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EFFECTS OF THE SPECIAL RICE PROJECT ON QUALITY OF INPUTS USED FOR RICE PRODUCTION IN KWARA STATE, NIGERIA

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ABSTRACT

The study was carried out in Edu and Patigi Local Government Areas of Kwara State. Through a two stage random sampling technique, 70 participants in Special Rice Project (SRP) were selected from 6 circles in Patigi Local Government Area (LGA) and another 32 participants were similarly selected from 3 extension circles in Edu LGA, making a total of 102 respondents. Data collected by means of interview schedule were subjected to descriptive, t-test and Pearson Correlation Statistics. The result of the study indicated that 86.7%, 91.3%, 90.3% of the participating farmers in SRP rated seed, herbicide and fertilizer respectively, provided by SRP, to be of very good quality while 19.6%, 49% and 58.8% of them rated seed, herbicide and fertilizer used before they joined SRP to be of very good quality. Furthermore, the highest proportion of participants 90 (88.3%) produced 3 - 4 tonnes of paddy rice per hectare as opposed to 19 .6% of them who were able to produce 3-4 tonnes before SRP was implemented. Participants also recorded an average annual income of N338,700.00 (US$2,419.29) / annum, that is, US$6.63/day, as against N129,410.00 (US$9,24.4)/annum earned by them before SRP was implemented. Thus, participants earned about US$6.63/day, which is higher than poverty income level of US$2/day. The result of the t-test analysis indicated that a significant difference exists between the rice yield of participants before and after the introduction of SRP ($t=4.537$, $p \leq 0.05$). Also Pearson Correlation analysis shows positive, linear and significant relationship between quality of farm inputs used and yield of rice ($r = 0.562$, $p \leq 0.05$). Based on the evidence from the study, Special Rice Project has the potential to serve as a good channel of accessing quality farm inputs, increase farm yield and income of farmers and contribute to Millennium Development Goal of reducing poverty level by 2015. It is, therefore, recommended that the activities of SRP are expanded to reach all categories of farmers in the country.

Keywords: Seed and inputs quality, yield, income and poverty reduction.

INTRODUCTION

Rice is a traditional crop in Nigeria and its consumption in Nigeria is on the increase at a much faster rate than domestic production. Its consumption is more than in any other African Countries. Nigerians consumed 3 kgs. of rice per person per annum during the 1960s. Since then, the per capital consumption of rice rose to 18 kilograms per person per annum and reached 22 kgs. per person between 1995 and 2000 (FAO, 2001). Today average Nigerian consumes 24.8kilograms of the commodity per annum. Indeed, the Nigeria's food habit has changed in favour of rice consumption. In Nigeria for instance, rice is one of the few food items

which consumption has no cultural, religious ethnic or geographical boundary. It is available in five star hotels in the big cities and towns as well as in the "Most Local" of the eating places in the remotest villages throughout the country. It is highly priced and widely accepted for festivity. In some rural areas, it is so adored that it is eaten only on Sundays and sometimes on market day. Rice is grown in all the states of the Federation and Federal Capital Territory (FCT) and has been reported to account for nearly 12% of Nigeria's source of food consumption (IITA, 1992 and Sayyaid, 2008).

Unfortunately, the local production of rice put at 500,000 tonnes, is grossly inadequate to meet the nation's rice requirements of about 3.5million tonnes per annum (Ingawa, 2005). Furthermore, the cultivation and production of this highly priced and very important food and cash crop is dwindling. Consequently, Nigeria spends annually a lot of her foreign exchange earnings importing close to 2.5 million tonnes of this commodity to meet the national food requirements (Adamu, 2005). Nigeria has the resources to produce 10 million tonnes of rice but its current production level is less than 6 million tonnes of paddy rice per annum. Kwara State alone has over 400,000 hectares of land suitable for rice production out of which about 50,050 hectares were cultivated in 2006 (Kwara ADP, CAYS reports, 2010).

