

Investigation of crop production mechanization in Akinyele local government area of Oyo State, Nigeria

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Abstract: An assessment of crop production using crude and mechanized implements in some parts of Akinyele Local Government Area of Oyo state was undertaken on October, 2013. This was to investigate the use of mechanized implements over crude implements in crop production. The study areas considered include IITA, AJIBADE, OLORISAOKO and MONIYA. The data generated were gathered through oral interview, discussion, questionnaires and routine sources. These data were analyzed with the use of Statistical Package for Social Sciences (SPSS). It was observed that 23.5% of the respondents used mechanized implements for land clearing, while 49% used crude implements and 27.5% used both. In tillage operation, 53.1% used mechanized and 46.9% used crude implements; while 72.2% of the respondents used crude implements in planting and 27.8% used mechanized implements. In weeding, 80% used crude implements, while 20% used mechanized implements. There was no significance difference in the use of mechanized and crude implements in crop production.

Keywords: crop production, Akinyele local government area, mechanized and crude implements

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1 Introduction

Human labour has been eased through the use of technology in years back. Over the years, mechanization has progressed from the most elementary force-transmitting devices such as hoes, cutlasses, spades, hand trowels, sickles and others to today's sophisticated and gigantic machines. Throughout this progress, however, the constant purpose has been to supplement or complement human efforts at work. During the last twenty decades, the applications of mechanized implements in crop production have been one of the most noticeable developments in the agriculture of many countries of the World. Wherefore, wherever agricultural mechanization has been successfully implemented, the burden and drudgery of agricultural work has been greatly reduced while the output per worker has been

greatly increased. In the light of this, the need for mechanized implements, for a meaningful crop production, cannot be overemphasized.

There is no gainsaying at all, that the human effort alone, as a source of farm power, can never feed him adequately. That is why, Lijedahi et al. (1979) reported that human beings are limited to the production of less than 0.10 kW continuous power output while Paman et al. (2014) reported that the total power required in rice farm operations was 418 kW/ha. This suggests the fact that, human effort is not enough for bumper harvest from crop production. Although, they cannot be eliminated completely especially for some farm activities that cannot be fully mechanized. Akinyele Local Government Area is one of the eleven local governments that made up Ibadan metropolis. Its headquarters is at Moniya (Wikipedia 2013). Oladele (2011) reported that the rainfall pattern of Akinyele is bimodal with peaks in May and August and there is a distinct period of dryness between November and February. And majority grows arable crops and staple crops in the area. Jari (2010)

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reported that crop production began at least nine thousand (9000) years ago when domestication of plants became essential to supplement natural needs in certain localities. He also reported that the early husbandman cultivated a limited number of crops, the cereals being the first to be grown in most parts of the world. It is therefore necessary to study the implements with which these crops are grown.

2 Materials and methods

2.1 Population of the Study

A survey was carried out in Akinyele Local Government Area of Oyo State on October, 2013 of which the target populations were the farmers in IITA, AJIBADE, OLORISAOKO and MONIYA.

2.2 Data Collection

Data were collected using oral interview, discussion, questionnaires and routine source. And 52 questionnaires were administered to examine the view of farmers and farm officers on key issues of crop production such as implement used in land clearing, tillage operation, fertilization, planting, weeding, harvesting and the cost of manual labour in carrying out some of these operations. The importance of mechanization, size of farm land, numbers of tractors owned by the farmer were also considered. Oral interviews and discussion were used to collect data on cost of manual labour and the existing data of cost of hiring implements. Fifty two questionnaires were used.

2.3 Data Management and Analysis

Data management and analysis was done using SPSS and descriptive statistics using percentages and cross tabulation as a means of explaining the outcomes of findings. Hypothetical statistics, pie chart and bar chart were used.

3 Results and discussions

3.1 Analysis of farm operations

The following farm operations were considered in order to access the use of mechanized and crude implements for crop production. In each of the

operations, the percentages of mechanized implements were compared with that of crude implements.

