

Utilization and management of work oxen in a Guinea-savanna environment in Nigeria: initial survey results

by

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Abstract

The results of a preliminary survey on work oxen utilization and management in 300 farming households that use animal traction are presented. Results showed that all respondents use the Bunaji (White Fulani) breed for the following reasons: ability to work (60%), availability (23%), large size/weight (12%), other (5%).

Animals are purchased when young (often after weaning) and 90% are put to field work when 3-4 years old. Animals are used in pairs and in the following combinations: bulls only (84%), castrates only (8%), bulls and castrates (8%). No cows are used for plowing.

Most respondents (96%) used animals for four or more planting seasons before replacing them. The training of animals for field work takes 1-3 months (73% of respondents), and in some cases 6 months (16%). All farmers train their own animals.

Respondents indicated that during the rainy season work oxen were tethered in fallow fields generally around the house while not at work. Work oxen received mostly crop residues from sorghum, millet, groundnuts, and cowpeas in the dry season. Contribution from purchased feeds like cottonseed cake and wheat bran was said to be negligible because of shortage and cost. Dry season feeding problems were stressed by respondents who indicated their willingness to cooperate with the LSR team to identify suitable packages to ameliorate the situation.

Introduction

Soil and climatic factors are crucial and determine the relative importance of different cropping operations and the consequent labour bottlenecks which animal traction could help alleviate. In areas where rainfall is low or of an erratic pattern, the growing season can be short and therefore sowing has to take place soon after the first rains. Rapid but superficial soil preparation here is therefore generally advantageous.

Where the growing season is prolonged by higher rainfall, and early sowing is not very urgent, plowing is generally beneficial because: (1) it improves soil tilth; (2) it leads to clean seedbeds so that plants have an early advantage over weeds and the interval between sowing and first weeding is prolonged; (3) organic matter growing on the surface at the time of soil preparation is buried.

Farming conditions vary widely in Nigeria. Smallholder crop-based agriculture is predominant. Most farms are not mechanized and therefore manual labour is used for all weeding cultivations.

If animal traction were to be promoted in the farming systems it would make a positive contribution to agricultural development in Nigeria. This cannot be overemphasized. The advantage is the low cost of the technology which puts it within reach of the majority of farmers who are poor and have limited cash. It

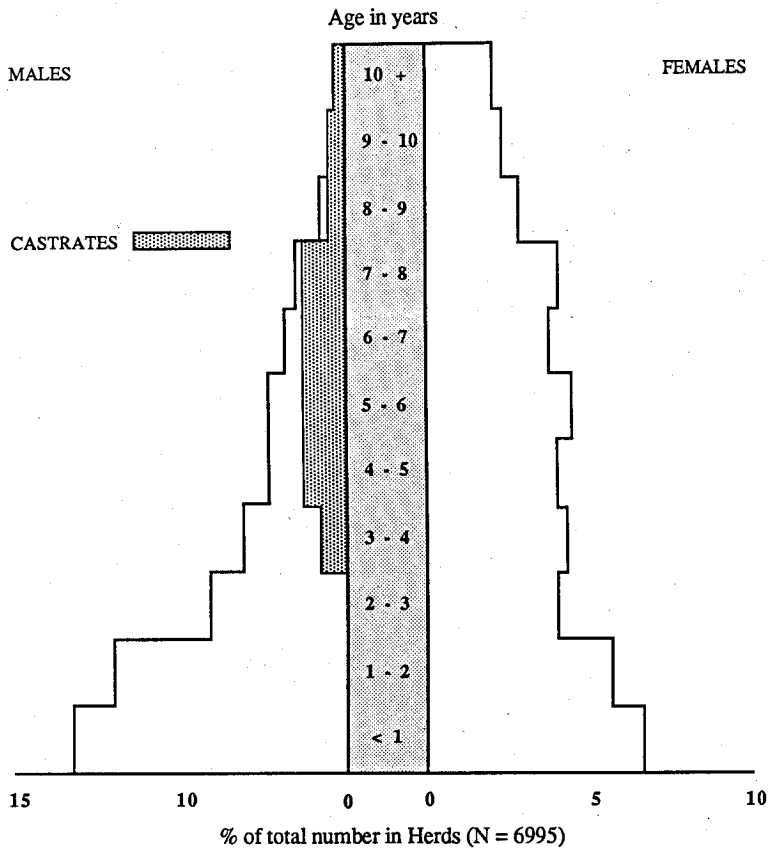


Figure 1. The herd composition in 157 Fulani herds in Giwa District (Source: Data of Livestock Systems Research Project, NAPRI/ABU, 1986)

will conserve foreign exchange because the animals are from local sources, while equipment and spare parts could be manufactured locally (as is being done by John Holts in Zaria, Kaduna State, and by local blacksmiths). This should lead to domestic industrial growth and an enhancement of crop and livestock production.