It is overt from the above that rice has the potential to become one of the staples whose production if encouraged can provide the population with nationally required energy of 2440 kilo calories per person per day (FAO, 2001) as well as providing adequate income for the farmers. Kwara State is naturally endowed with rice production. Rice production is the major means of livelihood of the people in the North East axis of Kwara state, which comprised Edu and Patigi Local Government Areas, inhabited by Nupe tribe. Rice production in large quantity is much favoured in the North Eastern part of the state as a result of the naturally fertile land on the flood plains of River Niger and its tributaries. It is, therefore, not surprising that in the current efforts of the Federal and State Governments to diversify the foreign exchange earnings of the country and boost local food production, rice production is highly emphasized.

Statement of problem

Nigeria's food production growth rate (rice inclusive) is 2.4% while the population growth rate is 3.6%. There is a gap of 1.2% between population growth rate and food production. The United Nations Population Fund (2002) reported that farm output for grains (rice inclusive) must increase by 40% in order to reduce food importation which the National Bureau of Statistics (2004) put at ₦187.7, ₦203; N305 and ₦900 billion in 2001, 2002, 2003, 2004 respectively. This trend has not changed; Sayyaid (2008) reported that the Federal Government of Nigeria spent in 2007 alone, a total of N1.3 trillion to import rice, which according to him represented 25% of the nation's import bill. Nwanze (2005) reported that Nigeria has the potential to reduce her rice importation bill to 5% if rice farmers adopt planting of good quality and improved varieties of rice seeds and apply 200 kilograms of fertilizer per hectare. Nwanze (2010) reported that Nigeria has a comparative advantage for rice production as the country is capable of producing 10 million tones of rice as against the current level of about 5 million tonnes/ annum . However available statistics showed that in spite of the obvious rice production

advantage, Nigeria still imports 70 per cent of her rice when she can be feeding the whole of the Sub-Sahara Africa. The National Bureau of Statistics (2004) reported that the average yield of rice in Nigeria was 1.3 tonnes/hectare. This level of output is far below the realizable output of 5.4 tonnes/hectare if good quality seeds and other agronomical practices are judiciously and orderly followed (USAID, 2005). Unfortunately, Fajana (2002) reported inadequacy of good quality seeds in the country. According to him, a total of 66.25 tonnes of rice seeds were available to the generality of rice farmers in the country. This quantity satisfied only the planting of 662.25 hectares of land with seed broadcasting and at a seed rate of 100 kilograms per hectare. Ecosystem Development Organization (EDO, 2003) reported that only 3.96% of farmers were satisfied with the government seed source while 96.34% of farmers relied on other farmers for seed. Farmers were planting grains not seeds. Incidentally, most of our local varieties of rice exhibited poor tillering, easily affected by lodging which in turn led to low yield. Fajana (2002) reported that seed accounted for 50% of crop yield. The beginning of yield failure starts with planting of poor quality seed. Furthermore, participants in the Special Rice Project reported cases of seed admixture and fertilizer debagging (Edo, 2003).

The Federal and State Governments implemented the Special Rice Project (2000 – 2008). The general objectives of SRP include the promotion of the cultivation of improved upland and lowland varieties of rice. The specific objectives were to exhibit the potentials of improved seed utilization, expose farmers to seed production techniques, encourage use of herbicide in order to reduce drudgery and facilitate expansion of farm land, encourage fertilizer application, expose farmers to pest and diseases management techniques, increase rice yield and farmers income, attainment of food security, reduce poverty, create wealth and generate employment. It is, therefore, desirable to assess the effects of improved and quality inputs on boosting the production of rice in the country.

Even with imported rice plus the effort of local rice farmers, there is still a big shortfall in the amount required for the country. This provided opportunity for local rice producer's moreso that rice importation is banned.

Objectives of the study

The general objective of the study was the effects of the Special Rice Project (SRP) on the quality of inputs used for rice production in Kwara State while the specific objectives were to:

(i) describe the socio-economic characteristics of rice farmers in Kwara State;
(ii) determine respondents' perceived quality of rice production inputs; and
(iii) examine the changes in the yield and income of rice farmers due to their participation in SRP.

Hypotheses

1. There is no significant difference between rice yield of farmers before and after the introduction of SRP.
2. There is no significant relationship between quality of farm inputs used for rice production and rice yield.

