Journal of Organic Agriculture Research and Innovation (JOARI)

ASSESSMENT OF AGRICULTURAL PRACTICES ON MAIZE FARMING IN IDO LOCAL GOVERNMENT AREA, IBADAN OYO STATE, NIGERIA

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Abstract

This research aimed to assess agricultural practices on maize farming within Ido Local Government Area, Ibadan Oyo State, Nigeria. The study population consisted of 80 maize farmers from ten wards in Ido Local Government. This study adopted the multi-stage sampling technique to select four wards out of ten wards in the study area. A structured questionnaire was utilized as the instrument for data collection in this study. Data collected were analyzed using descriptive statistics, chi-square, and Pearson product-moment correlation. The result showed that male farmers constituted 83.8% compared to 16.3% for females, those over 50 years of age represented more than half of the active age demographic at 47.5%.and the respondents in the study area characterized with an average level of primary education was 48%. Also, the result revealed that agricultural practices offer benefit derived including the promotion of healthy living, it saves time, is affordable, reduces the work stress and is durable. The result revealed that there was no significant relationship between the respondents' socio-economic characteristics and the benefits derived from agricultural practices in the study area. But there were significant relationships between agricultural practices and the benefits derived by respondents (r value=0.457, p value=0.000). There was a significant relationship between the benefits derived by respondents and the constraints of agricultural practices (r value=0.503, p value=0.000), at 5% level of significance. Therefore, the study concluded that use of agricultural practices facilitated the quality and quantity of maize production. It is recommended that farmers should be supplied with services at lower prices and at optimal times that correspond with critical production period.

Keywords: Agricultural practice, maize farmer, Agricultural Technologies, Farmland

INTRODUCTION

Agriculture is the scientific discipline or practice of farming, encompassing land cultivation for agricultural production and the husbandry of animals for food, wool and other goods. The primary agricultural products can be categorized into food, fiber, fuel, and raw materials (such as rubber).Food categories encompass cereals (grains), vegetables, fruits, oils, meats, eggs, and fungi. Currently, small farms account for around one-third of global food production, while huge farms dominate the agricultural landscape. The largest one percent of farms globally exceed 50 hectares and manage almost 70 percent of the world's agricultural area. Approximately 40 percent of agricultural land is located on farms exceeding 1,000 hectares. Nonetheless, five out of six farms globally occupy less than two hectares and account for merely approximately 12 percent of total agricultural acreage. . David *et a*l (2014).

Agricultural Technology refers to the utilization of technology and equipment designed for innovative applications in agriculture, natural resources, and food, pertaining to the research and development of qualified production methods. The 20th century witnessed significant advancements in agricultural technologies, encompassing the invention of synthetic fertilizers and pesticides, as well as the introduction of new agricultural machinery, such as mass-produced tractors and aircraft for aerial pesticide application. (United States Department of Agriculture, 2020.) In the initial decades of the 21st century, Information Age technologies have been progressively utilized in agriculture. Agricultural robots, drones, and autonomous tractors are routinely employed on farms, while digital and precision agriculture utilize considerable data collecting and analysis to enhance farm efficiency. (english.busan.go.kr, 2020.).

Over the years, maize has become an important crop, taking over acreages from traditional crops such as millet and sorghum. In 2018 about 10.2 million tons of maize was produced from 4.8 million making Nigeria the highest producer in Africa (FAO, 2018). Research efforts by breeders and agronomists have led to the production of many technologies including the breeding of high yielding varieties that are tolerant to drought, diseases, low

nitrogen, and striges infestation, despite the availability of these varieties, yields are still low in the Nigerian savannas. This Guide aims to assist extension personnel and smallholder farmers in the use of agronomic technologies to increase the productivity of maize (Kamara et al., 2020).

Growing 332 million metric tons of maize (*Zea mays*), often known as corns in many English-speaking nations, is the most common grain crop in the Americas. The original people of Mesopotamia used maize as a grain train long ago. An annual plant with exceptional production and remarkable geographic adaptation, maize has been cultivated all over the globe due to this crucial quality. For the last 10,000 years, cereals—which are members of the grass family—have been the primary food supply for people all across across the globe. (Crabben 2023). According to Tajamul *et al.* (2016) maize is an essential agricultural commodity for both humans and animals. It's also a staple food for Nigerians. Mashed maize typically contains 13.5% mixed, 10% protein, 4% oil, 61% starch, 2% crude fibre, 1.4% ash, and 0.4% other substances; it is a vital feed item for animals, particularly monogastric. It is evident that the energy generation of humans and cattle is dependent on maize, as stated by (Klopfenstein *et a*l 2013). The panicoideae subfamily and the Andro-pogere tribe are the ones to which maize is formally assigned. (Soreng, *et al.*, 2015).

