

Transfer of animal traction technology in Luapula Province, Zambia

by

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Abstract

A three-year pilot oxenisation project has shown that there is great potential for adoption of animal traction technology in Luapula Province of Zambia. The main constraint is the shortage of work oxen—the result of the lack of a cattle-keeping tradition in the province, the lack of a provincial breeding herd to provide steers, and the population's appetite for beef which leads to the slaughter even of work animals. An Animal Draft Power and Cattle Development Project is underway with two major objectives: to ensure an adequate supply of steers for training into work oxen; and to develop the peasant cattle industry in Luapula Province up to a stage where steers for work oxen can be obtained locally, thus ensuring the sustainability of animal draft power technology.

Introduction

Luapula Province in Zambia ranges in altitude from 900 to 1500 m and has annual rainfall of 1000–1500 mm. At least 80% of the population are engaged in agriculture and the production of food crops. The traditional hand hoe tillage practices have meant that the total cultivated land area has remained small, and production of maize, the staple food, is not sufficient to meet the provincial demand. As a result maize grain has to be brought in from other provinces. Animal traction technology offers a means of improving agricultural practices and increasing food crop production. This paper describes efforts to introduce this technology into the province.

Background

Cattle rearing is not a tradition in Luapula Province, and so pioneers of the oxenisation drive had to deal with a number of socioeconomic constraints to the introduction of animal draft power technology among small-scale farmers. These constraints included:

- non-availability of a provincial base for steers
- the high cost of transporting steers from distant places, which meant that only a few steers could be brought into the province at any one time

- the high demand for beef in the province, which meant that the beef industry took all the available steers from among the small (10 000 head) provincial cattle population
- the prevailing low regard for cattle herding as a job, which meant that few people were interested in adopting cattle keeping, even for draft purposes
- tsetse infestations in northern parts of Zambia
- non-availability of suitable credit facilities to assist progressive small-scale farmers to acquire work oxen
- non-availability of ox-drawn implements and spare parts.

Faced with these constraints the Catholic mission used its breeding herd at Lubwe and Chibote mission stations in Samfya and Kawambwa Districts, respectively, to introduce animal draft power to the rural population, beginning in the early to mid-1970s. The mission organised rural households into what were referred to as Family Farming Schemes, and gave each group of about 10 households a pair of oxen almost free of charge. This system of introduction was not generally successful: losses of trained oxen were high, mainly as a result of poor management.

During the same period the Department of Agriculture established a breeding herd of cattle at the Ox-Supply Centre in Mansa District: this was to be a source of steers for sale to farmers in the province. However, the breeding herd proved to be too small and it could only supply a few steers annually to the farming community. Furthermore, by the early 1980s the Zambian Government could not supply adequate veterinary services to maintain the herd. As a result, productivity of the herd was very low, and the project achieved little progress.

Provincial Oxenisation Pilot Project

In early 1983 the Integrated Rural Development Programme (IRDP), funded by the Swedish International Development Authority (SIDA), initiated the Provincial Oxenisation Pilot Project.

The main objectives of the pilot project were to evaluate the prospects for adoption of animal draft power technology among small-scale farmers in Luapula Province, and to devise a systematic way of introducing work oxen to the rural population.

Implementation

Implementation of the Provincial Oxenisation Pilot Project involved:

- construction of the Lubwe ox-training centre in Samfya District
- establishment of a revolving fund for use in the purchase of steers for training into work oxen
- procurement of steers and ox-drawn implements from any corner of the country
- careful selection of small-scale farmers from all districts for inclusion in the animal draft power annual training programmes
- carrying out annual internal evaluations of the impact of the animal draft power pilot project on the farming community of the province
- provision of credit to selected farmers who lacked the financial resources to purchase oxen and ox-drawn implements.

The project lasted three years and a total of 250 small-scale farmers were trained under the close supervision of the Provincial Animal Husbandry Officer, who also carried out the annual internal evaluations.

