

ASSESSMENT OF RICE PRODUCTION LEVEL IN EKITI STATE NIGERIA

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Abstract

The study assessed the level of rice production in Ekiti State It determined the production level of rice and the sources of information on their production techniques respectively. Purposive and random sampling techniques were used to select 120 respondents. Interview schedule was used to collect data from the farmers. Data were analysed using descriptive statistics and inferential statistics which were Chi-Square, Pearson Product Moment Correlation and ANOVA at $p \leq 0.05$. The study revealed that the average age of respondents was 45 years, male constituted larger percent (80.8%), married (86.7%), 86.7% had one form of education or the other, highest household size was 6-10 members (60.8%) and 66.7% had other source (s) of income. In addition, 53.4% of the respondents planted improved varieties of rice. "Fellow farmers (68.3%), family and friends (47.5%) and extension agents/Fadamaagents (56.7%) were the major sources of rice information sources. Majority (75.0%) of the respondents used hoes and cutlasses in preparing their farm land for rice production. The study, in addition revealed that the output of improved variety and combined varieties were high while local variety only was low. Chi Square analysis showed that there was no significant association between the use of rice production techniques by rice farmers and their level of production. The analysis of variance test showed that there were no significant differences in the level of rice production across the three local government areas. PPMC showed that only farm size had significant relationship with the level of production of the three varieties planted in the study area.

Keywords: Assessment, rice production, level

Introduction

Nigeria, almost food self-sufficient in the 1960s, has become a food-deficit country importing large quantities of foods. In 2010, the value of Nigeria's imports of food and beverages was EUR 2.974 million (National Bureau of Statistics (NBS, 2011). About 85 per cent of Nigeria's total land area is agricultural land (78.5 million hectares) out of which 39.5 million hectare is arable while only 60 per cent has so far been cultivated. Presently, only 13 per cent of the country's agricultural land is irrigated (Eluhaiwe, 2010). With regard to the prevalent natural resources, there is no reason why Nigeria should be a net importer of large quantities of food. In spite of the considerable food imports, the Food and Agriculture Organization FAO(2012) indicated that about 9.4 million Nigerians were undernourished, which represented about six per cent of the population as at 2009 while the poverty level in 2010 for Nigeria was estimated at 69 per cent (NBS, 2012). Given the level of poverty, food insecurity and under-nourishment in Nigeria, food losses and waste, which occur along the entire food value chain, are unacceptable.

Nigeria is one of the countries in the world that has the potentials to produce rice in a larger quantity. This is because Nigeria has an estimated 4.6 million hectare of land (Danbaba, Anounye, Gana and Abo, 2013)

suitable for rice production and, interestingly too, a study by Ajah and Nmadu (2012) on farmers access to farm inputs indicated that land was one of the most accessible farm inputs. But despite all these potentials, only about 1.8 million hectare, representing 39% is under rice production (Danbaba *et al.*, 2013).

Rice is a major staple food in Nigeria. Due to its large population, Nigeria is also the region with largest consumer of rice in absolute terms. The country's estimated annual demand for milled rice is 5.2 million tonnes, while the average national production is 3.3 million tonnes. Over the years, Nigeria government has attempted to increase local rice production with a view to reducing imports. It has used various tariff and levy regimes as well as imposing restrictions to discourage imports and encourage local production. Currently there is 10 per cent import tax and 100 per cent levy on the import of semi-milled or wholly milled rice (Federal Ministry of Finance, 2014).

The Nigerian rice sector has gone through some remarkable developments over the last quarter-century. Both rice production and consumption in Nigeria have vastly increased during the aforementioned period. Notwithstanding, the production increase was insufficient to match the consumption increase with rice imports making up the shortfall. With rice now being a

structural component of the Nigerian diet and rice imports making up an important share of Nigerian agricultural imports, there is considerable political interest in increasing local rice production. This has made rice a highly political commodity in Nigeria. However, past policies such as exchange rate policy and trade policy have not been successful in securing the market share for local rice producers. There is a need to draw lessons from these past policies – particularly by finding out what was really happening in terms of rice production and processing. This is the more urgent in view of the recent resurgence of an active interest to develop the rice sector in Nigeria (CBN, 2003). Therefore, this paper assessed the level of rice production in Ekiti State, Nigeria because the State is one of the major rice-producing areas in Southwest Nigeria. To this end, the study ascertained the socio-economic characteristics of the respondents, determined the respondents' sources of information on rice production techniques and the level of rice production in the study area. It was hypothesized that no significant relationship between the rice production techniques used and the level of production of each of the varieties and that there is no significant difference in production level across the three Local Government Areas. (Gbonyin, Ijero and Ekiti West)