3.1.1 Land Clearing

Land clearing can be carried out by using various implements ranging from cutlass to bulldozer. Table 1 shows the percentages and types of implement used in carrying out land clearing of which cutlass (crude implement) has a higher percentage of 49.0% over bulldozer (mechanized implement) which was 23.5%. This means that, crude implements are used more in land clearing than mechanical means.

Table 1 Land Clearing Implements

Implements	Frequency	Valid Percent
Cutlass	25	49.0
Bulldozer	12	23.5
cutlass & bulldozer	14	27.5
Total	51	100.0

3.1.2 Tillage operations

Table 2 shows the percentage at which mechanize and crude implements are used in seed bed preparation. The percentage of Plough and Harrow was 44.9%; Hoe 46.9% and cultivator 8.2%. In seed bed tillage operation, 53.1% of farmers used plough, harrow and cultivator. This indicates that the farmers are gradually adopting mechanical means in tillage operations.

Table 2 Tillage operations implements

Implements	Frequency	Valid Percent
Plough Harrow	22	44.9
Hoe	23	46.9
Cultivator	4	8.2
Total	49	100.0

3.1.3 Planting

Planting was majorly done with crude implements using bare hand 25.1%, Cutlass 34.2%, Hoe 12.9%, planter 27.8%. Crude implement takes 72.2% and mechanize implements have 27.8% as shown in Figure 1.

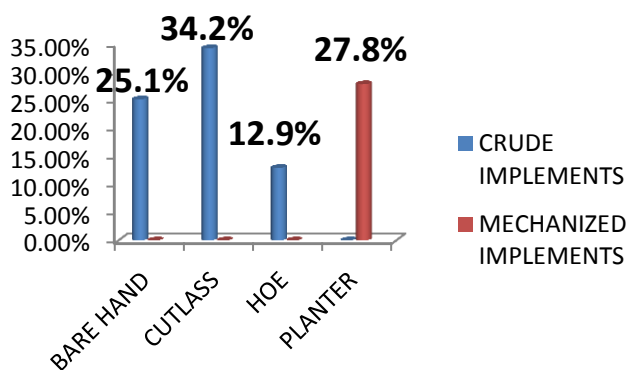


Figure 1 Percentage of Crude and Mechanized Implements for Planting

The total percentages (72.2%) of crude implements are higher than mechanized implements (27.8%) as shown in Figure 1.

3.1.4 Weeding

As shown in Table 3, the farmers in the study areas depend more on hoes (60%), herbicides (20%), hand (12%) and cutlasses (8%) for weeding.

Table 3 Weeding Method

Implements	Frequency	Valid Percent
ordinary hand	6	12.0
Cutlass	4	8.0
Hoe	30	60.0
Herbicides	10	20.0
Total	50	100.0

3.1.5 Harvesting

Harvesting was done majorly with hand both in IITA and other places visited during this research. From Table 4, it was observed that all the tools used for harvesting were crude implements. This is an indication that harvesting of crops is yet to be mechanized.

Table 4 Farm implements for harvesting

Farm Implements	Frequency	Valid Percent
ordinary hand	15	31.3
combine harvester	4	8.3
Sickle	5	10.4
Cutlass	4	8.3
Hoe	2	4.2
Hand	8	16.7
hoe and cutlass	5	10.4
harvester hoe and cutlass	5	10.4
Total		100.0

4.2 Comparison between crude and mechanized implements

The percentage of crude implements (52%) used in crop production is slightly higher than mechanized implements (48%) as shown in Table 5, though there is no significance difference in their usage.

Table 5 Percentage of crude and mechanized implements

Implements	Frequency	Percent
crplemiimplements/farm tools	26	52
Crude Mechanized	24	48
Total	50	100

4 Conclusions

Crop production was mainly done with a mix of mechanized and crude implements in the study area. However, majority of the operations are still been carried out with crude implements. I hereby advice the government to look into the crop production of this areas by providing mechanized implements at a subsidized rate because the farmers are willing to use such implements.

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