METHODOLOGY

Edu and Patigi LGAs were chosen for this study because the two LGAs are responsible for the cultivation of over 90% of the rice produced in Kwara State. The study area is

also responsible for about 11% of the nation's total rice output (National Bureau of Statistics, 2002).

The target population for the study were the participating farmers in Special Rice Project (SRP) in the two Local Government Areas (LGAs). The study used a two stage random sampling technique. Stage one involved a random sampling of circles in each local government area. Out of the 15 circles in Patigi LGA, six circles were randomly selected while 3 circles were randomly selected out of the 9 circles in Edu LGA. Second stage involved the random selection of farmers from each circle based on the number of participating farmers. Seventy (70) participating farmers were, therefore, randomly selected from Patigi LGA while 32 participating farmers were randomly selected from Edu LGA. A total of 102 participants were used for the study. Data were collected by means of structured interview schedule. The structured interview schedule was designed to elicit information from the respondents on socio-economic characteristics such as age (years), marital status (respondents to indicate whether they are single, married, divorced, separated or widowed), educational attainment was measured in terms of acquisition of formal education, adult education or no formal education. The quality of seed was measured in terms of noticeable germination and seed admixture while fertilizer was measured in terms of adulteration, re-bagging and noticeable effects on crop growth and yield. Agro-chemicals were measured on noticeable adulteration, and effects on weeds and pests. The data collected were analyzed with percentages, frequencies, Pearson Correlation and t-test statistics.

RESULTS AND DISCUSSION

Socio-economic characteristics of rice farmers in Kwara State

The result showed that majority of participants in Special Rice Project 70 (68%) were within the age bracket of 31-50 years while 9 (8.8%) of participating farmers were less than 30 years of age. The mean age of participants in the Special Rice Project (SRP) was 40.36 years. Also 66.7% of the participants in the SRP have formal education. The average farm size of participants before and after the introduction of the SRP was 1.8 and 2.6 hectares respectively. The SRP participating farmers spent an average of 20.3 years in rice production. Both age and education are factors that determine uptake of new innovations and farm outputs. The participants are relatively younger and are of higher educational status. These factors combined made the youth to be venturesome and influence their participation in the Special Rice Project. This is in agreement with Akangbe (2003) who reported a similar age bracket for farmers in the study area. At this age bracket farmers are expected to be full of memory, wisdom, initiatives, and highly productive. Expected participating action increased from 40 years of age and gets to a peak at 55 years (Ekyong, 1988). Furthermore the findings are also in agreement with Pannele (1991) who listed factors affecting adoption of innovations for attainment of high crop production to include farm size, membership of cooperative, literacy level, age of respondents and perceived usefulness of recommendations. In addition Sharada (2000) reported that schooling provides externality benefits by increasing farm output, shifting the production frontier outwards.

Respondents' assessment of quality of inputs provided by* the *SRP to participating farmers

The result of the study as shown in Table 2, indicates that seed, herbicides, pesticide and fertilizer were the major inputs supplied to farmers that participated in the SRP. The result showed that 19.6% of the participants rated the seed used before they joined the SRP as of very good quality while 50% of them rated the seed received from the SRP as of very good quality. The quality of seed is based on the noticeable germination of the seed and seed admixture. Furthermore, 49% of the participants rated the herbicide used before they joined the SRP as of very good quality. Also 29.4% and 76.4% rated pesticide and fertilizer respectively after they joined the SRP as of very good quality while 19.6% and 58.8% of them rated pesticide and fertilizer used before the SRP as of good quality. Thus, the analysis showed that there is room for greater improvement in the supply of good quality seeds. Fajana (2002) and Cardwell (1994) emphasized the planting of good quality seed as it is responsible for about 50% of crop yield. The findings corroborated the report of Fajana (2002) that the supply of quality seeds were inadequate in the country. The findings also agreed with Eco-System Development Organization (EDO, 2003) which reported that there were many cases of seed admixture adulteration of chemicals and fertilizer debagging in many states of the federation that participated in the SRP.