The Sahara area in Northern and Southern Nigeria is ideal for growing maize because of its favourable climate and high yields. Between the months of March and November, maize is at its peak output. Before planting can begin, a substantial quantity of equally distributed rainfall is necessary. Photosynthesis and growth both require sunlight. An acre of farmland may produce 300–6,000 kilogrammes of maize each hour**.** According to (Kamara 2020), the northern and middle belt regions of the country produce the vast majority of the country's maize. The northern and middle belt regions of the count produce the vast majority of the country's maize. Nigeria is the largest producer of maize in Africa with nearly 8 million tonnes (IITA, 2009). The total land area planted to maize in Nigeria is about 3.3 million hectares with an estimated yield of about 2.2 tons per hectare .The grains could be cooked alone or in combination with pulses or milled and boiled as porridge (Yoruba = Eko, Hausa = Kamu, Ibo = Akamu . (Falade, et al., 2023).

Statement of Problem

Over the long term, poor Agricultural practices as affected the production and quality of maize, insufficient utilization of relevant production inputs, and a failure to embrace advanced practices among farmers can lead to suboptimal outcomes. These outcomes may include lower yields, reduced efficiency, diminished profitability, and a lack of competitiveness in the marketplace There are several studies that has been conducted on maize production, storage of maize but there are not be any study on assessment of agricultural practices, in view of this, the this study will examine on the assessment of agricultural practices on maize farming in Ido local government, Ibadan Oyo state.

Specific Objective

- Examine the socioeconomic characteristics of the farmer in the study area
- Identify the types of agricultural practices on maize farming available among the respondents.
- Identify the benefits derived from the usage of agricultural practices by the respondents.
- Examine the constraints of utilization of Agricultural practices among the maize farmers.

Research Question

- What are the socio-economic characteristic of the respondents in the study area?
- What are the type of agricultural practices on maize farming available among the respondents?
- What are the benefits derived from the usage of agricultural practices by the respondents?
- What are the Constraints of Utilization of Agricultural Practices?

Hypothesis of the Study

Ho1: There is no significant relationship between socio-economic characteristic of the respondents and the benefit of using agricultural practices.
Ho2: There is no significant relationship between benefits derived and the types of agricultural practices among respondents in the study area
Ho3: There is no significant relationship between the constraints encountered by the respondents and the benefits of agricultural practices on maize.

MATERIALS AND METHODS

Study Area

The research was conducted in the Ido Local Government Area (L.G.A) of Oyo State, Nigeria. The area is 986 km², with a population of 103,261 according to the 2006 census. It borders the Oluyole, Ibarapa East, Ibadan South West, and Ibadan North West local governments in Oyo State, as well as the Akinyele and Odeda local governments in Ogun State. The Ido local government area encompasses a substantial expanse of terrain conducive to livestock husbandry, extensive forest reserves, and rivers. The local government may be regarded as the 'Food Basket of the Nation,' since the residents cultivate several income crops, including palm oil, kola nut, cocoa, and lumber, alongside food crops like as maize, vegetables, and rice.

Sampling Procedure

The study population comprises maize farmers in the Ido Local Government Area of Oyo State. The study employed a multistage sample approach, with Ido local government being chosen due to its substantial number of maize farmers in the area. In the initial stage, four (4) wards out of the ten (10) in the local government were deliberately picked owing to the prevalence of maize farmers in these wards: wards 3, 4, 9, and 10. The second stage entailed the random selection of two villages from each chosen ward, specifically Akufo, Idiosan, Apete, Awotan, Ogundele, Alaho, Omi Adio, and Bakatari, resulting in a total of eight villages. The third stage involved selecting ten farmers from each village, proportionate to the size of maize farmers in the region, culminating in a total of 80 respondents for the study. Primary data was gathered by a well-designed questionnaire, which was delivered to respondents during the fieldwork. Eighty surveys were administered.

