Department of Veterinary Services, Malaysia

Introduction

In Malaysia, livestock production is mainly in the hands of smallholders who are largely dependent on forages for their feed resources. With the assistance of the Department of Veterinary Services (DVS), more farmers are now cultivating forages, especially those who are involved in the milk collecting centre (MCC) dairy projects. Owing to events such as droughts and floods, fodder conservation is likely to play an important role for livestock production among smallholders in certain areas of the country.

Sweet corn is a popular crop in Malaysia. After its cobs have been harvested the stover still contains a good source of nutrients suitable for cattle feeding. With 9.6% crude protein concentration we found in an earlier study, it is comparable to that of stover harvested at 75 days of age (Yacob *et.al.* 1992). The metabolisable energy (M.E.) value of 7.82 MJ/kg of fresh stover is comparable to or in some cases better than most fodder grass species being used in Malaysia. Although this by-product is a valuable forage by itself in the fresh state, at harvesting time the quantity would be too much to be utilised in a short time before they decompose. This material needs to be conserved for feeding in adverse seasons. Ensiling the stover is thought to be the best form of conservation. At present the production of sweet corn silage is carried out in the state of Terengganu with an estimated

production of 120 t annually. Since the inception of the sweet corn stover ensilage programme in 1996, an estimated 400 t have been produced for feeding farmers' cattle.

Materials and Methods

The stover of sweet corn harvested after 75 days was collected and chopped into 2 cm lengths, using a portable forage chopper. The chopped stover was tightly packed into 128 l plastic drums, taking care to exclude as much air as possible to maintain anaerobic conditions for successful ensilation.

The ensiled materials were opened after 30 days and samples were sent to the laboratory for analyses using AOAC (1984) methods. Calcium concentration was determined using an atomic absorption spectrophotometer, phosphorus using the molybdate metavanadate complex, metabolisable energy by the gas test procedure as outlined by Menke *et al.* (1975) and the fibre components using the method of Goering and Van Soest (1970).

Result and Discussion

Yacob *et al.* (1992) estimated a production of 10 t of dry matter of stover per ha of sweet corn and this figure is close to the average of 12 t achieved in the current work. It is evident that a substantial quantity of forage can be obtained if stover from every crop of sweet corn is ensiled and utilised by dairy smallholders.

At the normal harvesting age of 75 days, the protein and ME contents of corn stover were 9.6% and 7.82 MJ/Kg respectively. In the silage product the protein concentration had decreased to

8.2% and ME value to 5.86MJ/kg. Very negligible spoilage was observed in the drums during the project.

References

- AOAC. 1984 . Official methods of analysis (14th Ed.). *Association of Official Analytical Chemistry*. Arlington. Va, USA
- Goering, H.K. and Soest, P.J. 1970. Forage fibre analyses (Apparatus, reagent, procedures and some applications). *Agricultural Handbook 379*, ARS, USDA. Washington, D.C.
- Menke, K.H., Raab, L., Salewski, A. Steinggas, H., Fritz, D. and Schneider, W. 1975. The estimation of the digestibility and metabolizable energy content or ruminant feeding stuffs from the gas production when they are incubated with rumen liquor in vitro. *Journal of Agricultural Science Cambridge* **93**, 217-222.
- Yacob, M.A., Alimon A.R. and Hilmi, A. 1992. Nutritive evaluation of sweet-corn stover silage for growing lambs. In: Wong H.K. *et al.* (Eds). Towards more efficient, effective and minimal production strategies. *Proceedings 15th Malaysian Society of Animal Production Conference* 203-206.