Changes in the yield and income of rice farmers

The result of the study as shown in Table 3 indicates the rice produced by the participants in the SRP. The highest proportion of participants 90 (88.3%) produced 3 - 4 tonnes of paddy rice per hectare as against 19 .6% of them who were able to produce 3-4 tonnes before the implementation of the SRP. On the whole, participants produced an average rice yield of 3.34 tonnes per hectare as against 2.24 tonnes of paddy rice prior to joining the SRP. The yield per hectare of 3.34 tonnes of paddy rice is low as production level of 5.4 tonnes per hectare is attainable if agronomical practices (planting of improved seeds, optimum application of fertilizer (200 kilograms per hectare) and other production recommendations) are judiciously followed (USAID, 2005 and Nwanze, 2005). However, the level of output is an improvement over the participants average yield of 2.24 tonnes/hectare as well as Kwara State local farmers' harvest of 1.62, 1.84 and 2.3 tonnes/hectare for 1997, 1998 and 1999 respectively (Kwara ADP, CAYS report, 2010) prior to the introduction of Special Rice Project (SRP). This shows that quality of inputs influenced increase in rice production of the participants by 31.13% using year 1999 as base year. Or an increase of 61.7% over the national average yield of 1.3 tonnes/hectare or 32.9% increase in yield of participants prior to the introduction of the SRP.

Table 1: Socio economic characteristics of the rice farmers in Kwara State

Characteristics	Participants	
	Frequency	Percentage
Age (in years)		
< 30	17	16.7
31 – 40	42	41.1
41 – 50	28	27.5
Above 50	15	14.7
Gender		
Male	96	94.1
Female	6	5.9
Marital Status		
Single	12	11.8
Divorced/separated	-	-
Widowed	3	2.9
Married	87	85.3
Number of wives		
1	19	18.7
2	54	52.9
3	28	27.5
4	1	0.9
Number of children		
1 – 5	32	31.4
6 – 10	37	36.3
11 – 15	30	29.4
16 and above	3	2.9
Level of education		
No formal education	10	9.8
Adult education	4	3.9
Quranic education	20	19.6
Primary sch. Education	27	26.5
Junior secondary school	23	22.5
Senior secondary school	13	12.8
Post secondary school	5	4.9
Years spent in rice production		
2 – 10	24	23.5
11 – 20	26	25.5
21 – 30	35	34.3
31 – 40	11	10.8
41 and above	6	5.9
Farm size (Hectares)		
1 – 2	61	59.8
3 – 4	7	6.9
5 – 6	30	29.4
7 – 8	4	3.9
Average farm size (ha)	2.6	
Yield in tons/ Hectare		
1 – 2	10	9.3
3 – 4	90	88.2
5 – 6	2	1.9
Average yield (Tonnes)	3.34	
Income (N'000)		
□ 100	-	-
101-200	-	-
201– 300	50	49.1
301– 400	23	22.9
Above 400	29	28
Average Income (N'000)	338.7	

Source: Field Survey, 2009.

Table 2: Participants' assessment of quality of farm inputs received for rice production

After the implementation of Special Rice Project (SRP).									
N = 102									
INPUTS Characteristics	Frequency (Percentage) Very Good Freq (%)	Good Freq (%)	Neutral Freq (%)	Fair Freq (%)	Poor Freq (%)	Total Quality Score	Maximum Quality Score	% Quality Score	Level of Quality
Seed (Germination)	50(49)	44(43.1)	3(2.9)	2(1.9)	3 (2.9)	442	510	86.7	Very good
Herbicide	60(58.8)	37(36.3)	2(1.9)	1(0.9)	2(1.9)	466	510	91.3	Very good
Pesticide	30(29.4)	50(49)	10(9.8)	12(11.8)	0 (0.0)	374	510	73.3	Very good
Fertilizer	(76.4)	15 (14.7)	4(3.9)	3(2.9)	2(1.9)	461	510	90.3	Very good
Before SRP									
Seed (Germination)	20(19.6)	10(9.4)	7(6.9)	9(8.6)	56(54).9)	235	510	46	Fair
Herbicide	50(49)	35(34.3)	4(39)	7(6.9)	6(5.9)31)	422	510	82	Very good
Pesticide	20(19.6)	25(24.5)	10(9.8)	16(15.7)	(31(30.4)	333	510	65.9	Good
Fertilizer:	60(58.8)	25(24.5)	1(0.9)	9(8.8)	7(6.9)	428	510	83.9	Very good

