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Mechanization Problems of Peasant Farmers in Oyo Metropolis, Oyo State, Nigeria

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ABSTRACT

This survey is carried out to assess the mechanization problems of peasant farmers in Oyo metropolis. The population of the study comprises all peasant farmers in Oyo metropolis of Oyo State. Ten communities were systematically selected in the study area namely: Aba Iyaibeji, Offa meta, Fashola, Eleekara, Baale Agbe, Oko Ajagba, Eleke, Soku, Otefon and Mogaji. Multistage sampling technique is employed to collect data from 400 farmers in the study area using structured questionnaire. The data are analysed using frequency count and simple percentage. Findings reveal that most of the farmers are male with low or no level of education. Most farming operations are carried out manually and implements are being mostly hired. Inadequate capital is the major problem affecting farmers in the study area while other problems include land tenure system, lack of equipment, government policy, lack of storage facilities, and insufficient farm input. The study also shows that most of the farms in the area range from 1-5 acres and farmers in the study area are poor to employ irrigation facilities even though 80% of the foods consumed in this country come from the peasant farmers in the rural areas. In summary, it is revealed that mechanization practice is still at a premature stage in the Oyo metropolis. Therefore, enlightenment programme should be done by extension officers all over rural areas to improve the knowledge of farmers about the advantages of mechanized farming.

***Keywords**: Agricultural mechanization, Peasant farmers, farming operations*

INTRODUCTION

Agricultural mechanization is the application of the locally appropriate tools, implements, machines and approaches to make the most sustainable beneficial decisions (Clarke, 2000). There are several equipment, machineries and implements now made available and affordable to both small and medium scale farmers that will make planting easier, faster and economical (Olaoye and Rotimi,

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2010). According to Owombo, Akinola, Ayodele and Koladeye (2012), Agricultural mechanization could also be described as the application of tractorization technology into the field of agriculture in order to improve agricultural output, as well as deliberate conscious departure from the peasant and subsistence agriculture into a commercial agriculture. This process also involves the development and management of machines for field production, water control, material handling as well as post-harvest operation.

Bishop (1997) states that Agricultural mechanization has made a significant contribution to agricultural and rural development in many parts of the world: Levels of production have increased, soil and water conservation measures were constructed, the profitability of farming improved, the quality of rural life enhanced and development in the industrial and service sectors was stimulated. Ituen (2009) opines that agricultural mechanization development depends on the farmer's satisfaction and capability to identify opportunities for achieving sustainable benefits by improved and increased use of power and machinery selecting the most worthwhile opportunity and carrying it through to successful implementation.

Nigeria has an estimated 474,000ha of land under cultivation, 11,900 tractors and 729ha of land cultivated per tractor as at 1996 with 80% of Nigeria populace engaged in agricultural activities (FAO, 1998). Anazodo (1980) observes that even in high crowded populations, it can be difficult to attract or retain labourers to work in farm operations. Much of the stimulus for agricultural mechanization has come from labour shortages in the more economically advance countries. Mechanization reduces agricultural required labour and can reduce or remove the costs in countries where energy is cheap. But for poorer countries, mechanization forces increased costs caused by fuel, oil, engines and spare parts. The present state of mechanization in Nigeria agriculture is still far from increasing the rate of farming earnings and productivity.

Tshuma (2014) defines small scale farming as the type of agriculture which is made up of farmers whose main goal is to produce food for their families on a daily basis. Kienzle, Hancox and Ashburner (2010) also define small-scale farming as the method of farming that uses less machinery and more human labour. According to FAO (1998), the average numbers of farm plots per household ranges between 2 to 28 plots and between 0.5 to 5.0ha, increasing in size from the south towards the north. Therefore, the aim of this study is to assess mechanization problems of peasant farmers in Oyo metropolis, Oyo State, Nigeria in other to develop methods and ways to increase the level of mechanization for sustainable agriculture particularly in the study area.

MATERIALS AND METHOD

This study was carried out in Oyo metropolis. The study area consists of three local government areas with a land mass area of 2,427sq.km and a population of 428,798 (NPC, 2006). It shares boundary with Ogbomosho to the North, Iwo to the East and Ibadan and Iseyin to the South and West respectively. The main occupations of people in Oyo metropolis are majorly poultry and crop farming. The research design adopted for this study is descriptive survey due to the large number of participants involved. Ten communities were systematically selected in the study area namely: Aba Iyaibeji, Offa meta, Fashola, Eleekara, Baale Agbe, Oko Ajagba, Eleke, Soku, Otefon and Mogaji.

The population of the study consists of all farmers in Oyo metropolis. Multistage sampling method was used to randomly select forty farmers from each community to give a total of 400 respondents for the purpose of the study. Data were collected with the use of structured questionnaire to extract information from farmers in the study area. For the illiterates, questionnaire was interpreted to them and their responses documented. Data were analysed using frequency count and simple percentage; presented in graphs and tables.