Methodology

The study was carried out in Ekiti State. This was because Ekiti State is one of the major states producing rice in South-West Nigeria. The respondents comprised of all the rice farmers in the study area. The list of these farmers, which constituted the sampling frame, was obtained from Agricultural Development Programme (ADP) Office.

A multi stage sampling procedure was used to select the respondents for this study. The first stage involved the purposive selection of three (3) Local Government Areas because; they are the major rice producing areas of the state. These LGAs are; Gbonyin, Ijero and Ekiti West Local Government Areas (EkitiFadama III, 2016). The second stage was the random selection of villages from the Local Government Areas selected. Two villages were selected from each of the three Local Government Areas selected, given a total of six villages. The third stage involved the random selection of twenty (20) rice farmers from each village. In all, a total of 120 respondents were selected for the study.

Data collected were collated and analysed using descriptive and inferential statistics. Frequency counts, percentages and mean scores were used to summarize the data. Chi square analysis was used to test the association between the production techniques and the

level of production of each variety while ANOVA was used to test the differences in the mean of the production level of each variety across the three local government areas and Pearson Product Moment Correlation (PPMC) was used to test the relationship between selected socio-economic characteristics of the respondents and their level of production. From a list of agricultural information sources, respondents were asked to choose their sources of rice production information. Also, the respondents were asked to indicate their rice output over three years (2014-2016) based on the varieties planted by them.

Results and Discussion

Socio-economic Characteristics of Respondents

The study revealed that majority (80.8%) of the rice farmers were men while 19.2 percent of the respondents were women. This suggests that male farmers dominate rice farming in the study area due to its nature of intense and time consuming activities or because women are more involved in household activities than their male counterpart. This is in contrast to Ibitoye, Orebiyi and Shaibu(2012), who found out that there were more female rice farmers than males in their study area.

Majority (86.7%) of the respondents were married, 11.7% single, and 0.8% were divorced and widowed respectively as (Table 1). This implies that the married are more engaged in rice production than their unmarried counterparts. This suggests that majority of the respondents had stable family which would help in making decisions particularly in agricultural production and domestic responsibilities. This was also corroborated by Ayoola, Dangbegnon, Daudu, Mando and Kudi(2011), in their work on socio-economic factors influencing rice production among male and female farmers in Nigeria that the married were more involved in rice production.

The study further revealed that most (60.8%) of the respondents had a household size of 6-10 members which was fairly large, though good for farm family labour. The mean household size was six persons. This result strengthens the findings of Mustapha, Udiandeye, Sanusi and Bakari (2012) that stated that majority of the household size fell within 6-10 persons. The mean household size was six persons. According to Olumba (2014), citing Onu (2005), large family size could be as a result of polygamous nature of the rural farmers. He further opined that, this could be linked to the fact that most rural farmers consider large household size as a good and economical way of maximizing farm returns by using family labour.

The result in Table 1 shows that 36.7% of the respondents fell in the age bracket of 35-44 years

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followed by the age interval of 45-54 years. The least age percentage fell in the range greater than 64 years. The average age of the respondents sampled was 45 years. This implies that majority of these respondents were in their productive age. This finding is consistent with the findings of Ibitoye *et al.* (2012), who found that the mean age of rice farmers in their study area, was 45 years.

