

# MECHANIZATION OF YAM CULTIVATION IN THE IVORY COAST

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## SUMMARY

Hand cultivation of yams in Ivory Coast requires 182-202 man-days of work per hectare. Mechanization of land preparation, planting and harvesting are all possible, using machinery specially developed by IRAT since 1968. The machines are described, figured and costed. Most of the machinery was made up by using components from other existing machines. The machines can all be matched to an MF165 or similar 60 h.p. tractor. Yams pose several special difficulties for all operations. An analysis of performance and the costs of yam production by both man power and machinery provide a basis on which decisions on the appropriateness of mechanization in any particular situation could be based.

## RESUME

La culture manuelle d'igname en Côte-d'Ivoire nécessite 182-202 travailleurs par jour par hectare. L'utilisation d'engins appropriés mis au point par l'IRAT depuis 1968 rend possible la mécanisation de la préparation du sol, du semis et de la récolte. Les engins sont décrits, chiffrés et leurs coûts estimés. La plupart des engins ont été mis au point à partir des pièces tirées de machines déjà fabriquées. On peut adapter tous les engins à un tracteur MF165 ou analogue à 60 h. p. L'igname pose des problèmes spécifiques pour chaque opération. Une analyse de la performance et des coûts de la production manuelle et de la production mécanisée d'igname permet de déterminer l'utilité de la mécanisation selon les cas en présence.

## RESUMEN

Las labores de cultivo manuales para el ñame en la Costa de Ivory, require de 182-202 día-hombre por hectárea. La preparación del terreno, mecanizadamente, la siembra y la cosecha son todas posibles desde 1968, utilizando maquinaria especialmente desarrollada por el IRAT. Se describen las máquinas, sus características y sus costos. La mayor parte de la maquinaria se desarrolló utilizando componentes de otras máquinas ya existentes. Todas estas máquinas pueden ser tiradas por un tractor MF 165 u otro similar de 60 h.p. El ñame posee dificultades especiales para todas las operaciones. Las decisiones sobre lo apropiado de la mecanización de ñame, en cualquier situación particular, podrán basarse en un análisis del comportamiento del cultivo y costos de producción tanto manual como mecanizadamente.

## INTRODUCTION

### Present status of yams in Ivory Coast

In Ivory Coast, yams are grown in the savanna that extends to the north of forested area and to the east of the Bandama River. During 1969, 209,000 hectares of yam were cultivated and produced 1,520,000 tons. Yields vary from about 7.5 to 9 t/ha. During 1965, the average consumption in Ivory Coast was 171.2 kg per person per year. Consumption for 1980 is projected at 149.3 kg per person per year. At present yams are grown with traditional methods in a shifting cultivation system and all the work is manual. Yam comes first in crop sequence on cleared savanna or forest. Cropping is on mounds and there are up to 1000 of these per hectare. Labour inputs are as follows: making of mounds, 50-60 days; preparation and sowing of setts, 12 days; weeding, 80 days; harvesting, 40-50 days. This makes a total of 182-202 days work per hectare.

### Objectives for crop improvement

More and more of the main food crops in Ivory Coast are now produced in modern agricultural systems. These systems increasingly involve mechanization and yam has been excluded from these modern systems because it is grown entirely with hand labour.

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