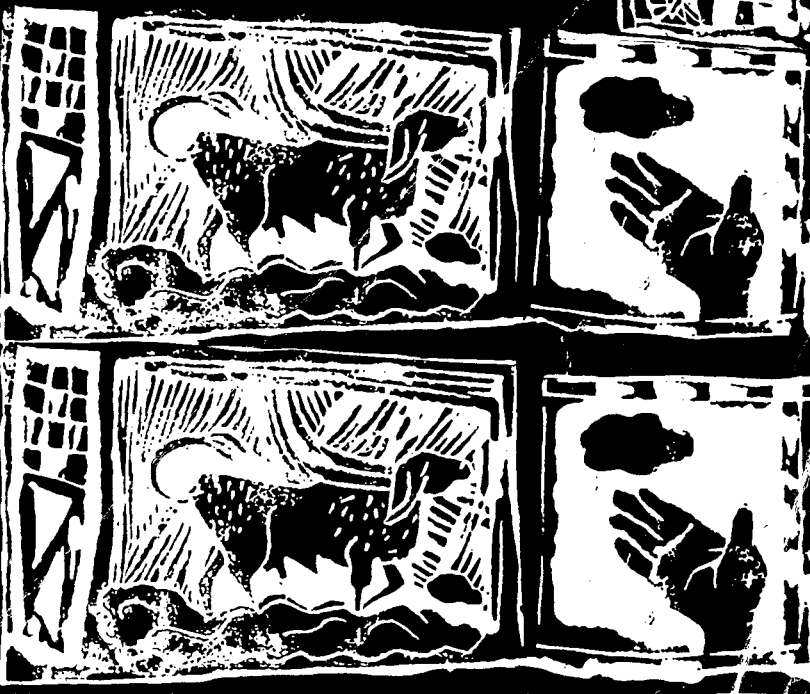


People, Land and Livestock

*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
September 1988**

Edited by Ben Cousins

c. Centre for Applied Social Sciences 1989

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A. Maclaurin and Dr C. Jackson acted as rapporteurs and did a fine job of reporting in detail the wide-ranging discussions which took place.

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**EXPERIENCE OF THE CARD PROGRAMME IN GUTU
IN RELATION TO IMPROVING LIVESTOCK
AND GRAZING PRODUCTION**

G Kundhlande and R Mutandi (ARDA-PPU, Masvingo)

1. INTRODUCTION

1.1 The CARD concept

The Co-ordinated Agricultural and Rural Development (CARD) Programme is a systems approach to rural development in which institutional efforts, sectoral needs, target group requirements and ecological aspects are coordinated (Weyl 1984). Coordination plays a major role in this approach. The concept is based on the conviction that rural poverty can only be eliminated by a coordinated attack on its root causes and accepting the need for several coordinated efforts to be undertaken simultaneously to achieve a certain goal (Weyl 1987). The main aspects of CARD are as follows:

- to implement development projects geared at agricultural and rural problems through a coordinated attack on their basic underlying causes;
- to focus planning on the characteristics of the target population and to address the majority of the producers in communal areas;
- to emphasise agricultural development as the cornerstone for rural development;
- to integrate and coordinate sectoral measures;
- to use project or programme teams for planning and implementation.

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In order to have a significant impact on the communal areas, the majority of the rural population has to be reached, and in order to reach this majority, a group approach has been adopted. The overall programme purpose is to secure the subsistence level of production in communal areas in below average rainfall years at sustainable energy levels and without endangering the natural resource base (Mutandi and Weyl 1987). It is aimed to achieve this through a set of inter-related measures in the field of agriculture and these are complemented by agro-services and water development strategies. These strategies may be divided into eight types of proposals.

They concern land use development, crop development (Gutai), livestock development (Pfumai), farm technology development, horticultural development (Taguta), small livestock (rabbit) development, agro-services and cooperative development, and rural water supply and sanitation development. All these strategies are inter-related.

This paper focuses on the livestock development strategy, experiences gained so far and our outlook for the future.

1.2 The Livestock Development Project (Pfumai)

The main objective of the Livestock Development Project is to improve livestock productivity in terms of draught power, milk, meat and manure production per unit of livestock in cooperating communities in Gutu Communal Lands. Recognising the importance of cattle in Gutu, the project, therefore, mainly addresses the problems of cattle production in the district.