The result shows that 13.3%, 30.8%, 7.5%, 27.6% and 20.8% of the respondents had no formal education, primary, secondary and tertiary level of education respectively. This suggests that they were literate and this could enhance their level of understanding and desirability of adopting new farm technologies or relating in a good way with the extension agents. This therefore, supports the findings of Olumba (2014) in a research carried out in Anambra state, where majority of the farmers had primary level of education. The mean of rice farming experience was approximately 20 years which is relatively long time in rice farming and therefore, should equip them with better knowledge of rice farming. This finding is consistent with the findings of Kadiri, Eze, Orebiyi, Lemchi, Ohajianya and Nwaiwu (2014), who found that the mean of rice farming experience in their study area was 17 years. Experience also revealed that the rice farming business has been a long business in the area and therefore should, be able to produce enough rice for the ever growing populace.

The result in Table 1 shows that majority (91.7%) of the respondents cultivated 0.5-3.0 hectares of rice farm, the mean rice farm size was 2.0 hectares. Thus, this implies that most of the respondents are small scale rice farmers and these small farm sizes make mechanization difficult thereby limiting output of rice to subsistence level leaving little for commercial. The mean farm size compares relatively with the finding of Kadiri *et al.*, (2014), in their work on Technical Efficiency in Paddy Rice Production in Niger Delta Region of Nigeria, where sampled farmers had an average of 2.32 hectares.

Improved varieties of rice were predominantly planted (53.4%). Respondents that planted local varieties were

33.3% and 13.3% planted both local and improved varieties together in a season. With the high level of cultivation of improved varieties, it is expected that output will be high all other soil and environmental conditions being equal. This result does not conform to the findings of Osanyinlusi and Adenegan (2016) done in Ekiti State in which 30% planted improved variety, 33.1% planted local variety and about 40% planted both improved and local rice varieties. The empirical result indicated that the level of use of the improved rice varieties was influenced by intervention programmes such as Fadama III additional financing. Under the Fadama III additional financing, inputs are being given to farmers at subsidized rate of 50%, thus, encouraging most of the farmers to plant improved varieties.

As presented in Table 1, 65.0% of the respondents were members of cooperative societies, while 35.0% were non-members of any cooperative society at all. The distance could have made some of the rice farmers not to be members of cooperative society. The fairly high percentage of cooperative membership could be due to the benefit they could derive, such as, credit facilities like (loans, inputs) and sharing of ideas, which complements the findings of Idionget *et al.* (2007) who affirmed that membership of cooperative society gives the farmers opportunities of sharing information on modern rice practices. However, it contradicts the findings of Ajah and Ajah (2014) in a research carried out in Abuja, where majority (71.59%) of the farmers did not belong to any cooperative society.

The result revealed that majority (66.7%) of the respondents was engaged in one form of non-farming activities or the other while 33.3% were predominantly into farming. The result indicated a possible high level of economic diversification among the respondents, thereby likely to increase their purchasing power. This also implies that most of the farmers have many responsibilities or the other due to their large family size, thereby making them likely in need of income from other sources to meet up with their financial obligations. This does not support the findings of Ayoola *et al.* (2011), and Olumba (2014) carried out in Anambra State, which is objectively, in line with the notion that rural dwellers are predominantly farmers.

Table 1: Distribution of Farmers according to their Socioeconomic Characteristics

Variable	Frequency	(%)	Mean
Sex			
Male	97	80.8	
Female	23	19.2	
Age			
34 and less	13	10.8	
35-44	44	36.7	45.0
45-54	41	34.2	
>54	22	18.3	
Marital Status			
Single	14	11.7	
Married	104	86.7	
Widowed	1	0.8	
Separated	1	0.8	
Educational level			
No formal education	16	13.3	
Primary school completed	37	30.8	
Secondary school attempted	9	7.5	
Secondary school completed	33	27.6	
Tertiary education	25	20.8	
Household size			
1-5	47	39.2	
6-10	73	60.8	6.0
Rice Farming Experience			
<10	32	26.7	
11-20	40	33.3	19.9
21-30	30	25.0	
>30	18	15.0	
Rice Farm Size			
0.5-3.0	110	91.7	2.0
3.5-6.0	10	8.3	
Source of Fund			
Personal Savings	81	67.5	
Family	9	7.5	
Cooperative Loan	30	25.0	
Membership of Agric Cooperative			
Yes	78	65.0	
No	42	35.0	
Off-farm Income			
Yes	80	66.7	
No	40	33.3	
Rice Variety			
Improved Variety	64	53.4	
Local Variety	40	33.3	
Both Varieties	16	13.3	
Rice Ecology			
Upland Rice	55	45.8	
Lowland Rice	53	44.2	
Both	12	10.0	

Source: Field Survey, 2017

Respondents Sources of Information on Rice Production Techniques

Respondents' sources of information as revealed in Table 2 indicate that farmers sourced for information mostly from fellow farmers,; and family and friends (68.3%) and (47.5%) respectively. This could be as a result of frequent and regular interaction and contacts.