According to Alkali (1969) the use of cattle as a source of power in Nigeria was first demonstrated in 1922. By 1939 there were 1959 farmers who owned work oxen and the number of farmers had increased to 36,000 by 1965. According to a recent survey reported by Umoh and Starkey (undated), there appeared to be

no up-to-date estimates of the national population of work oxen.

In a diagnostic survey of 157 Fulani agropastoral households and 6995 head of cattle carried out by NAPRI's Livestock Research (LSR) team (Otchere *et al.*, 1986), it was observed from the herd structures that young bulls start to leave the herds soon after weaning (Fig. 1). This observation is contrary to data reported by Otchere (1986) from agropastoral Fulani herds in the International Livestock Centre for Africa (ILCA) case study areas, some 300 km south of NAPRI's study area. The NAPRI study area appears to be within a transitional

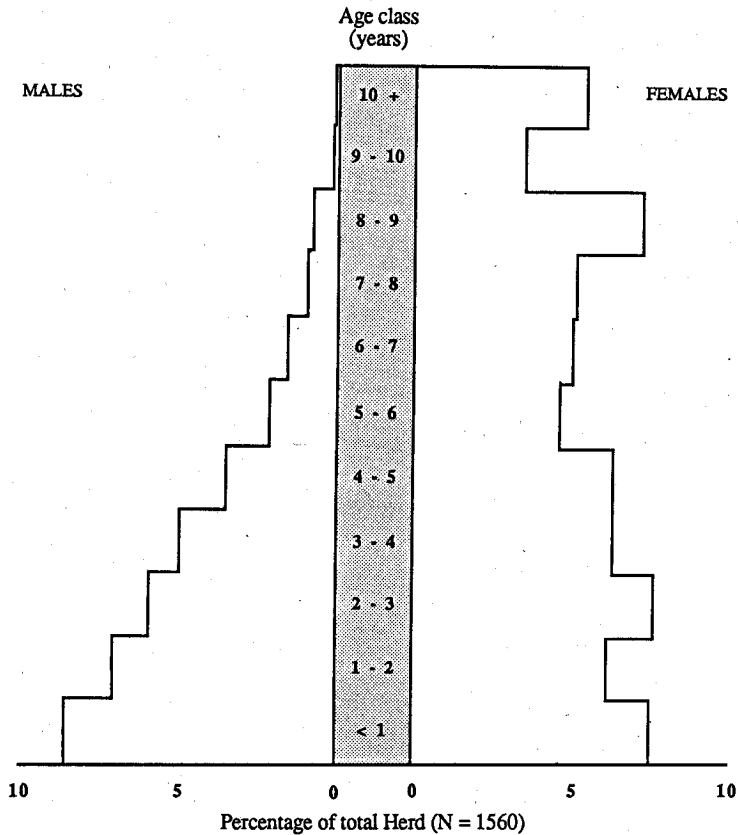


Figure 2. The herd composition in thirty-four agropastoral herds in Kurmin Biri, Abet and Madauchi (Source: ILCA Sub-Humid Zone Programme: Otchere, 1986)

zone for animal traction in the Kaduna State of Nigeria.

Methodology

The data for this report form part of baseline information for NAPRI's LSR Project. The study was to find out if the early disappearing young males from the Fulani herds in the case study area went into the animal traction system. Data were obtained from 300 respondents who owned work oxen through a questionnaire and participant observation. The study was in the period May-July 1986, which is the cropping season.

Results and discussion

About 73% of respondents indicated that they were residents within the case study area while the remainder were migrants. Ten per cent of the respondents indicated they had come to stay in the area and so would not go back to their original homes after the cropping season. This suggests that some respondents use work oxen on a commercial basis. They move into the area, plow and charge cash from clients. Some 87% of respondents indicated that they own work oxen because it is profitable. Studies by Laurent (1968) had indicated that owning work oxen in northern Nigeria was a profitable venture.

