

**BENEFITS OF FABRICATED FARM EQUIPMENT.
GREATER PRODUCTION OF ORANGE-FLESHED
SWEETPOTATO (OFS) IN AKATSI. NUTRITIONAL
AND ECONOMIC ENHANCEMENT OF GHANAIAAN
TRADITIONAL DIETS, USING OFS PRODUCTS:
OFS NUTRI-BUSINESS**



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Hort CRSP



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QUOTE OF THE DAY

“Man, despite his artistic pretensions, his sophistication and many accomplishments owes the fact of his existence to a six-inch layer of topsoil and the fact that it rains. (Anon.)”

Nothing is more important to humanity than sustainable land and reliable food production.

Agriculture is an essential occupation needed to feed the world's population.

CONTENTS

- Introduction
- Current status of potato farming in
- Akatsi and its environs with Constraints and Challenges
- Way forward with improved farming
- Equipments- Mechanization, strategy and programmes

BACKGROUND OF PROJECT

Akatsi District in the Volta Region had been chosen for the above project as it is an area well noted for potatoes cultivation. Potato had been identified to be a potential wheat flour replacer for bread baking and it abounds in the district.

PROJECT OBJECTIVE

To increase OFS output and quality at reduced production cost using improved mechanized portable agriculture equipments to meet the bread industry demands.

Synopsis

Proceedings of the 13th ISTRC Symposium,
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Land preparation for increased sweetpotato
production in Ghana

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Abstract.

Sweet potato in southern Ghana is planted mainly on manually constructed mounds. A land preparation study was initiated on 16 farmer's fields in 2001, and advanced to a total of 19 demonstration plots in 2002 and 2003. The objectives were to compare the agronomic feasibility and farmers' perception of manual and mechanized construction of, and management of sweet potato on ridges with farmers' practices. Planting on ridges resulted in a significant ($P=0.05$) increase (38%) in sweet potato tuber yield over farmers' practice of planting on mounds under favourable rainfall, as a result of increased number of tubers and crop growth per unit area.

Abstract, contin.

Planting on flat land resulted in drastic yield reductions of 28% and 59% from ridges in the major and minor seasons respectively. Farmers' perception of overall ease of manual management was similar for ridges and mounds. However, differences were reported in various aspects of management, with construction being easier on mounds (score=2.6) than on ridges (score=3.3), weeding easier on ridges (score=2.0) than on mounds(2.6), and harvesting easier on mounds (score=1.3) than on ridges (score=1.7)

Conclusion on Abstract

Mechanized ridging, using tractor mounted ridgers was demonstrated on farmers' fields in 2003, and was shown to be much easier and in some areas less expensive to construct than mounding and manual ridging. Ridging has the potential to increase national sweet potato production through increased yield per unit area, removal of drudgery associated with land preparation, and increase in the acreage under sweet potato production in Ghana.

CURRENT MODE OF POTATO CULTIVATION AND HARVESTING

The traditional native hoe is used to raise mounds painstakingly.

Because of the manual nature of raising the mounds and digging up the potatoes, the farm sizes are comparatively small. Production cost is high. This is not good for the commercial bread project as competition for the potatoes for cooking and for the bread dough making becomes keen. There abounds vast lands which are sparingly used and with improved agricultural mechanization, the potato farm sizes could be increased drastically to take care of the bread project also.