While others sourced their information on rice production through Extension/Fadama agents (56.7%)this was an indication of a relatively active extension service in the study area. Sources least used were Radio (25.8%), Television (29.2%) and Farmers' cooperative society (27.5%). The result also revealed that Internet browsing (0.8%) and Newspaper (0.8%) were uncommon sources of rice information.

Table 2: Respondents' sources of Information on Rice Production

S/N	Source	Frequency	%	Rank
1	Radio	31	25.8	6
2	Television	35	29.2	4
3	Internet browsing	1	0.8	7
4	Extension Agent/ Fadama agents	68	56.7	2
5	Newspaper	1	0.8	7
6	Agricultural Cooperative Society	33	27.5	5
7	Relations	57	47.5	3
8	Fellow Farmers	82	68.3	1

* Multiple Responses

Source: Field Survey, 2017

Production Technologies used by the Rice Farmers

Techniques of production go a long way in determining the production capacity of farmers. Table 3 reveals that majority (75.0%) of the respondents was still using crude tools in preparing land for planting while 25.0% used machines in preparing rice lands. The implication of this is that, the level of production will be low, due to the fact that, the farmers might not be able to cultivate large hectares of land because of the stress involved. Most (57.5%) of the respondents used herbicides on their rice farm, 60% used fertilizer while 73.3% used

pesticide on their rice farms which could increase their level of production. All the respondents, as revealed in Table 3, used sickles and sharp knives for harvesting their paddy and also, they used mortar and pestle in threshing their paddy which may discourage the farmers in cultivating large hectares of land. Table 3 also reveals that the respondents stored their paddy using bags which are a modern method of storage rather than spreading the paddy on the floor in a room. Majority of the respondents used manual methods (catapults, shouts) in scaring away birds from their farms which are not really effective methods in chasing birds away, though they are better than other methods such as scare crows and cassette.

Table 3: Distribution of Respondents according to their Rice Production Techniques

S/N	Techniques	Frequency	%
1	Land preparation by machine	30	25.0
2	Land preparation by hoes and cutlasses	90	75.0
3	Timeliness in Planting	115	95.8
4	Sowing Nursery	38	31.7
5	Transplanting	38	31.7
6	Direct Seeding	82	68.3
7	Herbicide Application	69	57.5
8	Fertilizer Application	72	60.0
9	Pesticide Application	88	73.3
10	Manual Bird Scaring	109	90.8

11	Use of Scare Crow, Cassettes etc	11	9.2
12	Use of sickles, sharp knives for harvesting	120	100.0
14	Manual threshing (mortar and pestle etc)	120	100.0
15	Sun- drying	120	100.0
16	Storage	120	100.0

* Multiple responses

Source: Field Survey, 2017

Respondents Rice Output

Table 4 reveals the output of the respondents based on the variety they planted across three years (2014-2016). The output of improved variety for year 2014, 2015 and 2016 were (X̄=3.01t ha-1), (x̄= 2.55t ha-1) and (x̄=2.60t ha-1) respectively. From this table, it was observed that the output for improved variety was high.

Table 4 reveals the output for local variety for year 2014, 2015 and 2016 which were (x̄=1.10t ha-1), (x̄= 1.18t ha-1) and (x̄=1.22t ha-1) respectively. It was observed from this table that there was lower production of rice. For those that planted both varieties, Table also shows their output for 2014, 2015, 2016 which were (x̄=2.81t ha-1), (x̄=2.84t ha-1) and (x̄=2.22t ha-1) respectively. Here, there was a high production over the three years, though lower than the output of those who planted improved varieties.

