



People, Land and Livestock

*Proceedings of a Workshop on the
Socio-Economic Dimensions
of Livestock Production in the
Communal Lands of Zimbabwe*

Edited by
Ben Cousins

PEOPLE, LAND AND LIVESTOCK

**Proceedings of a Workshop on the Socio-economic
Dimensions of Livestock Production in the Communal Lands of
Zimbabwe, held at Great Zimbabwe, Masvingo, 12th to 14th
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**LIVESTOCK EXTENSION PROGRAMMES AND PACKAGES
IN THE COMMUNAL LANDS OF ZIMBABWE**

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1. INTRODUCTION

In Zimbabwe in excess of 54 percent of the national herd is in the communal areas. This herd plays a crucial role in the communal area social economy - mainly in increasing food production, either directly or indirectly. Furthermore, this herd has a multi-function character. Thus the introduction of suitable production systems for the sub-sector is of prime importance to national development. In Zimbabwe, as in many African countries, "Livestock development planning has frequently been a case of planning without facts" (Grandin 1987). As a result the guiding principles of the livestock development strategy for communal areas have exhibited a high degree of freedom, emphasising a learning approach as opposed to a blueprint approach. These guiding principles are:

- To take into account the multiplicity of livestock functions
- To maintain the security function of livestock particularly in the communal areas
- To reconcile the security function with the task of improving productivity, in terms of farm outputs like meat and milk as well as farm inputs like draught and manure
- To achieve institutional changes that help keep livestock numbers in line with long-term sustainable carrying capacity of the grazing resources

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- To promote efficiency in the production and marketing of livestock and livestock products
- To make project investment decisions taking into account that projects aimed at increasing livestock production take a long time to show benefits.

(Zimbabwe 1988, p19)

Within the above framework the role of the Department of Agricultural Technical and Extension Services (Agritex) is to offer technical innovations and interventions which achieve the above goals and marry government's objectives to those of the communal area farmer, with the aim of improving agricultural productivity in these areas. This implies a direct and positive attempt to meet the farmer's immediate needs by promotion of non-terminal products of importance to the household as well as terminal products.

On the other hand, however, the government would like to see an increased contribution from the communal area farmer to the official meat trade.

It is not an easy task for Agritex to achieve these goals with the very scanty knowledge of the social dynamics of communal area farming systems available at present and the divergent and yet inconclusive opinions of social and natural scientists. However with the work of the Farming Systems Research Unit, and that of the University of Zimbabwe (in communal areas) as well as Agritex demonstrations and trials, it is hoped that empirical data will be available in the near future. Such information would assist in formulating projects, programmes or packages with more certainty and precision.

It is necessary to give an account of the role of livestock in communal areas, the current livestock situation and the

constraints to livestock development in Zimbabwe in order to appreciate the technical interventions advocated by Agritex.

2. THE ROLE OF LIVESTOCK IN COMMUNAL AREAS

Several studies by outside consultants and the Department's own staff have shown the objectives of the communal area farmer for cattle production to be:

- (a) provision of draught power
- (b) provision of manure
- (c) provision of milk
- (d) provision of socio-cultural roles
- (e) provision of investment or capital assets and
- (f) provision of cash when needed.

2.1 The Current Livestock Situation

The communal areas comprise some 16,4 million hectares (42 percent of Zimbabwe). Ninety-one percent of this land is in Natural Regions III, IV and V. This land becomes increasingly marginal as a result of low and erratic rainfall and/or poor soils. The livestock population in communal areas is estimated at 3,6 million cattle, 2 million sheep and goats and 0,23 million donkeys (Vaughan-Evans 1988). The average number of cattle per household is estimated at 3-4 with just over 50 percent of the communal area population owning cattle.

The GFA report (1987) found grazing livestock to amount to 2,5 million Livestock Units (LUs), of which 89 percent comprise cattle. This puts the overall stocking rate on some 9 million hectares of available grazing at 3,6 hectares per LU. The general stocking rate recommendations for beef production systems are: Natural Regions I and II 3,5 ha per LU; Natural

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Region III 5,5 ha per LU; Natural Region IV 8 ha per LU and Natural Region V 12 ha per LU.