RESULTS AND DISCUSSION

The study area's degree of mechanization (M1 and M2) was calculated using equation 1 below. Degree of Mechanization (M1) is the average energy input of work provided exclusively by human power (labour) per hectare. Degree of Mechanization (M2) represents the first degree of mechanization, motorized machinery coexisting with a high participation of workers (Nowacki, 1974; Chisango and Dzama, 2013).

$$LH = 0.1 \times NH \times \frac{TH}{A} \qquad \text{.....(1)}$$

Where:

LH = average energy input or work provided per hectare by human labour (kWhr/ha).

NH = average number of labour employed.

TH = average rated working time devoted to manual operation

0.1= Theoretical average power of an average man working optimally.

A = Area of land cultivated (ha).

$$LM = 0.2 \times NM \times \frac{TM}{A} \quad \text{.....(2)}$$

Where:

LM = Average energy input or work per hectare by motorized machines
0.2 = Corrector co- efficient of the tractor-powered machine.
NM = rated working power of the tractor (kW)
TM = rated working time of the motorized energy source (hr/ha)
A = Area worked in hectare by motorized machines.

Fig. 1 shows that implements such as plough, harrow, ridger, mechanical processing machines and tractor are readily available in the study area while irrigation facilities and multipurpose sheller are scarce in the study area. Fig. 2 reveals that machines which are supposed to be generally owned and operated cooperatively for a good mechanized agriculture are owned by few individuals in the study area while others hire it whenever they needed to make use of this machines, this was in agreement with Chisango and Dzama (2013) and Adekanye (2014) findings that generally owned and collective operated mechanized agriculture enhanced agriculture production.

Table 1 shows the socio-characteristics of farmers in the study area. The result reveals that only 19% of the farmers in the study area have tertiary education while others range between Primary (14%), Secondary (47%) and 20% for Non-formal education. This will affect farmer's level of adopting new innovations on agricultural mechanization due to their low level of education. This was supported by earlier findings of Adekanye (2014). It was also observed that most farmers in the study area had their farmland range between 1 plot – 5 acres (75%). This makes mechanization hard to practice because of the cost of machines and farm inputs to be used on such a small farmland as compared to the farmers income, this was also highlighted in the works of Chisango and Dzama (2013). Most of the farmers in the study area have farming experience of 1 – 10 years (72%) and majorly due to Rural-Urban migration which has being affecting agriculture in the country due to government policy of developing urban areas and neglecting the needs of rural areas.

Table 2 reveals that most of the respondents make use of crude implements such as cutlass and hoe for farming operations. This implies that partial mechanization is being practiced in the study area; Problems of mechanization in the study area as stated by the respondents include inadequate capital (97%), lack of storage facilities (83%), insufficient farm input (80%), government policy

(75%), land tenure system (71%) and lack of equipment (65%) which was in agreement with the research of Jijingi, Simeon and Samo (2016) in Nigeria on challenges of peasant farmers in Benue State.

