SOIL FERTILITY AND THE POTENTIAL FOR ANIMAL PRODUCTION IN THE SOUTH AFRICAN HOMELANDS

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The traditional and accepted technical philosophy of livestock improvement rests on

nutrition, ie providing a sufficient and balanced ration;

genetic improvement, ie selection and breeding to change the herd structure;

management, ie the human inputs.

McClymont (1976) recently offered a fresh approach to development programmes for low developed countries of the third world. He suggests that development should be based on principles which are

economically sound;

ecologically sound, and

socially acceptable by the recipients.

We are all aware that cattle are a dominant element in the cultures of the Bantu. The cattle complex is characterised by a strong attachment to cattle, manifesting a love for and identification with, the animals and a dislike of killing or selling them. There is a general disinterest in utilising cattle as a source of revenue or as security for credit. (Van Raay).

Many of the old customs and traditions which have been built up over the centuries are retained. Some of these customs are however incompatible with modern day requirements and they are sometimes detrimental to progress.

Ward (1973) reports that the developing world has the majority of the world's livestock (over 60 per cent) but these only yield about 25 per cent of the world's supply of animal protein. In Southern Africa the homelands have 30,0 per cent (3,5 million head) of the cattle population (12 million head) but produce only 12,6 per cent (189 000) of the total slaughterings (1,5 million). In many parts of Africa more than 50 cows are required to produce a ton of meat. In Europe the comparable figure is 10 cows.

Many reasons are given for the low productivity in the low developed countries including politics, tradition, social customs, ignorance, economics as well as the absence of breeding and selecting programmes, but the main reasons being poor management and poor provision of feed. (Brumby, 1973).

If we analyse the livestock situation in the Bantu homelands we find that

* cattle are kept for social and religious values rather than for their economic value;
* numbers are the deciding factor, not quality or productivity;
* there is a traditional resistance to the selling of cattle;
* selection if practised at all is based on colour and shape of the horns and not on performance;
* management and disease prevention are almost non-existent;
* supplementary feeding is unknown and
* no grazing control is carried out.

The results are

* over-grazing and regular starvation;
* serious losses in livemass during winter;
* low calving percentages;
* a slow rate of growth;
* a high rate of mortality;
* a very low turnover of generally less than 7 per cent; in KwaZulu the turnover during 1973 was only 1,3 per cent.

A development programme then should be a compromise between McClymont's principles ie ecological, economical and socially sound systems and the traditional technical philosophy based on nutrition, breeding and management. I shall try to show that under certain preconditions this is feasible. I shall also try to stay as close as possible to the topic of this paper.

Sufficient and balanced feed intake ecologically sound

Sufficient feed, balanced for all the essential feed ingredients, is the most important single input in animal production. McClymont's prerequisite is that development should be ecologically sound.

Southern Africa, including the homelands, is mainly a pastoral country covered with trees, shrubs and approximately 800 different species of grasses. However our soils are poor, being deficient in organic matter, nitrogen and phosphorus, yet still produce annually, astronomical qauantities of dry matter which the ruminant can use. (Van der Merwe, 1976).

It is also true that we destroy annually some 10 million tonnes of roughage, ie 4—5 million tonnes of digestible nutrients and half a million tonnes of crude protein. Van der Merwe (1976) reports that in the face of this destruction, large numbers of cattle and sheep die of starvation or are emaciated to walking skeletons at the end of the winter. This

Finally, the energy requirements of various tillage implements can be compared as in Table 4. These figures must only be used as a rough guide for average conditions to help the machinery manager with his choice of tillage systems.

In conclusion then, it must be said that the philosophy "if a little is good, more is better", contributes greatly to the overuse and consequent misuse of machines (Hunt, 1973).

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