These figures mean that communal areas are presently under great grazing pressure (overstocked). In reality, however, these figures give a misleading picture of the situation. The grazing pressure is to some extent offset by the availability of \pm 4 million ha of arable and fallow land. Thus the GFA report (1987) found that crop residues provided as much as 50-59 percent of cattle energy requirements in Natural Regions II and III. Conversely, grazing provided 80-90 percent of cattle energy requirements in Regions IV and V.

2.2 Constraints to Livestock Productivity

(i) Feed

From the technical point of view insufficient feed supply, in terms of both quantity and quality, is usually cited as the major cause of poor livestock production in communal areas (Hamudikuwanda 1988; Smith 1988).

The winter or dry season is the time when feed is in shortest supply. At this time of the year, the feeds available are deficient in protein, the content of which could be as low as 2,5 percent, and energy. This shortage of energy and protein leads to depressed animal productivity. Animals lose weight, the calving percentage drops, milk yields drop, conception rates drop, and draught animals are too weak to perform their duties.

This lack of dry season feed is mainly attributed to overgrazing in the wet season which does not allow a sufficient carryover of grazing for the dry season. It is to be noted

that in terms of feed supply the major nutritional constraint to production is a shortage of energy especially during the dry season.

In summary the main causes of insufficient feed supply are:

- (a) Decreasing availability of grazing areas, due to increased land requirements for arable production and settlement. Estimates indicate that between 1961 and 1977 the area under cultivation increased by 91 percent at the expense of grazing (Shumba and Whingwiri 1988). This trend has now continued to gather momentum with over 4 million hectares now under the plough in the communal areas.
- (b) Insufficient availability and inefficient use of crop residues.
- (c) Increasing cattle numbers due to the economic and social importance of cattle in communal area farming systems.
- (d) Poor management of the remaining grazing areas.
- (e) Lack of specific fodder production systems on fallow or cropped land.
- (f) Lack of supplementary feeding of proteins, minerals or concentrates due to lack of cash and to the low importance of commercial production from the cattle herd.

(ii) Land tenure

In Zimbabwe grazing land in the communal areas is still under the communal system of land tenure. According to Gapare (1988), technical inputs are limited by this land tenure system. A communal area farmer may not be at liberty to try the technologies recommended since grazing land is under

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communal use (Hamudikuwanda 1988). La Baume and Dahl (1986) stated that

If there is no charge for or regulation of the use of communal resources, the resources are likely to be over-used, possibly to the point of destruction ... because the cost of using an additional unit of a resource is shared by all users. But the benefit of using this additional unit accrues to the individual user of that unit ... The individual user has no economic incentive for conservation.

However the current Land Use Reorganization Programme which requires that land be clearly demarcated into residential, arable and grazing land in each village is intended to improve the situation by offering collective responsibility for a piece of land to a community. Cousins (1988) in his survey found that there was a strong connection between a community and its natural resources and that communities adopting grazing schemes demonstrated a keen sense of proprietorship over their common property resource. Thus the programme aims to strengthen this sense of responsibility towards the common natural resources.

(iii) Lack of disease control

There is a wide incidence of diseases in communal areas which results in

- high mortality
- increased morbidity and
- poor growth and reproduction performance.

This constraint affects all livestock species and it originates from poorly developed animal health infrastructure. However the provision of ± 250 animal health and management centres

throughout all communal areas might provide a breakthrough in animal health care in these areas.

iv) **Poor livestock management**

Livestock management in communal areas is generally poor. This is mainly due to inadequate extension techniques, limited knowledge and economic constraints on the part of the farmer and lack of appropriate research which is easily adaptable to communal area situations. It is important to note that application of commercial standards of "sound" livestock management to communal areas obscures more than clarifies the real issue in the communal areas, since the production systems and objectives of a communal and a commercial farmer are completely different.

(v) **Credit facilities**

There are very limited credit facilities available to the communal area farmer to develop his livestock. Where these are available the conditions attached to them are not attractive - either the interest rates are too high or they take no account of the communal area farmer's circumstances, e.g. communal land tenure, lack of infrastructure and small herd sizes.

3. LIVESTOCK PROGRAMMES AND PROJECTS IN COMMUNAL AREAS

Having considered the most important constraints to improved livestock production as far as extension is concerned, it is now necessary to outline the more important livestock extension programmes and packages.