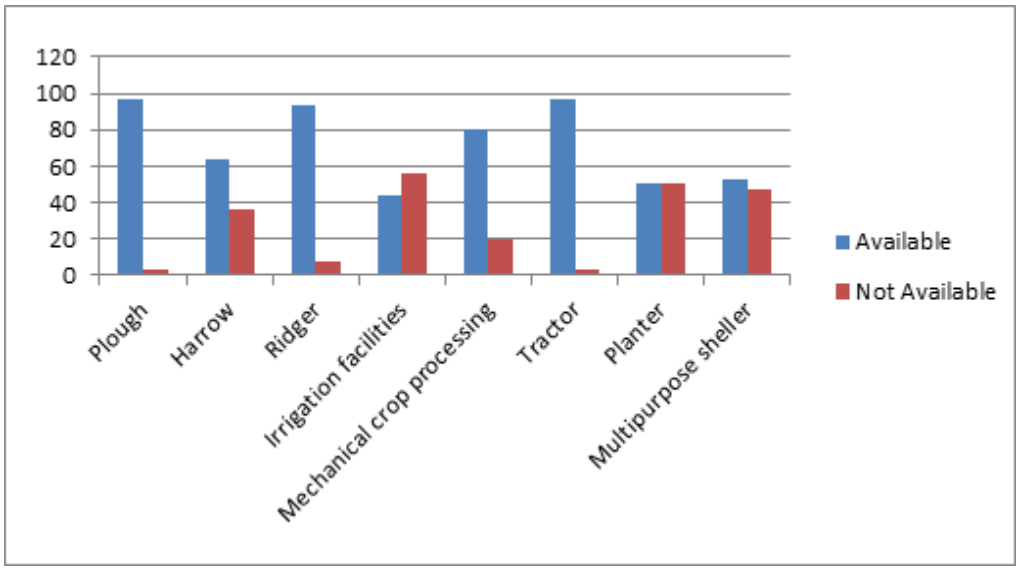

Fig. 1: Agricultural machinery and implements available in the Study Area

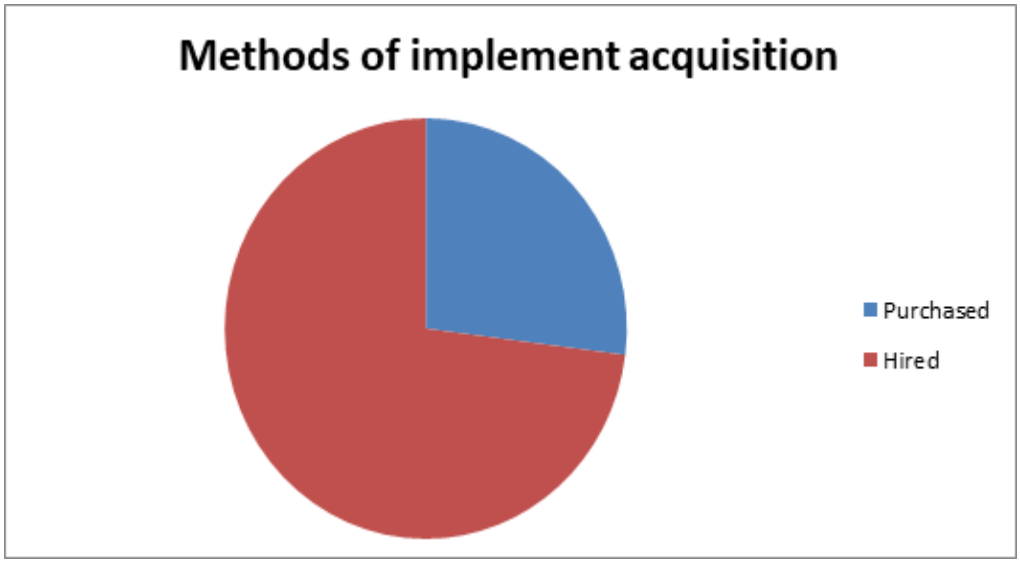

Fig. 2: Methods of acquisition of implements in Oyo metropolis

Table 1: Social characteristics of farmers in Oyo metropolis

Item	Frequency	Percentage
Sex		
Male	256	64
Female	144	36
Marital Status		
Single	92	23
Married	296	74
Divorced	4	1
Widow/Widower	8	2
Age		
21 – 30 years	100	25
31 – 40 years	108	27
41 – 50 years	112	28
51 – 60 years	56	14
Above 60 years	24	6
Level of education		
Primary	56	14
Secondary	188	47
HND/B. Sc	76	19
Non – formal	80	20
Family size		
1 – 5	208	52
6 – 10	192	48
11 and above	nil	-
Farming Experience		
1 – 5 years	116	29
6 – 10 years	172	43
11 – 15 years	44	11
16 – 20 years	28	7
21 – 25years	24	6
Above 25 years	16	4
Farm Size		
1 – 5 plots	128	32
1 – 5 acres	172	43
6 – 10 acres	96	24
11 – 15 acres	4	1
16 acres and above		nil -
Means of Land Acquisition		
Purchased	100	25
Gift	52	13
Inherited	108	27
Borrowed	140	35

Source: Fieldwork, 2017.

Table 2: Problems of Agricultural mechanization in Oyo metropolis

Problems	Frequency	Percentage
Land tenure system	284	71
Lack of equipment	260	65
Inadequate capital	388	97
Government policy	300	75
Lack of storage facilities	332	83
Insufficient farm input	320	80

Source: Fieldwork, 2017.

Table 3: Implements used by farmers and number of users in Oyo metropolis

Operation	Equipment used	Frequency	Percentage
Land clearing	Cutlass & Hoe	140	35
	Plough	260	65
Tillage	Hoe	124	31
	Plough	276	69
Planting	Cutlass & Hoe	196	49
	Hand planter	128	32
	Tractor	76	19
Fertilizer application	Manual	220	55
	Knapsack sprayer	136	34
	Machine	44	11
Weeding	Cutlass & Hoe	224	56
	Machine	176	44
Irrigation	Watering can	172	43
	Machine	4	1
	No irrigation	224	56
Harvesting	Manual	288	72
	Machine	112	28

Source: Fieldwork, 2017

CONCLUSION AND RECOMMENDATIONS

The majority of the respondents do not understand the role of mechanical machine and implements which cannot be over emphasized because it saves time in farming operation, increase yield and quantity, reduce losses in handling, effective and efficient land use among others.

Farmers in the study area indicated that there are prevailing problems militating against their farming activities such as lack of storage facilities, inadequate capital, land tenure system and lack of equipment which are working negatively against the fulfillment of a higher level of mechanization. Based on the results, the following recommendations are made:

i. Government should organize land tenure reform programme to ensure access to merchandisable land.
ii. Government at all levels (Federal, State and Local) should subsidize price for tractor ownership and management for farmers.
iii. Enlightenment programme should be done by extension officers all over rural areas to improve the knowledge of farmers about the advantages of mechanized farming.
iv. Credit facilities should be provided for farmers to be able to meet the cost required for mechanized agriculture.

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