The causes of low livestock productivity in Gutu are poor livestock management, low levels of nutrition, high parasite and disease incidence and a general collapse of livestock production schemes that used to exist. The project, therefore, attempts to solve these problems through better livestock management, by improving the condition of grazing areas and increasing the availability of feed to livestock by growing fodder crops on arable land and proper storage of crop residues. The strategy employed by the project involves the formation of livestock and grazing management groups, the training of farmers in the groups, the establishment of grazing management schemes and fodder plots and the management of livestock in groups. Since the inception of the project in 1986, 40 groups comprising 2613 households have been established. Fourteen groups are based on veld management schemes, four of which are under planning.

2. BACKGROUND

2.1 Ecology

The Gutu District communal areas which comprise Gutu Communal Land, Serima Communal Land, Chikwanda Communal Land and Denhere Communal Land fall into three Natural Regions - NR III, NR IV, NR V (Table 1). Natural Region IV is the largest, making up 69,08 percent of the area.

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Table 1: Land Area by Natural Region in Gutu Communal Lands

Communal Land	Land area (ha)			Totals
	NR III	NR IV	NR V	
Gutu CL	35 400	146 750	43 750	225 900
Chikwanda CL	4 000	100 500	-	104 500
Serima CL	20 000	-	-	20 000
Denhere CL	7 500	-	-	7 500
Total area	66 900	247 250	43 750	357 900
Area (%)	16,69	69,08	12,23	100

Source: Central Statistical Office

The mean annual rainfall varies with Natural Region, with NR III recording 650 - 800 mm (Gutu 746,4 mm) and NR IV 450 - 650 mm (Gutu Mission 573,9 mm) (Table 2). In NR V the mean annual rainfall is less than 450 mm. The rainy season starts in October and the mean monthly rainfall rises to a peak in December-January and then declines until the end of the season in April.

Table 2: Mean annual rainfall (30 years July 1941 - June 1971)

Station	Mean
Gutu (NR III)	746,4
Gutu Mission (NR IV)	573,9

Source: Department of Meteorological Services

The October rains initiate grass growth. The grass grows vegetatively until December when the grass heads and seeds in January. Herbage accumulation progresses with the rainy season reaching a peak in December-January. The amount of herbage accumulated depends on veld type. In most areas of Gutu Communal Land, the veld accumulates very little herbage because the dominant grasses are stemmy and of low bulk. The most common veld grasses are bottle brush grass (Perotis patens) bristle grasses (Aristida spp.) and cross grass (Pogonarthria squarrosa). Herbaceous bushes lopholena (Lopholeana coriifolia) and rusakadzi (Helichrysum kraussii) are prevalent. The desirable leafy and bulky climax grasses such as spear grass (Hyparrhenia spp.) remain isolated tufts under the protection of bushes.

In vleis and vlei margins, catstail grass (Sporobolus pyramidalis) is replacing the desirable grasses snowflake grass (Andropogon eucomus) and Zimuto lovegrass (Eragrostis inamoena). In most areas, herbage yield from the veld is less than 300 kg per hectare especially in areas where soils are capped and devoid of vegetation.

Herbage quality, like quantity, changes with season. In early summer the crude protein (CP) content of young growing grass is as high as 10 percent but this rapidly declines to about 2 percent at the beginning of winter (June-July). As the CP content declines with maturity, the crude fibre content increases resulting in a decline in total digestibility of the forage from about 65 percent in early summer to 40 percent in winter. The low digestibility of the forage is also accompanied by reduced forage intake and livemass loss by livestock.

Gutu Communal Land is badly deforested. Large areas have been cleared of indigenous trees for firewood, building timber and to open up arable land. Deforestation coupled with poor grazing management has resulted in the degradation of the veld. Due to lack of vegetation cover and soil capping, there is excessive runoff and this has resulted in less water infiltrating to recharge the underground water resources with further consequences being severe sheet and rill erosion.

The near absence of trees has resulted in a perpetual fertility drain from grazing areas since there are few trees to recycle the leached nutrients. Given the state of the veld described, the veld alone cannot support enough livestock to meet the needs of each household in terms of draught, manure, milk, meat and cultural and traditional uses. The number of animals which can be supported by the veld without causing further degradation is therefore limited.

The condition of the veld is further aggravated by bush encroachment which is abundant in the district. In severely degraded areas, lopholena and rusakadzi cover up to 75 percent of the grazing area. In areas of NR III and NR IV with shallow, gravelly soils, muzhanje (Uapaca kirkiana) and msasa (Brachystegia spiciformis) coppice growth are the problem tree species. Bush encroachment shades off grasses and denies livestock access to the little grass that might be present.

Gutu district was naturally endowed with plenty of surface water. The sources of three major rivers: Dewure, Mutirikwi and Pokoteke are in the district. The rivers flow east, south-east and south. Most areas of Gutu have an impervious bed rock close to the soil surface. This has resulted in numerous vleis

and springs from perched water tables found in the district.