Procedure for Data Analysis

Descriptive statistics, such as frequency and percentage, were employed to assess the socio-economic characteristics of the respondents. The chi-square test was employed to assess the correlation between several socioeconomic characteristics and the utilization rate of agricultural methods. Person Product Moment Correlation (PPMC) was employed to assess the link between benefits and their utilization, as well as the benefits themselves.

RESULTS AND DISCUSSION

Considering the descriptive analysis on Table 1 presents the socio-economic characteristics of the respondents in the research region. It indicates that 47.5% of respondents are over 50 years old, 31.3% are between 36 and 50 years, and 17.5% are between 21 and 35 years. This suggests that the majority of farmers are young, energetic adults, implying that maize cultivation necessitates considerable work. This aligns with the findings of Issa et al. (2016), who established that the average age of maize farmers in the Ikara Local Government Area of Kaduna State, Nigeria, is around 40 years, which falls within the active age range. The data indicates that 83.8% of participants are male and 16.3% are female, suggesting a predominance of males in maize farming. The marital status of the respondents indicates that 65% are married, while just 8.8% are single, corroborating the notion that maize production is predominantly undertaken by married individuals to fulfil familial obligations. The educational qualification distribution indicates that 48.8% possess elementary education, 23.8% have secondary education, and 22.5% lack formal education, suggesting that the respondent's exhibit diverse educational backgrounds, which may subsequently affect their farming practices. Adenuga *et al.* (2013) similarly discovered that education may substantially enhance agricultural output. Regarding home consumption, 36.3% consist of five people, 28.8% comprise four members, and 16.3% include three members, indicating that farmers maintain a small household consumption size, with the majority (62%) having household sizes ranging from one to five individuals. This aligns with the findings of Sadiq *et al*. (2013), which indicated that the majority (70%) of respondents have household sizes ranging from 1 to 10 individuals. 46.3% of respondents have engaged in maize farming for 5-10 years, while 30% had fewer than 5 years of experience. This indicates that the farmers are proficient in maize cultivation and are capable of making informed judgments on agricultural methods in the research area.

The Table above indicates that 28.8% of respondents had 2 acres of land, 26.3% have 3 acres, and 22.5% own 1 acre, suggesting that the majority of respondents are small-scale farmers. This corroborates the findings of Olaniyi *et al.* (2019), which revealed that most maize farmers operate on a small scale. The chart indicates that 48.8% of farmers utilize family members as a work source, 35% employ both family and paid labour, while just 16.3% rely only on hired labour, demonstrating that farmers leverage the available labour resources on their field.

The descriptive statistics analysis on Table 2 shows the types of agricultural practices that are available for respondents in the study area. It shows 92.5% claimed tillage practices was made available to them and only 7.5 choose no and this shows that a larger percentage of respondents are aware of tillage practices such as zero tillage, etc. It also shows agro chemical practices was available among 90% of respondents and 10% choose no and this have the same findings with weed control and this could be attributed to the fact that the use of agro chemicals such as herbicides, pesticides, etc has been found to help farmers on the farmland in eradicating pests, weeds, etc. who identified that agrochemicals, including herbicides and pesticides, have significantly aided in pest management and enhanced crop yields to satisfy the food demands of a growing population, as well as in managing vector-borne illnesses and weeds. It also indicates that 87.5% of respondents are aware of the availability of inorganic fertilizer practices, while only 12.5% report a lack of availability. This awareness is attributed to the efficacy of inorganic fertilizers, such as N.P.K 15:15:15, which provide essential nutrients to crops in the appropriate proportions and quantities.

Table 1: Socioeconomic characteristics of respondents in the study area

Variable	Frequency	Percentage
Age		
16-20	3	3.8
21-35	14	17.5
36-50	25	31.3
>50	38	47.5
Gender		
Male	67	83.8
Female	13	16.3
Marital Status		
Married	52	65.0
Single	7	8.8
Divorced	6	7.5
Widowed	15	18.8
Religion		
Christianity	30	37.5
Islam	41	51.3
Traditional	9	11.3
Educational Qualification		
No formal education	18	22.5
Primary education	39	48.8
Secondary education	19	23.8
Tertiary	4	5.0
Occupation		
Trading	1	1.3
Farming	57	71.3
Self-employed	15	18.8
Others	7	8.8
Household consumption		
2	3	3.8
3	13	16.3
4	23	28.8
5	29	36.3
>5	12	15.0
How long have you been into maize farming?		
<5 years	24	30.0
5-10	37	46.3
11-15	12	15.0
16-20	6	7.5
>20	1	1.3
How many acres of land are you planting on?		
1	18	22.5
2	23	28.8
3	21	26.3
4	15	18.8
>5	3	3.8
Source of labour		
Family	39	48.8
Hired	13	16.3
Both	28	35.0
Total	**80**	**100**

