

Status of Animal Traction Development in Ghana

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Abstract

In this paper, an attempt is made to review recent developments in animal traction in Ghana with particular reference to agricultural field operations and rural transport. For socio-economic reasons, the ox is the most commonly-used draught animal in Ghana. Problems hindering the promotion of animal traction are discussed, the key argument being that the technology gap created by the sudden transfer from human muscle power to tractor power must be filled by making conscientious efforts to develop and use animal power in the farming systems in Ghana.

Introduction

The most widely-used draught animals in Ghana are the donkey, horse, and the ox. The donkey is used on a small scale by shepherds in the savannah north of the country. The horse is mostly used for transport and recreational purposes; its use for traction is almost non-existent. The ox is the most important of the draught animals for the following reasons:

- Its harnessing is simple and the neck yoke can be made locally at low cost;
- the local purchase price is attractive compared to that of the horse;
- at the end of its useful life it can be fattened and sold for meat;
- it has a slow but steady working style.

The 1986 cattle population was estimated at 1.14 million head (Kabuga, 1990). Of this only a small percentage is potentially available for farm operations. The average peasant farm holding in Ghana is about 1.2 ha (3.0 acres), most of them comprising several fragments of land. Even though the peasant farmers produce the bulk of the nation's food, they still depend on human power. Occasionally, when and where available, they use motorised power for their field operations. The potential for harnessing animal power by the rural farmer is still largely untapped.

Animal Traction

The evolution of mechanised agriculture in Ghana has proceeded directly from human muscle power

to motorisation without any serious effort to use draught animal technology. In recent years, however, the high cost of imported farm machines and spares, the rise in the cost of fuel, coupled with unattained tractorisation goals, have led to a serious re-thinking of the approach to land preparation. And since, with increased rural-urban drift fewer youths choose to work the land, hired day manual-labour is now an important component in the production costs of most farm families. Animal traction (AT), therefore, is even more necessary for farmers.

Though AT appears not to be very popular nationwide, Panin (1987) has demonstrated the economic superiority of draught animal technology over the hoe and cutlass in northern Ghana. The rate of animal power adoption for farm operations would be much improved if crop-livestock integration practices were stepped up. In the majority of cases, animal husbandry and management skills are lacking among crop growers.

At both research and farm levels awareness is gradually increasing of the use of AT, where soil conditions permit the use of the ridging plough for cultivation of groundnut and sorghum, maize and rice during the rainy season in the north and the coastal savannah grassland. In the more humid areas of the savannah and the south, where farms tend to be rather small and can be managed by manual labour, AT is limited. The cart was until recently the only implement accepted by farmers.

Animal Transport

The use of the animal cart is not widespread in Ghana, except in areas where animals are used for cultivation. Most of the carts are owned by

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individual farmers and the same animals are also used for other agricultural activities. The salient features of the traditional cart are two large diameter (0.5- 1.0m) wooden, and steel spoked wheels. The wheels are mounted on a forged iron axle and run on very loose fitting steel bushes. The axle is contained in a wooden block onto which is fitted a wooden platform. This runs forward to a simple yoke to which are harnessed an ox or a pair of bullocks. A typical cart has a maximum payload of about 1 tonne, and moves at 3-4.5 km/h. These carts can operate on very muddy tracks though they cause damage to road surfaces because of the very high contact pressure of the rims. In some parts of Ghana, wheels with pneumatic tyres are popular partly because wooden wheel-building skills are not widely known. The yoke of the bullock carts usually consists of a simple wooden beam resting on the necks of the animals with wooden attachments and ropes, to keep the yoke in place. However, farmers find this type of yoke inefficient since it transmits power from the animal through the relatively weak neck, rather than through the strong shoulders. Furthermore, the yoke rubs on the neck, frequently causing open sores.

Animal Draught Research in Ghana

Because of rising fuel prices, more research and development efforts are being directed towards using the present animal power source more efficiently. To do this, a thorough knowledge of how fast and steadily these animals move under different conditions of load is required for the design of any animal-drawn equipment (Inns 1990).

Draught animals are mainly used in this country for tillage, weeding and transport. However, there is considerable scope for using them during idle periods on stationary jobs include feed- milling, and water-lifting.

National Centres for Animal Traction Development

Bullock farming is increasingly practised, especially in the north of Ghana. The Tamale Implement Factory specialises in the design and manufacture of animal-drawn implements including the plough, the ridger and the cart, for the northern sector of the country. These implements are heavily patronised both by irrigated and rainfed upland farmers.

The Agricultural Engineering Department of the University of Science and Technology, Kumasi, researches into appropriate design, manufacture and popularisation of various kinds of animal drawn implements for ploughing, ridging, weeding and transport. Application of the principles of mechanics to design, and operation of chain-pulled implements in linear and in rotary mode of operation is the research focus of the Department.

On the EEC-funded Aveyime Cattle Ranch, bullock ploughs are employed in a pilot scheme for demonstration and extension work among the cattle owners in the area.

The activities of a few non-governmental organisations in draught animal deployment is also on the increase.

Conclusion

In the past, much of the motorised technology applied to the problems of agricultural mechanisation has been inappropriate; alternative strategies such as AT better fulfil the needs of rural farmers in most developing countries. The use of animals as a source of power rather than people is one of these strategies which, with adequate research, is vital to the economic recovery, long term progress and future prosperity of farmers. Appropriate animal draught technology should be acceptable to the farmer, affordable, sustainable using local skills and should raise farmers' incomes.

Résumé

Cette communication s'attache à examiner l'évolution de la traction animale au Ghana, et plus particulièrement pour ce qui concerne les opérations culturales et le transport en milieu rural. Pour des raisons d'ordre socio-économique, l'animal de trait le plus communément utilisé au Ghana est le boeuf. Les obstacles à la diffusion de la traction animale sont analysés, l'argument clé étant que des efforts conscients doivent être consacrés à la mise en valeur et à l'utilisation de l'énergie animale dans les systèmes de production du Ghana, afin d'aider les exploitants à franchir le brusque passage de la culture manuelle à la culture motorisée.

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