At present, the water situation is deteriorating fast. With increased run-off, the underground water reserves are not recharged fully every season resulting in the drying up of some of the vleis and springs. All rivers in the district are badly silted and in the critical months of the year (August-September) farmers have to dig holes in river-beds to reach for water, or drive cattle for long distances to water points, usually boreholes and dams.

2.2 Cropping areas

Cultivated lands influence significantly the livestock feed resources. The ratio of cultivated land to grazing land in Gutu Communal Lands was estimated at 20:80 in 1953 (Loxton et al. 1971). This ratio is now 51:49. With the increase in the population in the district, new cultivated land was taken from grazing areas. There is also a lot of under-utilised cultivated land in the district. So as cultivated areas expand, grazing areas are reduced in size.

The contribution of crop lands towards livestock feed resources is limited by the low crop yields in the district. Maize stover is the common crop residue fed to livestock. Groundnut and bambara nut tops and rapoko, mhunga and sorghum straw are rarely used. Stover is stored in the open, exposed to rain and sun, which reduces its feeding value.

Besides, feeding racks are rarely used and the stover is placed on the floor where cattle trample on it and foul it with dung and urine.

2.3 Livestock

There are 146 285 cattle owned by 26 582 households in Gutu communal areas. There are 39 834 households in the district. The average cattle holding per household is 3,6 beasts. The distribution of livestock is given in Figure 1. About 32 percent of the households do not own livestock. Nearly 40 percent of cattle owners own less than four beasts.

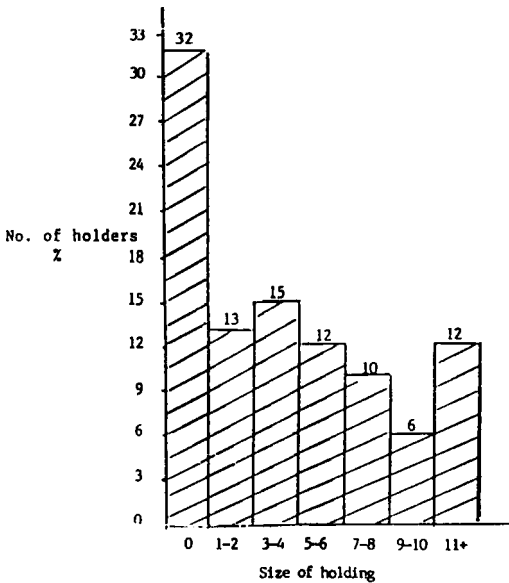


Figure 1. Distribution of Livestock Holdings in Gutu District
(Compiled from 776 households in 15 groups)

Ownership and control of livestock within a household is in three categories. The first category is cattle owned by the head of the household (monbe dzoruzima). Use and disposal is

controlled by the head of the household. The second category is cattle acquired by the household as part of the bride price (mombe dzoumai). Although the household can exploit the products from the cows and their offspring, they cannot be disposed of without the consent of the mother of the household. The third category are cattle kept but not owned by the household (mombe dzokuronza). These cannot be disposed of without the consent of the owner. The pattern of cattle ownership in Gutu is given in Table 3. Only 10 percent of the cattle are not under the full control of the head of household.

Table 3: Cattle ownership patterns in Gutu Communal Lands

Category	Number of cattle	% of herd
Dzoruzima	2 738	90
Dzoumai	208	7
Dzokuronza	79	3
Totals	3 025	100

(Compiled from 739 households in 11 Groups)

Oxen, cows and donkeys provide draught power in the district but oxen are the most important source. About 50 percent of the households own at least one ox. The average number of oxen per household is 1,29. Assuming that a pair of oxen can plough 0,33 ha per day and that each household cultivates about 3,0 ha land per season, all households should have their lands ploughed within 14 days of the onset of the rains. There is

therefore adequate draught power in Gutu district and the only problem is its distribution which is not equitable.

2.4 Manure

With the average livestock holding of 5,5 beasts per livestock owner, it is estimated that the average herd produces two to three tonnes of manure per year. If a farmer has to manure about one hectare of his land per annum, he requires at least four tonnes. There is therefore a serious shortage of manure in the district.

2.5 Grazing systems

There are three types of grazing area. These are the upland grazing areas, cultivated areas and waterways and vleis. The grazing areas are utilized at different intensities at certain times of the year. There is, therefore, some form of rotational grazing (Table 5). In early summer, farmers spend a lot of time in their arable lands. In the absence of children to herd the cattle, the farmers graze their livestock in waterways, vleis and fallow lands next to their fields while they plough, plant and weed their crops. In mid to late summer the upland grazing areas are the main source of grazing. During winter, cattle are released into cultivated areas. It should, however, be noted that the upland grazing areas are utilized throughout the whole year.

