Donkey power technology in the Gaborone Region of Botswana

by

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Abstract

Donkey traction is popular in the Gaborone Region of Botswana. It is one of the packages offered under the Arable Lands Development Programme (ALDEP), set up by the Government in 1982 to assist and encourage farmers in crop production, by subsidising the provision of animals and equipment. In a survey, 100 donkey-using small-scale farmers in 18 villages were interviewed about the adoption, uses and constraints to the greater use of draft donkeys.

Most donkeys were inherited, or obtained through ALDEP, and 62% of respondents had been using them for more than four years. Most farmers owned up to five animals; herds of more than 20 were rare. Donkeys started work between two and four years and generally worked up to four hours a day for two days each week. The farmers used their donkeys for plowing, planting, cultivating and transport. The most common constraints to donkey traction were the difficulty of feeding them, their small size and their low tractive power. The widespread availability of tractors limited the use of donkeys. It is stressed that more investment should be made in improving the status of donkeys in Botswana.

Introduction

Animal traction has been a distinctive feature of agriculture in Botswana since it was introduced more than 80 years ago (Baker, 1988). Except in a few areas, most farming households rely on animal traction for plowing. Traditionally, cattle have been the main source of animal power, but during the past 20-30 years donkeys have been used in many villages in the Central Region. Donkey power is now used for various household activities, such as fetching water and firewood, and transporting people and goods (Aganga, Tsopito and Seabo, 1994). Donkey draft power reduces the daily drudgery and enables farmers to cultivate larger areas than would be possible using only human labour.

In 1982, the Government of Botswana set up the Arable Lands Development Programme (ALDEP) to assist farmers in crop production. Donkey traction was one of the packages offered under this programme. ALDEP offers subsistence farmers donkeys, animal-drawn implements such as plows, planters, cultivators, and harrows, water catchment tanks, animal-drawn carts and fencing materials at a subsidised rate of 85%.

As a result of ALDEP helping small-scale farmers to buy donkeys and implements the adoption of donkey mechanisation by traditional farmers has increased in the three districts, Bamalete, Kweneng and Kgatleng, of Gaborone Region. This paper reports an investigation of the management of donkey use in this region, and of the constraints which impede further adoption of this technology.

Methodology

A survey was carried out in 18 villages of Gaborone Region, all of them between 20 and 80 km from the city of Gaborone. A total of 100 donkey-using small-scale farmers were interviewed to gather information on the following:

- training of donkeys for traction
- sources of work donkeys
- duration of donkey traction use
- number of donkeys owned per household
- activities for which donkeys are used
- frequency of use of donkey teams for household activities
- working period per day
- age at which donkeys start working
- perceived constraints to the efficient use of donkey traction.

Results and discussion

All 100 farmers indicated that donkeys learn quickly from other donkeys and from humans. Once trained, donkeys could carry out tasks with

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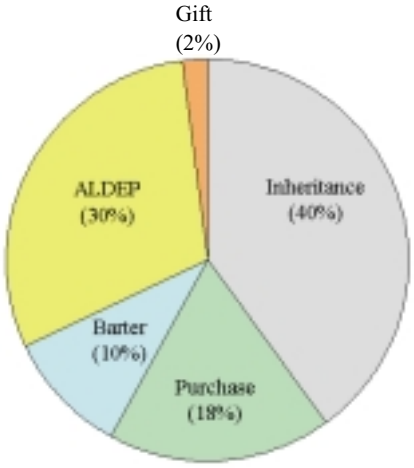

Figure 1: Sources of work donkeys (N = 100 donkey-using farmers)

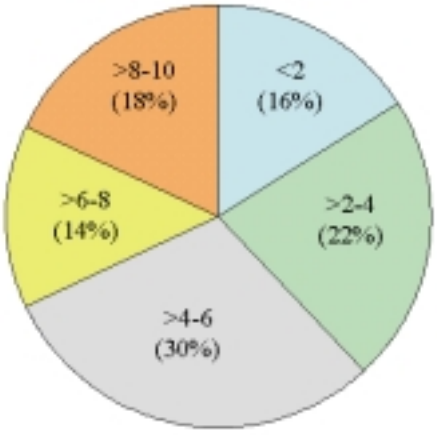

Figure 2: Number of years donkey traction used (N = 100 donkey-using farmers)

minimal human supervision. Donkeys were said to have good memories for paths and routes. As shown in Figure 1 the sources of household donkeys included inheritance (40%), purchase (18%), gifts (2%), barter (10%) and government aid programmes such as ALDEP (30%).