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As pointed out earlier, nutrition is probably the major constraint to animal productivity. As a result most of the programmes are aimed at improving the nutrition of the livestock.

To this end Agritex recognises that sustainable livestock production will be achieved through:

- (i) Better organisation and utilisation of the existing natural grazing areas by introducing grazing schemes, i.e. by increasing primary production.
- (ii) Improved and increased use of fodder banks on fallow or cropped lands.
- (iii) Improved handling and utilisation of crop residues.
- (iv) Generation of appropriate technologies through greater use of on-farm research trials.

In all the programmes, technological appropriateness, technical applicability, social acceptability and financial affordability are taken into account.

3.1 Grazing schemes

The most important area of activity in the livestock sector since independence has been the promotion and planning of grazing schemes. Under this programme grazing land in each village is sub-divided, preferably into a minimum of four paddocks. The animals are supposed to be grazed in rotation through these paddocks during the growing season, allowing the implementation of the four main principles of veld management, i.e. rest, period of stay, control of top hamper and control of stock numbers. The implementation of short duration grazing is expected to lead to increased herbage production.

Grazing schemes may therefore result in some very dramatic increases in the mass of herbage production, allowing some carry over of grazing to the critical dry months. In addition to the increased herbage productivity a number of other benefits of great socio-economic advantage accrue, e.g.

- (a) protection of crops from stray animals
- (b) relief to the community from herding cattle, thereby allowing the communal area farmers to engage in other productive activities
- (c) possible reversal or halting of the degradation of communal grazing land through the development in the community of a greater sense of collective responsibility towards the management of the common resources.

The grazing schemes are being implemented under high stocking rates. Since there are no empirical data to suggest an undisputed positive response, the Department has launched a programme to monitor the impact of grazing schemes management systems. This Veld Trend Monitoring Programme includes sites in seven grazing schemes representative of Natural Regions II to V.

The programme records species composition, herbage yields, basal cover and erosion three times a year. Annual rainfall is also recorded. The programme will run for a period of five years.

Planning of grazing schemes is carried out by Agritex field officers in consultation with local communities and in conformity with the government's Land Use Reorganization (Villagisation) Programme.

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The funding of these schemes has in many instances been on a tripartite basis between a donor, Government of Zimbabwe and the local community. In most cases a donor has supplied some fencing materials, the Government of Zimbabwe planning materials and personnel while the community has supplied labour and some materials. With the fencing costs now standing at about \$1 300 per km and continued support of donors unknown, the financing of the schemes is left in the balance. The continued implementation of these schemes is dependent on either continued support by the donors or more direct involvement in the supply of materials by the government.

Attached to the grazing schemes is the introduction of improved breeding and livestock management programmes, e.g. selection and use of superior bulls and implementation of routine cattle operations. Unfortunately the adoption of these management practices has not been very satisfactory.

At present there is great interest in grazing schemes countrywide.

3.2 Pasture legumes

Agritex encourages the growing of fodder crops in fallow land, contour ridges and waste areas in Natural Regions II and III and sometimes in Natural Region IV.

The main legumes in use are Stylosanthes guianensis (Fine stem stylo), Macroptilium atropurpureum (siratro) and Desmodium uncinatum (silverleaf desmodium). Forage sorghum and Chloris gayana (giant and Katambora Rhodes grass) are also being tried. The shortage of seed has tended to slow down the programme.

The objective is to increase livestock production. For six months of the year cattle obtain insufficient protein to meet

maintenance requirements. This leads to cattle live weights falling during the dry season. Pasture legumes are of relatively high crude protein content, thereby providing a good source of home grown protein supplements to livestock. Farmers are advised to use their fodder banks to make hay or to graze in situ during the most critical time of the year, i.e. winter. However, the majority of the farmers still graze their fodder banks in summer to overcome labour shortages at this time of the year. Thus the fenced fodder banks become very convenient.

Agritex provides extension advice on the establishment, management and utilisation of the fodder banks. Extension emphasis is now focused on the utilisation of the pastures.