Table 5: A communal area rotational grazing scheme

Early summer	Mid to late summer	Winter
Cultivated lands (waterways/vleis)	Upland grazing	Cultivated lands (crop residues/ contours)
Upland grazing		Vleis Upland grazing

Grazing is not confined to a farmer's own village. Due to population pressure, some villages have settled and/or cultivated in their grazing areas. These villages, therefore, graze their animals outside their villages, even outside VIDCO or ward areas. Only physical barriers such as fences can stop this. Those communities without grazing have resisted the establishment of grazing management schemes in adjacent areas which they depend on for grazing. Movement of stock from communal areas to resettlement areas is prevalent.

3. HOW THE LIVESTOCK DEVELOPMENT PROJECT ATTEMPTS TO SOLVE THE PROBLEMS

The Department of Agricultural Technical and Extension Services (Agritex) is the implementing agency for the CARD Agricultural Projects which are Livestock Development, Gutai Crop Development and Landuse and Agroforestry. Coordination with other institutions such as Local Government, Physical Planning, Veterinary Services, Ministry of Co-operatives Community

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Development and Women's Affairs, Natural Resources Board, Forestry Commission and the District Council is carried out through the CARD District Team of which the above are members.

The project has a three-pronged strategy involving training, improving livestock management and improving the feed resources for livestock.

Training is done at two levels. There is the institutional level which involves the training of work-group and team members in technical aspects of the project and in project planning and management. This training takes the form of periodic workshops and monthly training for field staff, i.e. Extension Workers (EWs). Training is also done at farmer level in group training sessions conducted at monthly or bi-monthly sessions. Farmer training is conducted by EWs and Veterinary Assistants to improve the farmers' understanding and competence in project activities.

All groups are formal in that they have an elected committee, a constitution and a common purpose. All groups are area cohesive and range from 18 households to over 100 depending on the number of kraals in the group. The largest unit which can form a group is a VIDCO. All households within an area, with or without livestock, are encouraged to join the group.

To assist in livestock management, each group is provided with a livestock management kit comprising simple veterinary instruments and treated gum poles to construct a cattle handling facility. Each EW has a dosing gun and a set of syringes and needles. The kit is used by the EW and group during training and work sessions. The farmers are trained to

master and practise dosing, castration, weaning, dehorning, culling, etc. as a group and on a routine basis. They are encouraged to buy livestock remedies and handle their livestock as a group. This improved livestock management is designed to improve the health, growth and productivity of livestock.

The availability of feed resources will improve through the proper utilization of crop residues, fodder production on cultivated land and the improvement of the veld. Farmers are encouraged to utilize legume crop residues in addition to grain cereal stover. These crop residues have to be stored in racks which provide protection from the sun and rain to maintain their feeding value.

Fodder plots on arable land are part of the crop rotation. The fodder lasts for three to four years and is followed by a cereal crop. The initial plots established in Gutu are 0,2 ha of a mixture of Oxley fine stem stylo (Stylosanthes guianensis), siratro (Macroptilium atropurpureum) and weeping lovegrass (Eragrostis curvula). Farmers harvest the fodder and feed it to selected classes of livestock. The farmers also harvest fodder seed from their plots. Farmers are keen to expand their plots but the fencing costs have proved to be too high. In future, fodder production will be expanded in groups with cohesive arable blocks fenced under the Landuse Agroforestry Project.

The veld is the basis of livestock production in the communal areas. The project, therefore, places strong emphasis on veld improvement through the establishment of grazing management schemes. Veld improvement is achieved through a combination of natural regeneration of rested grazing areas, veld

reinforcement with adapted grasses and legumes, the planting of multi-purpose trees and the application of soil conservation measures. All recommended grasses, legumes and trees are adapted to local conditions.

How does the CARD Programme approach the establishment of grazing management schemes? The CARD approach is a participatory approach through work-groups, teams and contacts with the target group. The project has established the roles and degree of involvement of each team or work-group member and members of the population, i.e. the target group, VIDCO, WADCO, traditional, political and religious leaders. All the participants are called upon to play their role at the appropriate phase of the planning and implementation of the grazing management scheme. These phases include scheme selection, a baseline survey, technical surveys, plan production and plan implementation.

The target group, traditional leaders, VIDCO, WADCO, religious leaders and local government promotion officers play an important role when the baseline survey is conducted, especially the demarcation of boundaries for the plan area. The target group plays a key role in the production and implementation of the plan.