Table 1. Reasons given for using the White Fulani breed

Reasons	No. of Respondents	%	Cumulative %
Docility	12	4	4
Big/heavy	5	12	16
Ability to work	180	60	76
Availability	70	23	99
Cheapness	3	1	100

Table 2. Animal sex used

Combinations	No. of Respondents	%	Cumulative %
Bulls only	252	84	84
Castrates only	24	8	92
Bulls/castrates	24	8	100
Bullsc/cows	0	0	100
Cows only	0	0	100

Breed and sex of cattle used

All respondents indicated that they used the Bunaji (White Fulani) cattle. This *Bos indicus* or zebu breed is predominant in Northern Nigeria.

Some 83.3% of respondents (see Table 1) pointed out that their choice for this breed was due to its ability to work and availability. Only 4% of respondents said they use this breed because of its docility. However, it is important to emphasize that this breed is known to be very docile and is probably the reason why 78% of respondents use entire males for traction and the remaining 22% use steers or castrates. No cows are used for traction. While 84% of respondents paired up bulls only, 8%

Table 3. Number and sex of cattle owned

No. of Cattle	Bulls		Castrates		Cows	
	No. of respondents	%	No. of respondents	%	No. of respondents	%
None	-	-	240	80.0	280	93.3
1	-	-	30	10.0	15	5.0
2	182	60.3	15	5.0	2	0.7
3	80	26.7	6	2.0	2	0.7
4	20	6.7	5	1.6	1	0.3
5	16	5.3	2	0.7	-	-

used castrates only and the remainder used bull/castrate pairs. This is shown in Table 2.

Source of animals and age at entry

The majority of respondents procured their work animals from the open market, while some obtained their animals directly from Fulani herds. As indicated in Table 3, only 7% of respondents kept cows and produced their own replacement bulls for work. Animals were generally bought when under two years of age and not fully grown. They were therefore not used for field work until they were about 4 years old (90% of respondents). Respondents did not take any loans for the purchase of their animals.

Length of training and useful life of work oxen

All respondents indicated that training is done by themselves. There were differences in opinion as to the length of time required for training animals for work. Some 50% of the respondents indicated that training took one to two months while an additional 30% said it took three to four months (Table 4).

The majority of respondents (76%) indicated that they used trained animals for five or more cropping seasons before disposing of them. The rest used their animals for three to four seasons (Table 5). After the useful life of an animal, it was sold at current market price.

From all indications the value of work animals appreciated rather than depreciated.

During the cropping season, animals started work at about 6.00 a.m. and stopped at about 11.30 a.m. Animals were allowed to rest for 15 minutes

Table 4. Training time of animals (in months)

Months	No. of Respondents		Cumulative %
	No.	%	
1	67	22	22
2	84	28	50
3	72	24	74
4	17	6	80
5	12	4	84
6	48	16	100

Table 5. Number of seasons (years) animals are used

Seasons (yrs)	No. of Respondents		Cumulative %
	No.	%	
3	14	5	5
5	8	19	24
5	110	37	61
Over 5	118	39	100

after working for about two hours. Animals were returned to the field to work further from about 3.00 p.m. to 6.00 p.m.

Maintenance of work oxen

Generally, there are no cash costs involved in the keeping of work oxen. During the period of peak use (from May to August), there is abundant forage for grazing. Animals are normally tethered on fallow land to graze (84% of respondents) and then kraaled during the night within the compound or very near to the house.

After harvesting, most respondents feed millet and Guinea corn residues in addition to cow-peas and groundnut hay. Purchased feeds like cottonseed cake and groundnut cake were not fed because they were expensive and/or not readily available.

Respondents indicated that their major problem is adequate feeding of their animals towards the end of the dry season. As a result there is generally a slight delay in the start of the use of animals for field work at the beginning of the rainy season. A potential intervention point therefore is the planting of forage legumes on fallow lands to be harvested, stored and fed during the peak of the dry season so as to get animals into good condition for work soon after the first rains. Respondents indicated their willingness to cooperate with the LSR team in this regard. The team will use a systems approach with an integrated and problem-oriented strategy with emphasis on on-farm technology testing and appraisal. This will be complemented where necessary by relevant on-station research.

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Title photograph (opposite)
Groundnut lifting with a horse near Koalack, Senegal
(Photo: Paul Starkey)