Source: Field Survey, 2009

The result of study as indicated in Table 3 also revealed that participants' overall average income from rice was ₦338,700.00 per annum This was 61.5% above his income of ₦129,410/annum before they joined the SRP. Thus, participants were able to earn ₦28,225.00/month or ₦10,225 above the proposed minimum wage of ₦18,000 per month for Nigerian workers. USAID (2005) reported that ₦44,000 is required to cultivate one hectare of rice farm. It is obvious that participants' level of income after they joined the SRP placed them in a better position to increase farm size, procure and use optimally, farm inputs as at when due. Therefore, the SRP has the potential to contribute to Millennium Development Goal of poverty reduction by 2015.

Table 3: Yield of rice and income from participants' rice farms

Characteristics	After introduction of SRP		Before introduction of SRP	
Farm size (Hectares)	Frequency	Percentage (%)	Frequency	Percentage (%)
1 – 2	61	59.8	80	78.5
3 – 4	7	6.9	20	19.6
5 – 6	30	29.4	2	1.9
7 – 8	4	3.9	-	-
Average	2.6		1.8	
Yield in tonnes/ Hectare	Frequency	Percentage (%)	Frequency	Percentage (%)
1 – 2	10	9.3	77	75.5
3 – 4	90	88.2	20	19.6
5 – 6	2	1.9	5	4.9
Average yield (tones)	3.34		2.24	
Income (N'000)	Frequency	Percentage (%)	Frequency	Percentage (%)
□ 100	-	-	30	29.4
101-200	-	-	62	60.8
201– 300	50	49.1	10	9.8
301– 400	23	22.9	-	-
Above 400	29	28	-	-
Average Income (N'000)	338.7		129.41	

Source: Field Survey, 2009

Results of hypotheses tested

The results of the hypotheses tested and shown in Table 4 indicate that there is a significance difference in the quality of farm inputs used before and after the SRP was implemented ($t = 1.853$, $P \leq 0.05$). Also The Pearson Correlation Moment Statistics established positive, linear and significant relationship between qualities of farm inputs and farmers' rice yield ($r = 0.562$, $P \leq 0.05$) 5). Thus, any attempt to improve the quality of farm inputs (seed, herbicide, pesticides etc) will have a corresponding increase in farmer's output with attendant increase in farmer's income. This agreed with the findings of Nwanze, 2005 and USAID, 2005 that it is possible to attain rice yield of 5.4 tonnes per hectare provided quality farm inputs are used. The result also agreed with finding of Cardwell (1994) and Fajana (2002) that quality seeds account for 50% of yield of crops.

Table 4: Sample t-test analysis for difference between participants' average rice yield before and after and implementation of special rice project

Variables	T	Df	F (ss)	Remarks
Quality of inputs service	1.853	102	.003	Significant difference exists

Source: Field Survey, (2009)
Significant at $p \leq 0.05$ level.

Table 5: Analysis of relationship between quality of inputs and rice yield using Pearson Correlation Statistics

Variables	r	P	Remarks
Quality of Inputs	.562	.013	Positive, linear and significant relationship exists

Source: Field Survey, (2009)
Significant at $p \leq 0.05$ level

CONCLUSION

The Special Rice Project initiative influenced access to quality inputs by participants and resulted in operation of larger farm sizes, higher yield and income of the beneficiaries above what they produced or earned before they joined the SRP. It is, therefore, concluded that the SRP arrangement has the potential to guarantee access to quality inputs by farmers and by implication to guarantee optimum rice yield on farmer's field as well as sustainable income for the farmers. There is the need to improve on the quality of inputs made available to the participants. In addition, the activities of SRP have to be expanded to cover all categories of farmers if the nation's rice requirement is to be met.

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