Evaluation

The following conclusions were drawn from the annual evaluations of the project:

- more than 50% of farmers trained were able to increase their cultivated area from the previous 1 ha to almost 10 ha after obtaining oxen in the first season
- farmers with other money-making business ventures found little time to use their oxen for crop production and were thus not able to prepare more than 2 ha of land for planting
- farmers who obtained oxen through loan facilities used their oxen almost solely for transportation in order to earn enough money to pay back their loans in the shortest possible time. The animals therefore needed to be retrained in the second, and even third, year for land cultivation.
- farmers who sent their hired labour to animal draft power training courses rather than attend themselves generally failed to use the oxen after the hired hand left the farm
- the non-availability of replacement steers in the province was a discouraging factor for farmers

who experienced disease problems with their oxen, as the project had no reserve funds to cover accidental loss of steers

- inadequate veterinary support in the districts was another factor contributing to the failure of some farmers, as essential drugs and chemicals were not always available to farmers when required
- veterinary staff in the districts lacked transport to reach farmers in remote corners of the province
- farmers who did not purchase ox carts when they started to use oxen for crop production usually found themselves not being able to haul their extra produce to storage or market.

On the whole it was concluded that animal draft power technology was highly adoptable among the small-scale farmers of Luapula Province, as evidenced by the ever-increasing demand for participation in the training programme. The pilot project could only meet 20% of the annual provincial demand for more than 250 work oxen.

Animal Draft Power and Cattle Development Project

At the conclusion of the IRDP Oxenisation Pilot Project in 1986, the experiences gained were used in formulating the Animal Draft Power and Cattle Development Project. Implemented with the financial support of the Finnish International Development Agency (Finnida), the short-term objective of this project was to supply steers for training into work oxen on an annual basis and to ensure their availability to farmers for increased agricultural production. The long-term aim was then to develop the peasant cattle industry in Luapula Province up to a stage where steers for work oxen could be obtained locally, thus ensuring the sustainability of animal draft power technology. Training of farmers in animal draft power technology was to be decentralised to Farmer Training Centres.

Implementation of the Animal Draft Power and Cattle Development Project involved five institutions.

Department of Agriculture

Two sections of the Department of Agriculture are involved in the project.

The Animal Husbandry Section has been responsible for acquiring steers for work oxen ever since the inception of the provincial oxenisation programme. Its role in the new project was to oversee the training of these steers and their proper introduction

to small-scale farmers, as well as the training of the few cattle keepers in the province in improved management practices.

The Agricultural Engineering Section was jointly involved with the Animal Husbandry Section in the training of work oxen and small-scale farmers. It was also to look into the training of village artisans and blacksmiths in the hope of establishing service groups for the ox users in the villages; and to oversee the local fabrication of ox-drawn implements.

Department of Veterinary and Tsetse Control Services

Two sections of the Department of Veterinary and Tsetse Control Services were involved in the project.

The Animal Health Section was charged with providing timely and dependable veterinary services to cattle farmers in the province.

The Tsetse Control Section was charged with providing an early warning system, closely monitoring the tsetse population in the province and devising methods of controlling the tsetse fly.

Mansa rural dairy

The rural dairy in Mansa District is run by Zambia Agricultural Development Limited. Its role in the project was to establish a breed herd of Boran type cattle which would be maintained separately from the dairy herd. This breed herd was to be that long desired provincial base to provide both breeding

stock for the peasant industry and steers for training into work oxen.

Chimengwa farm

The Luapula Cooperative Union was charged with the rearing of steers purchased by the project up to trainable weights. Thus Chimengwa farm was to be developed for efficient finishing of steers with the use of improved pastures.

Zambia Cooperative Federation—Finance Services

Under the Cooperative Credit Scheme the cooperative was charged with the organisation of loan packages for selected farmers before they underwent training in animal draft power technology.

Future aims

Much work still needs to be done to increase the population of cattle in Luapula Province and subsequently to satisfy the provincial need for work oxen. The project has met a lot of stumbling blocks hindering the fast development and attainment of its goals. One of the long-standing problems limiting the growth of the peasant cattle industry is the high demand for beef. This has led to the loss of even work oxen, not to mention the many pregnant cows that are slaughtered every year in the province. The project has therefore taken on additional responsibilities in trying to promote the production of other species of animals such as sheep and goats, so as to reduce the slaughter pressure on cattle.