Well over half of the farmers (62%), had used donkeys for traction for more than four years (Figure 2). The rest had adopted donkey traction technology more recently, after learning of the advantages of using donkeys as a source of farm power. Most farm households (68%), owned two

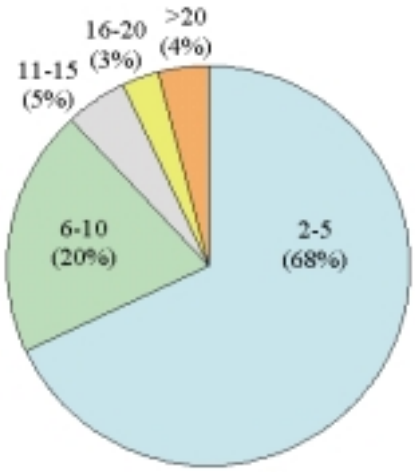

Figure 3: Number of donkeys owned (N = 100 donkey-using farmers)

to five donkeys (Figure 3). Herds of more than 20 donkeys were rare (4%).

All households used their donkeys for transport, for fetching water and for gathering firewood. Almost half (45%) of the farmers used their donkeys for plowing as the soils in the region are light and sandy. Twenty-eight percent of respondents also used donkeys for planting and cultivating. Some households also used their donkeys to help relatives (15%), friends (5%) or hired them out (10%). Most donkeys were used two or more times a week, usually for about four hours per day.

Most donkeys (60%) started working when they were about three years old, but this could vary. In this study 30% of donkeys had started working at two years and 10% at four years. Age of starting work depended on the size of the animal and the number owned. Donkeys in small herds normally started work earlier than those in large herds.

Constraints to donkey use

Perceived constraints and challenges to the use of donkeys for traction are summarised in Table 1. The major constraints are discussed below:

Food availability

Lack of food was a major problem limiting more efficient use of donkeys. Most (90%) of the respondents did not provide supplementary food for their animals. Instead, their donkeys relied solely on grazing the range, which had sparse vegetation for up to eight months of the year. The

Table 1: Perceived constraints to efficient use of donkeys

Constraint	*% respondents perceiving as a constraint*
Feed availability	90
Tractor hiring/tractor subsidy programme for plowing	75
Small body size of donkeys	50
Number of donkeys per household	40
Lack of suitable harness/implements	28
Pregnancy in females	20
Loss of donkeys during plowing season	10
Farmers' prestige	5

N=100 donkey-using farmers

solution is to provide the donkeys with strategic food supplementation for 6–8 weeks before they are needed for plowing. This would improve the physical condition of the donkeys and enable them to provide more tractive power.

Competition with tractors

Most of the respondent farmers (75%) would prefer to plow with tractors, if they were available, for several reasons:

- government subsidies are available for plowing with tractors
- there are increasing numbers of private tractor owners who undertake contract plowing for smallholders
- the farms surveyed are close to the capital, and hence to the financial power base of the country, so farmers have ready access to tractor power.

The numbers of tractors in Botswana has increased dramatically, from about 200 at independence in 1966 to more than 2000 in 1985 (Patrick and Chepete, 1995). The availability of tractor services and government grants for plowing discourages the use of donkeys for plowing. However, the majority of the farmers (75%) indicated that they preferred donkey traction for non-plowing activities, even if tractor services were available. Donkeys are only able to plow the light top soil, and so in fields normally plowed by donkeys, tractor power could be used once every 4–5 years to break up any hard pans. Used in this way donkeys and tractors could efficiently complement each other.

Small body size of donkeys

The mean body weight of a mature donkey in Botswana is about 140 kg (Aganga and Maphorisa, 1994). In order to obtain sufficient tractive power for plowing, donkeys were harnessed in teams of 6–8, which meant that households with fewer than six donkeys (68%) perceived themselves as being at a disadvantage. Farmers felt that in teams smaller than 6, the animals got tired easily and became sluggish, thus affecting the timeliness of plowing operations.

Status of donkeys

Widespread adoption of donkey traction depends on the attitudes of farmers. Donkeys are often regarded as low status animals, with the result that some farmers may be reluctant to be involved with this species. If the use of donkey power is to increase, there is a need to re-orientate society at large, and especially the authorities in charge of rural development and agricultural mechanisation, to the effect that donkeys are a valuable farm resource (Aganga and Tsopito, 1995).

Conclusions

The survey carried out in the Gaborone Region revealed that almost half of the farmers used their donkeys for plowing despite the numerous constraints listed (food availability, small size, low status, etc). Donkeys are an available, sustainable, economical and renewable farm power source in rural Botswana. The donkey is a hardy animal

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whose adoption for traction, in some instances together with tractors, should be encouraged to promote integrated livestock-crop farming.

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