Planning involves the consolidation of areas into residential, grazing and cultivated areas on the basis of current land use and capability. The plan should not recommend a reorganisation that produces undue hardships for the target group resulting from, e.g. relocation of entire villages. All draft plans are discussed with the target group and adjustments made until the final plan is agreed upon. The end result is not an ideal plan

where every land class is put to its most appropriate use but a workable and acceptable plan with which the target group fully identifies.

The plan is implemented by the target group under the supervision of Agritex staff. The implementation of the plan is phased and achievement is according to the capacities of the group. At the rate at which implementation is currently proceeding, a plan might take up to four years to be implemented and another two years for the scheme to be fully functional.

Work routines on the scheme are organised by the group committees. Groups devote at least one day per week to the scheme. Usually Thursdays, which are chisi days, are used for this purpose. However, most groups work on their schemes two or three days per week especially in the dry season. The work usually involves construction of cattle handling facilities, cattle grids, fencing, bush clearing, land preparation, planting of trees, grasses and legumes and the construction of soil and water conservation structures. Movement to new residential and arable areas is enforced by the group committee and through target group pressure.

3.1 Stocking rates

Increases in the size of the grazing areas vary with each grazing management scheme (Table 6) but the improvement on stocking rates is marginal (Table 7). The stocking rates are much higher than the recommended rates derived from land capability classification (Table 8).

Table 6: Increase in grazing area after planning

Name of scheme	Increase in grazing (%)
Sagande	16
Dombochena	25
Murwisi	87
Makumbe	102

Table 7: Livestock stocking rates before and after planning

Name of scheme	Stocking rate (ha/LU)	
	Before planning	After planning
Makumbe	0,6	1,1
Murwisi	1,1	2,0
Dombochena	1,3	1,7
Sagande	1,8	2,1
Mabizha	1,9	2,4
Gurumbindi	2,2	2,7

Table 8: Recommended stocking rates on different veld types in Natural Regions III and IV

	Stocking rate ha/LU NR III	NR IV
Vleis: Class V	2,5 - 3,5	3 - 4,5
Wetland: Class IVw	3,0 - 3,5	4
Potential arable: Class IV	4 - 8	5 - 10
Rough grazing land: Classes VI and VIII	8 - 15	9 - 16

Source: Agritex

With stocking rates up to four times higher than recommended, the easiest solution would be to destock but this would have disastrous effects on the availability of draught power, manure, milk, etc. within the district. Besides, the 32 percent of the population who do not own livestock are aspiring livestock owners. The CARD Programme does not advocate destocking. The recommended stocking rates are based on perennial use of grazing areas which is not the case with communal area grazing. Grazing areas in the communal areas are fully utilised for about half the year and, therefore, can carry more livestock than the recommended rates without further veld deterioration provided grazing management is sound and other feed resources are fully exploited.

In the two years in which the project has been implemented we have seen some veld improvement at present stocking rates. Although it is the wish of the groups to acquire more cattle, they admit their grazing areas cannot carry an unlimited number

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of livestock. The question is how much more cattle should they accumulate.

3.2 Problems encountered

The project has encountered problems along the way. Most schemes have had boundary disputes in their initial stages but most of the claims made by neighbouring communities have been found to be baseless and only prompted by envy or jealousy and the prospect of losing grazing rights in the area to be planned. Instances where a community intending to have a scheme has made false land claims have also been encountered.

The movement of homesteads poses some problems but the phasing of implementation gives the households concerned ample time to move to new sites.

Repeated assurances by project staff have removed the suspicion that the motive behind the grazing management is stock control.

The project has toyed with the idea of reducing the costs of implementation by the use of beacons and live hedges but we soon realised that beacons would only be respected by the people who erected them.

4. SUMMARY

The CARD Programme is an attempt to increase livestock productivity through improved grazing and livestock management.

The CARD approach is a participatory approach through work-groups, district and provincial teams and interactions with the target group.

The veld cannot support the present livestock population because of low herbage quality and quantity, dwindling water resources and reduction of grazing areas.

Livestock production in Gutu is low because of poor livestock management, low levels of nutrition, high parasite and disease incidence and a general collapse of livestock production schemes that used to exist.

About 60 percent of Gutu Communal Land households own cattle. Over 70 percent of cattle owners own too few cattle to have a balanced herd, so cattle numbers are bound to rise. There is enough draught power in the district, but it is not equitably distributed.

Arable areas can make significant contributions to livestock feed resources through fodder plots and proper use of crop residues.

Veld improvement is evident at the present stocking rates with good grazing management.

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