Participants Perception of Special Rice Project Activities on Rice Production in Kwara State, Nigeria

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ABSTRACT

The study was undertaken in Edu and Patigi Local Government Areas (LGAs) of Kwara State to characterize activities of Special Rice Project (SRP), socio economic characteristics of the participants in SRP, determine participants' perception of relevance of SRP activities and identified changes in yield of rice due to SRP activities. Through a two - stage random sampling technique, 102 participants in SRP were randomly selected and data collected by means of structured interview schedule. Some of the SRP activities include technology demonstration, inputs supply, financial assistance and provision of information on land preparation. The study showed that 41.1% of the participants were in the age bracket of 31-40 years while 66.7% of them possessed one form of formal education. Participants in SRP cultivated an average farm size of 2.6 hectares and recorded average yield of 3.34 tonnes/hectare. A significant difference exists between average rice yield of participants before and after the introduction of SRP (3.843, $P \leq 0.05$). Participants recorded income of N338, 700.00 per annum or N28, 225.00 per month. Based on the empirical evidence of this study, the Special Rice Project activities increased the rice yield of the beneficiaries; therefore, scope of SRP should be expanded to cut across all rice farmers in the country.

BACKGROUND TO THE STUDY

Nigeria's food habit has changed in favour of rice consumption. Consequently, Nigeria pays a soaring foreign exchange bill on rice importation. This trend is not sustainable and cannot continue because Nigeria is well endowed in rice production. The national target for rice production is 3.5 million tonnes of milled rice per annum; this will require production of 6.3 million tonnes of paddy rice (Ingawa, 2008). However records of rice output (Federal Department of Agriculture, 2004) showed a national rice production of 2.96 million tonnes of paddy rice cultivated on an area of 1,595,840 hectares This gave a yield of 1.82 tonnes per hectare with a total milled rice of 1,480, 168 tonnes or a recovery rate of 51 percent. In the same year, the national demand for milled rice was estimated at 3.0 million tonnes per annum . There was therefore a deficit of 1,519,812 tonnes of milled rice required to meet local demand. The National Bureau of Statistics (2004) reports that the national average yield of rice is 1.3 tonnes/hectare. This output is far below the realizable output of 5.4 tonnes per hectare if research recommendations, especially planting of quality seeds and other agronomical practices are judiciously and orderly followed (USAID, 2005). According to Fajana (2002) a total of 66.25 tonnes of improved rice seeds were available in the whole country. Eco-Systems Development Organization (EDO, 2003) reports that only 3.96% of the farmers were satisfied with the government seed source, while 96.34% of farmers rely on other farmers for seed. This is due to the fact that high quality seeds were inadequate and very expensive. Incidentally most of local varieties of rice exhibit poor tillering which affects yield tremendously. The lowland varieties are easily affected by lodging which in turn led to low yield. Furthermore, ECO (2003) revealed that participants in SRP reported cases of seed admixture and fertilizer debagging.

Globally. the average arable land per farmer is 1.28 hectares. In Nigeria the average is about 1.08 hectares (NEST, 1991, World bank, 1996). However, Ingawa (2005) reports that average farm size per farmer in Nigeria is 0.57 hectares (Nigerian's 70million farmers operating 40 million hectares) which shows a decline of average farm size per farmer by about 50% within a period of about ten years. Low productivity of farmers may arise from small farm size; inadequate use of farm inputs etc, it is also expected that with the evidence of achievement of the National

Agricultural Research Institutes in developing high yielding, early maturing, and disease resistant varieties of rice, locally produced rice should satisfy the demand for local rice consumption. More so that Nigeria is capable of producing 10 million tonnes of paddy rice annually but production level is about 5 million tonnes per annum (Nwanze,2010).

The sub-Saharan African, (SSA) where Nigeria belongs is the only developing region in the world where hunger is worsening. The absolute number of hungry Africans has increased substantially with population growth, with 88 million in 1970 and 200 million in 1999-2001 (Sarah, 2005). Even with this established under nourishment, the nation's population is increasing at 3.6% while food production growth rate is 2.4% annually. This established a 40% gap between population growth and food production growth rate. Consequently, FAO (2001) reported grain output has to be increased by 40% to meet local requirement estimated at about 2440 kilo calories per person per day. . However, rice farmers in Nigeria are generally poor primarily because the production resources are inadequate to support rice production in commercial quantity. This created a gap between local demand (3.5 million tonnes in 2005) and local supply (500.000 tonnes) per annum with the effect that enormous resources had to be expended on importation at the detriment of locally produced rice (Ingawa, 2005).