A WAR FORWARD: AN EXAMPLE OF A WELL LAID OUT/SANITARY SMALL HOLDER FARM IN BERNE, SWITZERLAND



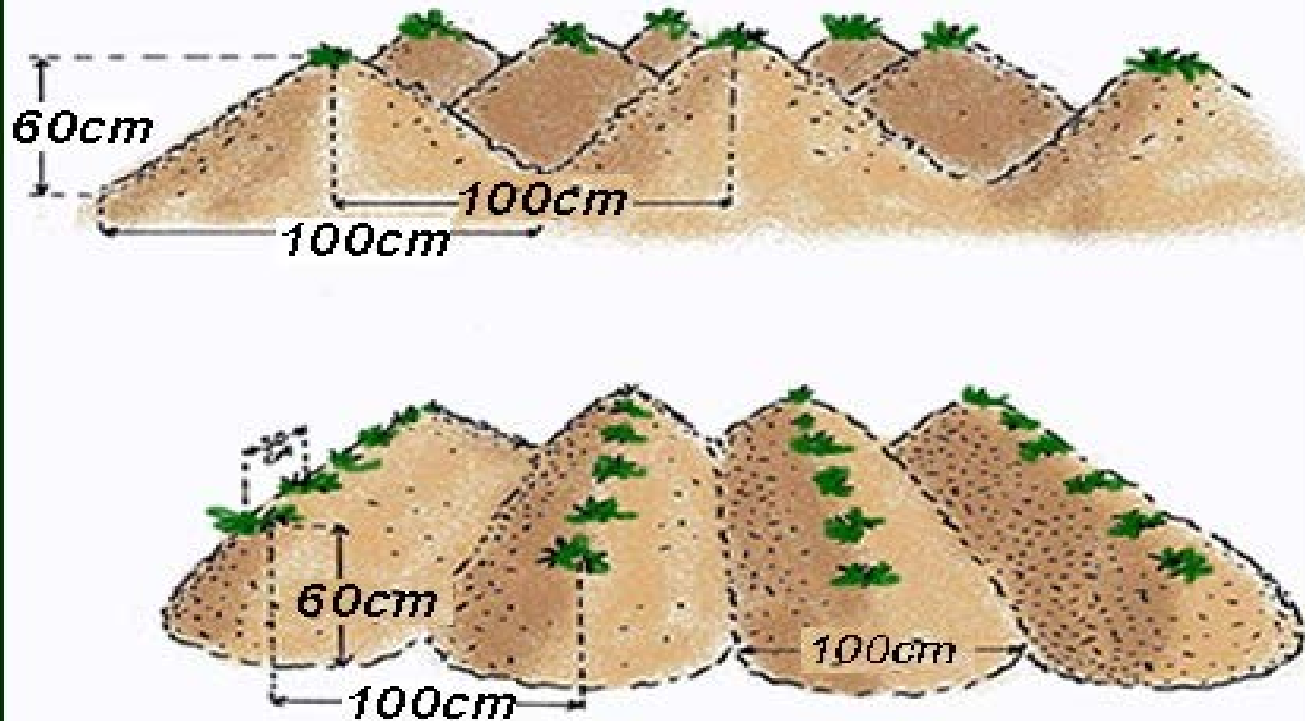
The second tractor is harvesting Irish potatoes. When the potato is ready for harvesting the plant leaves are scorched with gas fire mounted tractor and left to wither out completely after which they are mechanically harvested with sorters sorting the potato.



Mechanical ridging. They are faster to do, easier to weed and faster and safer to harvest potatoes on mechanically.



Comparing the hoe mound to the mechanically ridged ones



The size is smaller for the hoe mound (top) as compared to mechanically raised mounds (down) which are linear in form and easier to weed or dig up mechanically. Could support in-row intercropping better



Lawn mower here!

The chassis (frame minus the motor and cutting blade) is ideal for mechanized weeding in between ridges as gas fired (infra red) weeds destroyer. The burner is mounted beneath mower frame with the gas canister as back pack or mounted on the mower. The added advantage of the mower is they are very cheap to get as scrap without the motor and can be adjusted very close to the ground. It needs only a light push to operate and its wheels will mark area scorched. Best results are when the weeds are very tender at 2-3 leaf stage. The same equipment could be use for in-row weeding of other crops and for partial soil sterilization. Ideal for conservation agriculture and organic weeding.

OTHER EQUIPMENTS USE

- Long handled hoes for ergonomics.
- Hand held gas fire nozzle weeders
- Long handled rakes equip with scrapers
- Long handled scrappers for weeding
- Portable, shallow, well aerated and well constructed crates to hold the potatoes for standard sales, transportation and storage instead of the current mode of sack use which bruises the potatoes and predisposes them to spoilage.

WALK ALONG TRACTOR WITH ATTACHMENTS



12 HP power Tiller as tractor head



Ridger Unit attached to power tiller



attachment

Potato digger



Mechanical digging up of potatoes with unit attached to the walk along tractor. The exposed potatoes are then picked manually with very little damage caused to it as compared to hoeing it up.

Technical Parameters for 2A

Model 2A	
Row number Working	Single row with
Row spacing /cm	50-60
Productivity mu /hr	3-5
Total Weight /Kg	100
Matching Power /HP	8-15
Working depth /cm	20
Working width /cm	53
Potato Exposing ratio %	≥ 98
Breakage rate %	≤ 2
Rev of P.T.O. shaft /RPM	
Overall dimension /cm	90*70*70
Packaging size /cm	85*70*65

POTATO MECHANIZATION SERVICES

It is advised that a potato mechanization center be opened up at Akatsi to run bed preparation, ridging, and potato harvesting services. Equipments needed are as above.

COLLABORATION

Passionate Appeal:

The presenter passionately appeals for a collaboration with TU for the development of pneumatic precision seeder for all sizes of seeds planting with the unit to be hitched to the power tiller or a small ride on tractor for vertical crop diversification by the farmers.

This will go well with the Alliance for Green Agriculture Revolution in Africa especially.

THANK YOU