Preliminary results from Makoholi Research Station indicate that siratro can yield up to three tonnes per hectare of forage per annum. Thus a hectare of forage legumes would be sufficient as supplement feed for 3-4 productive cows or draught oxen for six months at a feeding rate of 5 to 6 kg per day. Taylor-Powell (1987), working with the Fulanis in Central Nigeria, found that grazing for two to three hours a day provided sufficient supplementary protein during the critical period of the dry season.

It is encouraging that fodder banks have been widely accepted by the communal area farmer. The Animal Production Branch of Agritex purchases, each year, pasture legume seed, principally fine stem stylo and siratro, for distribution through provinces to communal area farmers. Some communal area farmers also purchase seed for themselves. Plot sizes range from 0,2 ha for individual farmers to 4 ha for groups.

3.3 Use of Crop Residues

Sibanda, cited by T Smith (1988), estimates a total crop residue yield of 2,11 million tonnes annually, and a potential contribution of stover, at 75 percent efficiency of use, to provide 151 764 LU maintenance rations for 60 days.

As pointed out earlier the GFA report (1987) also reported that up to 50-55 percent of the animal energy requirements in Natural Regions II and III are supplied by crop residues. Consequently crop residues provide feed for communal area livestock to fall back on during the critical dry season. Unfortunately losses between field and store are high - assessed at 30 percent dry matter. It is reasonable to assume that a large portion of this will be the quality leaf material. Furthermore, the use of crop residues especially legume stover for bedding in cattle kraals is very wasteful. These crop residues have relatively high feed values and should be used primarily as feed.

To use the crop residues efficiently, handling, feeding methods and digestibility need to be improved. But in view of the financial limitations of the majority of communal area farmers and the lack of appropriate technology the processing or treatment of crop residues before feeding seems unlikely. However, improved harvesting, storing and feeding methods are the main extension thrust of the Department of Agritex. At the same time Agritex supports trials and research work by the Department of Research and Specialist Services (DR & SS) on simple and appropriate crop residue treatment techniques.

3.4 Cattle finishing

It is estimated that the communal area herd consists of about 3,6 million cattle. The annual off-take from this herd to the meat trade is low - 2,5-3 percent - compared with 16-18 percent in the commercial sector. However it is not easy to draw comparisons between multi- and single-purpose systems of production. In addition there is quite a substantial off-take from the communal areas through domestic slaughters and unofficial channels to most of the rural butcheries. It goes without saying that no statistics are available on this.

Undoubtedly the greatest improvement in the supply of beef to the meat trade could be made from the communal areas. An improvement of off-take to a modest figure of 8 percent would mean an additional 180 000 carcasses at CSC abattoirs. Such an improvement would go a long way to meet the projected local demand of between 500 000 and 600 000 carcasses by the year 2000.

Agritex promotes the finishing of old cows and oxen either in pens or off-veld in order to achieve:

- improved welfare of cattle owners by minimising losses of stock through old age
- higher slaughter grades and hence good salvage value of the cull animals
- improved beef supply to the meat trade
- less competition for the scarce feed resource

3.5 Animal Health and Management Centres

There is a programme to develop ± 250 animal health and management centres in the communal areas. The project is a

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joint venture between Agritex and the Department of Veterinary Services. Both the Agritex Extension Worker and the Veterinary Extension Worker will have offices at the centre.

The Agritex Extension Worker will concentrate on management, particularly in the field of nutrition, advising and implementing grazing schemes, establishment of pasture legumes, production of forage and utilisation of crop residues. The Veterinary Extension Worker would concentrate on management of the animal particularly in the field of disease control. Responsibility for routine operations such as castration would be shared initially but it is anticipated that the Veterinary Extension Worker would gradually take over these in areas served by the centre.

3.6 On-Farm Research

Problems of livestock production could be partly solved through on-farm research and extension (Hamudikuwanda 1988). However on-farm research on livestock has not taken off in Zimbabwe as quickly as might have been expected. A few monitoring studies are on the ground. Most of these are nutrition trials. Agritex and DR and SS are jointly involved in monitoring these programmes.

4. CONCLUSION

What has been discussed so far is not exhaustive of the programmes, projects and packages being promoted by Agritex in communal areas but does highlight the major areas of operation.

It is hoped this will stimulate discussion which hopefully will bring up practical suggestions to assist both the communal area farmer and the government to achieve their respective goals.

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