Nigeria thus become a major rice importer in the world market. Value of rice imports rose steadily from N187.7, N203, N305 and N900 billion in 2001, 2002, 2003 and 2004 respectively (Adamu, 2005) while a total of N1.3 trillion was expended to import close to 2.5 million tonnes of rice in 2007 alone (Sayyaid, 2008).). Rice importation bill represents 25% of the nations import bills.. Nwanze (2005) reports that Nigeria has the potential to reduce import bills to 5 percent. Ingawa (2008) reports that the increase in the world price of rice is a blessing to Nigeria rice farmers, hoping that the farmers will take advantage of the price to increase rice production when all resource for its production abound in the country. Kwara State alone has about 400,000 hectares of land suitable for rice production out of which 50,050 hectares (highest to date) were cultivated in 2006 (Kwara ADP, CAYS, 2008). Even with imported rice, plus the efforts of the local rice farmers, there is a big shortfall in the amount required for sustenance of life in the country. This provides opportunity for local rice production, more so that rice importation in banned. However the ban is loosely enforced.

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, attainment of food security, reduce poverty, create wealth and generate employment. 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, increase rice yield and farmers income, encourage fertilizer application, expose farmers to pest and diseases management techniques, expose farmers to processing and storage techniques, teach farmers cultural practices especially attainment of optimum plant population. The SRP activities include technology demonstration using Small Plot Adoption Techniques (SPAT), Management Training Plot (MTP) and On Farm Adaptive Research (OFAR). Exposure of farmers to methods of land preparation, herbicide and pesticide use and economic returns on rice production. The SRP also provided price information, linked farmers with market (buyers) and provided the participants with financial assistance. Participants also were exposed to seed production technology, processing and storage techniques, training and farm visit. It is therefore desirable to assess the relevance of SRP activities to boost the production of rice in the country in order to satisfy SRP objectives.

OBJECTIVES OF THE STUDY

The general objective of the study was to assess participants perception of Special Rice Project activities on rice production in Kwara State.

The specific objectives were to:

- describe socio economic characteristics of participants in SRP
- determine perception of participants on relevance of SRP activities
- determine effects of SRP activities on yield of rice

METHODOLOGY

Kwara State is naturally endowed for rice production. It falls within North Latitude $11^0\ 2^1$ and $11^0\ 45^1$ and sandwiched between Longitude $2^0\ 45^1$ and $6^0\ 40^1$ east of Greenwich Meridian. 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. 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 (FDA, 2004).

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 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 and analysed with percentages, frequencies and t-test statistics.

RESULT AND DISCUSSION

Socio-economic characteristics of the participants

The result of the study as indicated in Table 1 shows that 16.7% of the participants were less than thirty years of age. Furthermore, 41.1% of the participants were in the age bracket of 31 – 40 years. In addition, the table also indicates that 66.7% of the participants possessed one form of formal education. Age is a determinant of venturesome. This influenced involvement of participants in government programmes such as Special Rice Project. While higher level of educational attainment by the participants gave them the advantage of awareness of innovations on agriculture via communication channels (radio, television or print media (Tiwari, 2005). Furthermore, 85.3% of participants were married and 52.90% of them had 2 wives each. However, 36.3% of participants had 6-10 children. The polygamous lifestyle in the study area is understood since farming is the primary occupation of the people in the study area, the wives and the children serve as a cheap source of labour for rice production. However 94.1% of participants in SRP were males while 5.9% of the participants were females. This indicates that females were inadequately involved in SRP.