Table 4 : Mean values of Respondents Outputs for improved variety per year

Year	Improved variety		Local variety		Both varieties	
	Mean ¹ (tha ⁻¹)	SD	Mean (tha ⁻¹)	SD	Mean (tha ⁻¹)	SD
2014	3.01	1.84	1.10	0.47	2.81	0.65
2015	2.55	1.44	1.18	0.61	2.84	0.79
2016	2.60	1.42	1.19	0.67	2.22	0.68

Source: Field Survey, 2017

Relationship between Rice Production Techniques and Level of Production for the various varieties over three years (2014-2016)

The result of the Chi Square analysis indicates that there is no significant relationship between the use of

rice production techniques and the farmers' rice production level for improved variety (X²= 0.89, p>0.05), for local variety (X²= 0.09, p>0.05) and both varieties (X²=0.42, p>0.05).

Table 5 : Chi-Square Relationship between Rice Production Techniques and Level of Production for the various varieties over three years (2014-2016)

Variable	Improved variety				Local variety				Both Varieties			
	χ ²	p	Df	Decision	χ ²	p	Df	Decision	χ ²	p	Df	Decision
Production technique score	0.89	0.34	1	NS	0.09	0.76	1	NS	0.42	0.51	1	NS

Figures in parentheses = p-value, (S= Significant, NS= Not Significant), Significant at p<0.05

Source: Field Survey, 2017

For hypothesis two, results of one-way ANOVA reveals there is no significant difference in production

level across the three Local Government Areas, since the p-values (0.322), (0.610) and (0.278) are greater than 0.05 levels of significance.

Table 8: Analysis of Variance between Respondents Level of Production

		Sum of Square	df	Mean Square	F-Cal.	Sig.	Decision
Improved variety (high)	Between groups	45.443	2	22.721	1.155	0.322	NS
	Within groups	1200.167	61	19.675			
	Total	1245.609	63				
Local variety (low)	Between groups	2.474	2	1.237	0.502	0.610	NS
	Within groups	91.265	37	2.467			
	Total	93.739	39				
Both varieties (high)	Between groups	9.083	2	4.542	1.417	0.278	NS
	Within groups	41.667	13	3.205			
	Total	50.750	15				

NS= Not Significant, Significant at p<0.05

Source: Field Survey, 2017

Table 9 presents the result of the analysis between the respondents' socioeconomic characteristics and the level of production for each variety over the three years (2014-2016) using PPMC. Farm size was significantly and positively related to production level of all the

varieties: improved variety (r =0.67), local variety (r= 0.53) and both varieties (0.57) in the study area. This indicates that as the size of farm increases, the outputs of the farmers in the area increase.

Table 9: Correlation Analysis between Socioeconomic Characteristics and Level of Production for the various varieties over three years (2014 2016)

Variable	Improved variety (high)			Local variety (low)			Both Varieties (high)		
	r	p	Decision	r	p	Decision	r	p	Decision
Age	0.34	0.006	S	0.00	0.970	NS	0.09	0.721	NS
Farm size	0.67	0.000	S	0.53	0.000	S	0.57	0.020	S
Farming experience	0.27	0.031	S	0.10	0.520	NS	0.07	(0.791)	NS

Figures in parentheses = p-value r= r-value, Significant at p<0.05 S = Significant, NS = Not Significant

Source: Field Survey, 2017

Conclusion and Recommendations

The study concluded that bulk of rice producers in the study area were small scale farmers. It is obvious that increasing these variables (farm size and improved varieties) at their present levels would lead to increased level of production among the rice farmers. Based on the findings of the study and the implications, the following recommendations were therefore made:

1. Majority of the farmers source their credit from personal savings and relatives which are mostly not adequate for appreciable production. Agricultural loan facilities should be made accessible to rice farmers to ensure timely and adequate utilization of agricultural inputs for improvement in farm production. Stringent measures and bureaucratic procedures for accessing agricultural credit should be minimized.
2. Machines such as tractors, combined harvesters, threshers and milling machines should be provided

for the farmers so as to reduce the drudgery involved in the production of rice.

3. For increased production, farmers should inculcate the use of improved varieties which have high yield rates, early maturity and diseases resistance.

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