FEEDS AVAILABLE FOR CATTLE FATTENING IN KENYA

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SUMMARY

In a large scale feedlot it is necessary to guarantee the avaibility of feedstuffs. 30 000 tons of maize silage were producted with adapted varieties and an up to date harvester system. The surplus maize grains from the hybrid maize program would be valuable for the animal feeding sector. The technic of high moisture storage in cheap trench silos was used. Others by products such as molasses and cotton cake support transports costs. Pyrethrum marc, maize bran, cottonseed hulls, sunflower seed hulls were used. The water content of pineapple waste is too high.

RESUME

Aliments disponibles pour l'embouche bovine au Kénya

Un grand « feed-lot » doit être garanti quant à la nourriture. On a produit 30 000 tonnes d'ensilage de maïs, avec des variétés adaptées et un équipement moderne. Les surplus de maïs en grains provenant du programme de production de maïs hybrides sont avantageusement utilisés pour l'embouche, car la zone de production est éloignée des ports. Ce grain est mis humide dans des silos tranchées. D'autres sous-produits comme la mélasse et le tourteau de coton supportent des frais d'approche. Le marc de pyrèthre, le son de maïs, les coques de coton, les coques de tournesol ont été employés. La pulpe d'ananas est trop humide.

Three basic courses of action presented themselves to a cattle feeder :

1. Grow a crop or crops specifically for cattle food ;

2. Purchase supplies of human food surplus to requirement and store for feeding to cattle ;

3. Use locally available by-products or crop residues and waste.

Each of these methods has been used by the Project.

CROPS GROWN SPECIFICALLY FOR CATTLE

Given the size of the capital investment in a large scale feedlot, together with the high management charges involved in its efficient operation, it is necessary to guarantee the availability of sufficient feed to maintain a budgetted throughput of cattle. The choice of crops to give this necessary certainty was maize silage, since maize is the principal crop in Kenya. During the course of the Project some 30,000 tons of maize silage have been made. Locally available hybrid varieties of maize were used, and harvesting was carried out using imported high capacity double-chop forage harvesters. The long growing season required by some equatorial varieties grown at an elevation of 2,000 meters gave an advantage in allowing harvesting to take place over a three to four month period, thus giving better utilisation of harvesting equipment. On the other hand, the relatively large stems and low grain ratio of the local maize varieties gives a silage of lower feed value than that usually quoted in literature from temperate countries. The heavy stems, with their high fibre content, have also led to problems of machinery wear, and importers have arranged to produce machinery with heavier gauge metal sheeting to withstand the abrasive action of the local varieties. A small amount of work has been done using sorghums as the basic forage, but to date the results have been less attractive than with maize in the ecological zones where the work has been undertaken.

USE OF SURPLUS GRAINS

The Kenya Project was originally requested by the Kenya Government in 1967 after the initial success of the local hybrid maize breeding programme. At that time it was expected that surplus grains would be produced in Kenya and that as well as export it would be valuable to develop a local market in the animal feeding sector. Cattle feeding appears to be more advantageous either than manufacturing concerns (corn starch) or intensive small stock feeding operations (poultry) since either of these enterprises needs a relatively continuous and assured supply of maize grain. Cattle feeding, on the other hand, can make use of fluctuating supplies by substituting other ingredients when grains are in short supply, or by absorbing greater quantities when they are surplus.

In the case of Kenya, additional arguments for a local feeding industry rather than grain export can be derived from the fact that the maize growing area is some 500 miles from the sea and thus grain

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incurs heavy handling charges before it can be exported. Almost from the inception of the Project cattle feeding has been able to compare favourably with local export parity in the price it can offer for the purchase of maize grain. In the current high priced meat markets, the point is rapidly approaching where cattle feeders can offer a price as high, or higher, than the domestic grain market. In this situation cattle feeding can play a valuable role in under-pinning the price to the grain producer.

The Project has used the technique of high moisture storage in cheap trench silos with great success. In this technique the maize is ground either when picked in a wet condition, or it is reconstituted to a 30 p. 100 moisture content at the time of ensiling. The grain ferments and oxygen is thus excluded and the resultant feed has a higher digestibility on account of the heating process which it undergoes during storage. The technique is cheap in terms of capital equipment and eminently suitable for use in years of occasional large surplus.

BY-PRODUCTS AND CROP RESIDUES

Of first concern in this regard is the quantity available and the likely transport costs to the site of use. Throughout the Project use has been made of molasses and cottonseed cake, both of which are produced in large quantities in Kenya and neighbouring countries. The technique for evaluating by-products has been to establish three basic rations composed of different proportions of corn silage, corn grains, urea molasses and cottonseed cake, which have formed the standard rations at the Beef Research Station. Any available by-product is then analysed and substituted at the appropriate place and rate in the standard ration. The performance of animals on the substituted ration can then be compared with their performance on the standard ration, and hence a value can be placed upon the by-product for use in the feedlot. It is then only a short step to translate this value into a market offer price at the site of its production. In addition to molasses and cottonseed cake, the Project has found extensive use for pyrethrum mars — the remains of the pyrethrum flower after extraction of the active principal — maize germ and bran meal — the residue after milling grain to produce maize flour, cottonseed hulls and sunflower seed hulls. A promising by-product about to be used is pineapple waste, although the high water content of this feed precludes its transport over any distance.

OBSERVATIONS

It has been the experience of the Project that, once the ability to feed cattle effectively has been established, additional feedstuffs become available. In the absence of accurate mixing and rationing facilities, by-products are often fed in incorrect quantities in a ratio resulting in poor animal performance. In turn, this places poor values upon the by-products. Once animal feeding is made efficient, the increase in the value of the by-products is such as to attract the interest and attention of the persons producing them. Even so, it is often more desirable that they should sell their by-products to specialist cattle feeders, rather than attempt to set cattle feeding operations to make use of their own by-products in situ.