



Animal Traction in The Gambia

Impact, constraints and experiences



A note on animal traction research and development activities in The Gambia

by

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Abstract

The Gambia opted for animal traction in the 1950s in order to increase crop production by small-scale farmers. Animal traction adoption has been encouraging and 63% of the farming units now use some form of animal traction. Various reviews and surveys led to the formulation of an "Action Plan" for the period 1987-90. This plan envisages work on several topics including: effects of seeders on crop production; development of equipment; identification of socio-economic constraints; identifying means of optimising available draft power resources; and improvement of equipment maintenance and repair services in cooperation with village blacksmiths.

Introduction

The farming environment in The Gambia is characterised by low and unpredictable rainfall, small and scattered agricultural holdings, shortage of investment capital, relatively low crop yields and low and variable incomes. In the early 1950s, consideration of these and other socio-economic factors led to the country's decision to opt for animal traction as an appropriate advance from hand tools.

The Gambia aims to make the best possible use of draft animals (oxen, horses and donkeys) as power sources for farming operations and related activities. In this way it is intended to use animal traction to help meet the national objective of increasing crop production through effective and sustained use of appropriate mechanization techniques. Consequently, the bulk of mechanization studies con-

ducted in The Gambia have focused mainly on animal traction.

Animal traction studies

Much of the early research on animal traction consisted of brief studies on the technical performance of equipment relative to traditional systems, matching equipment designs to available draft animals and assessment of farmers' reactions to animal draft equipment. In 1975, the research led to the successful introduction of a range of agricultural equipment well-suited to the three categories of draft animals available in the country (Matthews and Pullen 1974 and 1975; Mettrick, 1978).

More recent initiatives have included a review of mechanization-related constraints existing in The Gambia's crop production systems (Cham *et al.*, 1982). This was carried out by a multidisciplinary committee which also formulated appropriate research programmes aimed at overcoming the constraints to, and increasing the potential for, animal traction. The committee reviewed available data on the subject and carried out an informal survey of animal traction in the country. The survey was conducted in selected areas representative of farming systems practised by all the different ethnic groups in the country. It enabled the committee to test the validity of perceived constraints, through personal observation and discussions with farmers and agricultural extension agents. A review of the survey results later led to the formulation of an action plan for the period 1987-90.

Activities in the current action plan

Effects of seeder performance on production

A study will be made on the effects of machine seeding and cultivation methods on plant populations and yields. The need for this study was prompted by the fact that the groundnut plant populations obtained by farmers using animal drawn seeders are only about 40-50% of the optimum specified for the crop.

Equipment development and maintenance

A range of field operations in the farming calendar were not catered for in previous studies, for example fertilizer application and rice cultivation. The research on fertilizer application by animal-drawn machine is expected to result in significant improvements over the present method of broadcasting. This is considered grossly inefficient in terms of economics and timeliness. Efforts are being made to make the current range of equipment more versatile. An assessment will be made of the potential for improving equipment maintenance and repair services through more effective participation by rural artisans.

Socio-economic constraints

This programme will try to identify socio-economic constraints to the adoption of animal traction. The programme will also evaluate the appropriateness of current mechanization options, review credit access and assess the role of local markets in farm implement supply.

Optimizing animal resources

The programme aims to explore means of using the available draft animals efficiently, and will investigate animal health, nutrition and problems associated with the supply of draft animals.

Conclusion

The rate of adoption of animal traction in The Gambia over the past 15 years has been quite encouraging. Current estimates by the Ministry of Agriculture indicate that about

63% of the farming units in the country use some form of animal traction and the National Agricultural Sample Survey data for the period 1986 to 1988 put the draft animal population at 30,000 donkeys, 26,000 oxen and 16,000 horses (PPMU, 1986-1988). Attempts are being made, through appropriate research and extension packages, to consolidate the country's achievements to date by removing more of the constraints limiting the sustained use of the technology.

Résumé

La traction animale a été introduite en Gambie au cours des années 50 dans le but d'augmenter la production agricole. Des recherches ont permis de formuler un plan d'action pour la période 1987/90. Son programme inclut les points suivants : effets des performances des machines sur la production; développement des équipements; identification des contraintes socio-économiques; optimisation de l'utilisation de la traction animale; amélioration des services d'entretien et de réparation des équipements avec la coopération des forgerons locaux. Le taux d'adoption de la traction animale en Gambie montre un progrès notable puisque 63% des exploitations utilisent la traction animale.

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