Source: Field survey, 2023

This aligns with Washington (2016), who found that inputs like inorganic fertilizers are accessible for farmers to utilize on their land. Furthermore, 63.8% of respondents indicated that irrigation facilities were accessible in the study area, while 36.2% reported their unavailability. This suggests that a significant proportion of farmers benefited from irrigation, which facilitates the cultivation of crops during the dry season.

From Table 3 above shows the benefits derived from usage of agricultural practices among respondents in the study area. It shows that 88.8% that reported the use of agricultural practice encourage healthy living and 11.2% that do not support the claim and this shows that agricultural practices has contributed to the health status of farmers by planting early growing crops that will contain the nutrient required by farmers and this is line with Auta, *et al.,* (2012) that reported the use of agricultural practices have encourage healthy living and productivity of famers. In addition, 83.8% reported that it encourages good hygiene and only 16.2% do not enjoy the benefit of good hygiene and also 77.5% reported it is durable which means that the agricultural practices last long when used or practiced on farmland.

Additionally, 86.3% indicates that agricultural practices facilitate time savings for farmers, while only 13.7% did not experience such benefits. This suggests that a significant majority of farmers gain from time efficiency, likely due to agricultural practices like the cultivation of early-maturing varieties, timely weed management, irrigation systems, and harvesting equipment, which collectively minimize the time required for various farming operations, as supported by Segun et al. (2019). Furthermore, 86.3% indicates that agricultural methods are widely accessible to farmers, and 85% said that the use of these practices alleviates the stress experienced by farmers on their property. Agricultural productivity, especially in maize, can be enhanced through improved agronomic practices, including timely planting, appropriate spacing, prompt weeding, accurate application of fertilizers and agrochemicals, timely harvesting, minimized post-harvest losses, and the adoption of innovative techniques (Bucheyekiet al., 2011).

Farmers encountered several constraints in agricultural practices, including the high cost of inputs and services (78.8%), lack of extension agents (75%), insufficient power supply (68.8%), and the impact of government supply (55%). Consequently, despite the significance of these practices, some farmers have been unable to implement certain techniques, resulting in maize average yields remaining low relative to their potential. This conclusion aligns with Issa et al. (2016), Opaluwa et al (2015) which identified analogous barriers to the adoption of maize production techniques. These findings corroborate those of Aduba et al. (2013), who identified that the primary challenges hindering maize production were the elevated costs of agricultural inputs and services, insufficient funding, and high transportation expenses.

Table 2: Types of Agricultural Practices that are Available for Maize Farmers

S/N	Statement	Yes	No
1	Tillage practices	74(92.5)	6(7.5)
2	Irrigation practices	51(63.8)	29(36.2)
3	Mechanization practices	18(22.5)	62(77.5)
4	Agro chemical practices	72(90.0)	8(10.0)
5	Spacing practices	37(46.3)	43(53.8)
6	Inorganic fertilizer practices	70(87.5)	10(12.5)
7	Weed control	72(90.0)	8(10.0)
8	Extension agent practice	22(27.5)	58(72.5)
9	Hired labour	48(60.0)	32(40.0)
10	Cooperative Awareness	40(50.0)	40(50.0)

Source: Field survey, 2023

Table 3: Benefits Derived From Usage of Agricultural Practice

S/N	Benefit Derived	Yes	No
1	Is it affordable	63(78.8)	17(21.3)
2	Is it readily available	69(86.3)	11(13.7)
3	Does it reduce your work stress	68(85.0)	12(15.0)
4	Is it durable	62(77.5)	18(22.5)
5	Does it encourage good hygiene	67(83.8)	13(16.2)
6	Does it increase your monthly income	35(43.8)	45(55.2)
7	Does it save time	69(86.3)	11(13.7)
8	Is it cheaper	43(53.8)	37(46.3)
9	No side effect	46(57.5)	34(42.5)
10	Does it encourage health living	71(88.8)	9(11.2)

