

Farmers' experiences with weeding technology in Mwanga, Kilimanjaro Region, Tanzania

by

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Abstract

The Mixed Farming Improvement Project (MIFIPRO) has successfully promoted draft animal power for plowing in the lowlands of Mwanga District, Kilimanjaro Region, since 1985. However, the use of oxen for weeding work not been very widely adopted by farmers. The poor availability of adequate weeding equipment in Tanzania is a major constraint to adoption of weeding with draft animals. Some implements are weak in construction, others are not suited to prevailing soil characteristics.

A survey of eight farmers in Mwanga District in showed that, notwithstanding these constraints, several have adapted the available technologies to their own requirements, for example the plow is used for weeding. One farmer used a Cossul inter-row cultivator for planting rice.

These experiences not only show that farmers actively explore the existing opportunities despite imperfect technologies, but also indicate that the development of weeding technology should be carried out in close collaboration with farmers.

Introduction

Eight farmers in Kigonigoni (Mwanga District), Kilimanjaro Region, Tanzania, were surveyed in 1993 to investigate their experiences with weeding technology, particularly their use, for weeding, of the ridger, the Cossul inter-row cultivator and the plow.

The ridger

Five of the farmers used the ridger, and had been doing so since 1989, although with varying degrees of success. All five indicated that it was not possible to use the ridger for the first weeding. Three farmers noted that it was easy to use the ridger when the soil was a little wet (especially on red, heavy soils and sandy-loam soils). Another problem was that

the ridger was too heavy for a small pair of oxen.

The ridger was used on sunflowers and maize only, although one farmer reported using the ridger in cotton, with good results. Farmers reported that, with the use of the ridger, most of the weeds were covered by the soil, and that during the operation the ridges were tied at the same time for soil and water conservation. However, the ridger was unable to cover weeds properly when they were more than 12 cm high.

With the use of the ridger, the soil was worked over deeply and thoroughly. Weeds were effectively buried and more easily controlled at a later stage. The absorption rate and water-holding capacity of the field were increased, run-off and soil erosion were controlled. Drainage was maintained in wet soil as plant roots were raised above the surface. Ridge cultivation automatically ensured row-planting and thus eased the task of weeding.

The inter-row cultivator

Four farmers used the Cossul inter-row cultivator. Because it was unable to work in heavy soils (breakage of the tines) and had poor performance in fields with weeds more than 10 cm tall, two of the farmers stopped using it. Surprisingly, two farmers had made some modifications in which the front tines had been replaced by the back tines. The tines were welded to the body of the cultivator. With this modification, the farmers used this cultivator even in heavy soils for weeding and for planting rice. All four farmers mentioned that they used the cultivator for weeding, especially in maize, although one of them had used it in cotton.

The plow

An ox plow, adjusted appropriately for use between rows of crop plants in a two-way

approach to bury weeds along the rows by earthing-up, has been used by some farmers in Mwangi District. Three of the farmers interviewed (who incidentally lived close to each other) knew how to use the plow for weeding. None indicated any problems, although they admitted that weeding with a plow takes longer than with a ridger. Advantages of using the plow included the fact that there was no risk of leaving the roots of crops exposed because its soil penetration was so shallow. The plow was much easier to manoeuvre than the ridger, because it was lighter. Use of the plow enabled an area of 0.5–0.6 ha to be weeded in one eight-hour day.

Several crops were mentioned as having been successfully weeded with the plow, including maize, sunflowers and groundnuts. One farmer reported that he could even use the plow for the first weeding with no risk of burying the crop. All three farmers remarked that using a plow for weeding required a skilled operator and well-trained oxen.

Conclusions

These short interviews with a few farmers showed that the transfer of technology between farmers was not the spontaneous diffusion process one might have expected. Farmers using the plow as a weeding tool were confined to a certain area. On the other hand, farmers were taking initiatives, for example, the modifications done on the cultivator and the use of the cultivator for planting rice.

It was concluded that introducing a new implement was not the necessarily the answer. Possibilities of modifying existing implements should be considered. As Kjærby wrote in 1983, there was a well-established condition and level of skill and experience in using ox plows. This is not likely to be changed overnight, even if agronomically and technically more appropriate implements become available.

Reference

- Kjærby F, 1983. *Problems and contradictions in the development of ox-cultivation in Tanzania*. Research Report 66. Scandinavian Institute of African Studies, Uppsala, Sweden. 164p.