Source: Field survey, 2023

Table 4: Constraints of Utilization of Agricultural Practices

S/N	Constraints	Minor	Major	Not a Constraint
1	Poor return of output	35(43.8)	44(55.0)	1(1.3)
2	Unavailability of extension agent	18(22.5)	60(75.0)	2(2.5)
3	High cost of agricultural input	34(42.5)	45(56.3)	1(1.3)
4	Inadequate power supply	23(28.8)	55(68.8)	2(2.5)
5	Pest and disease attack	38(47.5)	39(48.8)	3(3.8)
6	Lack of finance	37(46.3)	36(45.9)	7(8.8)
7	Climatic influence	40(50.0)	38(45.0)	4(5.0)
8	Illiteracy of farmer	31(38.8)	23(28.8)	26(32.5)
9	Low access to agricultural input	14(17.5)	63(78.8)	3(3.8)
10	Effect of government policy	30(37.5)	44(55.0)	6(7.5)

Source: Field survey, 2023

Table 5: Relationship between Socio-Economic Characteristic of the Respondents and the Benefits of Agricultural Practices in the Study Area

Variables	Chi-square value	P-value	Decision
Age	7190	0.027	S
Sex	15.457	0.348	N.S
Marital status	23.956	0.295	N.S
Religion	21.832	0.082	N.S
Educational level	18.421	0.000	S

Source: Field survey, 2023; N.S = Not significant at >0.05; S = Significant at >0.05

Table 5 indicates that there is no significant correlation between various socio-economic characteristics of the respondents and the advantages of agricultural practices in the study area at a 5% significance level, with the exception of age and educational level, which are represented by Age (r value= 7.190, p value=0.027), Sex (r value= 15.457, p value= 0.348), Marital Status (r value= 23.596, p value= 0.295), Religion (r value= 21.832, p value=0.082), and Educational Level (r value=18.421, p value=0.000). This indicates that only the age and educational attainment of the farmers exhibit a substantial direct correlation with the advantages of agricultural methods in the studied region.

There is no significant relationship between benefits derived by the respondents and the types of agricultural practices among respondent in the study area (Table 6). The result indicates a substantial correlation between the advantages experienced by respondents and the types of agricultural techniques in the research region, at a 5% level of significance (r value = 0.457, p value = 0.000). The agricultural approaches accessible to farmers yield the advantages they obtain from their use in the studied region.

Table 7 indicates a substantial correlation between the advantages obtained by respondents and the restrictions encountered in employing agricultural methods among maize farmers in the research region, at a 5% level of significance (r value=0.503, p value=0.000). It indicates that despite the advantages gained from the agricultural approaches accessible to farmers, they continue to encounter several obstacles in their implementation.

Table 6: Relationship between Benefits Derived by the Respondents and the Types of Agricultural Practices among Respondent in the Study Area

Variables	r-value	P-value	Decision
Benefits Vs Types	0.457	0.000	S

Source: Field survey, 2023

Table 7: Relationship between the Constraints Encountered by the Respondents and the Benefits of Agricultural Practices on Maize

Variables	r-value	P-value	Decision
Benefits Vs Constraints	0.503	0.000	S

Source: Field survey, 2023

CONCLUSION

The study's findings indicate that maize farming in the area is predominantly conducted by young, energetic guys with diverse educational backgrounds. The respondents utilize various sources of labour, including family members, paid workers, and occasionally a combination of both, in their small-scale maize production practices. The techniques presented to the respondents in the research region encompass the use of agrochemicals, weed control, and irrigation facilities, which were shown to yield benefits such as stress reduction, promotion of healthy living for farmers, and time savings, among other advantages. Nevertheless, despite the advantages associated with the agricultural techniques, the respondents encountered challenges like elevated input costs, lack of extension agents, and insufficient power supply.

Recommendation

The following recommendations were made from the findings of the study

1. Inputs and services must be provided to farmers at subsidized rates and at advantageous times aligned with essential production periods.
2. Extension agents should be engaged to furnish farmers with current information and techniques that can enhance their competencies in all areas where they lack pertinent knowledge.
3. Consequently, it is advisable to offer credit facilities to enable farmers to acquire funds for purchasing agricultural inputs such as fertilizers, herbicides, and insecticides, as well as to secure sufficient workforce.

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