TABLE 1
Socio- economic characteristics of 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
No formal education	10	9.8
Adult education	4	3.9
Quranic education	20	19.6
Primary sch. Education	27	26.5
Junior secondary sch.	23	22.5
Senior secondary sch.	13	12.8
Post secondary school	5	4.9
Years 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

Respondents' perception on the relevancy of SRP activities

In order to ascertain the importance or relevance of SRP activities to rice production, the participants (only) in SRP were requested to score the activities as highly relevant, moderately relevant and less relevant. The result of the study as indicated in Table 2 shows that 67.6% and 70.5% of the participants rated the use of Small Plot Adoption Techniques for result demonstration on optimum plant population and varietal trials (improved rice seed and local (unimproved rice seed) as less relevant. While 36.3% and 33.3% rated Management Training Plot (MTP) as highly relevant for result demonstration of technical messages. The preference of the use of MTP to SPAT might be due to the fact that MTP is larger than SPAT (5 square metres) and thus made the messages

passed to be seen and appreciated by the farmers. The percentage relevance score for On Farm Adaptive Research (OFAR) was 68.3%. Participants rated OFAR as highly relevant. OFAR is essentially a stage in technological development. The implication is that the involvement of farmers at this stage made it easy for them to identify and select appropriate varieties of rice that meet their needs and that of the consumers. About one-half (49.1%) of the participants rated use of herbicide as highly relevant while 43.1% of participants rated pesticide use as moderately relevant. In addition 54.9% of the participants rated information on economic returns on rice production as highly relevant.

The results also indicate that participants rated SRP activities on land preparation (73.85%), herbicide application (76.79%), pesticide application (67.9%) and provision of information on economic return on rice production (70.26%) as highly relevant. Furthermore 60.8% of participants rated linkage with buyers as highly relevant and more than one–half of the participants (52.9%) acknowledged price information on rice as highly relevant. These activities assisted farmers to dispose their produce. In addition, 54.9% of the participants valued their exposure to seed production techniques as highly relevant. Direct seed production by farmers will minimize scarcity of good quality seeds and accelerate diffusion of good quality seed in the country. Fajana (2002) reported inadequate supply of good quality seeds in Nigeria. In addition participants rated the use of extension leaflets as moderately relevant. However, 67.6% of participants rated the pest and disease control techniques in the leaflets as highly relevant. Pest and disease are some of the problems of rice production. All participants (100%) rated financial assistance offered by SRP as highly relevant. The implication is that SRP should continue to assist farmers to access credit facilities to enable them carry out their farm operations as at when due. On the whole, 38.56% participants rated all the SRP activities as highly relevant, 34.12% as moderately and 27.32% of the activities as less relevant. The implication is that SRP activities are relevant to rice production. Therefore the activities should be strengthened if rice production is to be increased in the country.

Effects of SRP activities on participants' rice yield

The result of the study as shown in Table 3 indicates the rice produced by the participants in SRP. The highest proportion of participants (88.3%) produced 3 - 4 tonnes of paddy rice per hectare as opposed to 19.6% who were able to produce 3-4 tonnes before they joined 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 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 Nwaze, 2005). However , the level of output is an improvement over the participants average yield of 2.24 tonnes 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, 2008) prior to the introduction of Special Rice Project (SRP). This shows that the activities of SRP influenced increased 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 reported by Federal Department of Agriculture (FDA,2004) or 32.9% increase in yield of participants prior to the introduction of SRP.

The result of study as indicated in Table 3 also reveals that participants' overall average income from rice was ₦338, 700.00 per annum or 61.5% above participant income of N129,410 before the introduction of SRP. Thus, participants were able to earn N28, 225.00/month or N10, 225 above the proposed minimum wage of N18,000 per month for Nigerian workers. USAID(2005) reported that N44,000 is required to cultivate one hectare of rice farm .It is obvious that participants level of income placed them in a better position to increase farm size, procure and use optimally, farm inputs as at when due.

TABLE 2
Summary of relevance of SRP activities to participating farmers

Activities	Frequency %						
	Highly Relevant (3) Freq (%)	Moderately Relevant (2) Freq (%)	Less relevant (1) Freq (%)	Total relevance	Maximum relevance	% relevance	Level of relevance
SPAT							
-Optimum plant population	13(12.1)*	20(19.6)	69(67.6)	148	306	48.36	Less relevant
- Varietal trials (local and improved)	10(9.8)	20(19.6)	72(70.58)	142	306	46.4	Less relevant
OFAR							
- Variety trials Faro 43, 44, 52	34(33.3)	39(38.2)	29(28.4)	205	306	68.3	High
MTP							
- Optimum plant population	37(36.3)	42(41.2)	23(22.5)	216	306	71.24	High
-Variety trials (local and improved)	34(33.3)	48(47.1)	20(19.6)	216	306	71.24	
Farmers Field Days Demonstration on use of:							
- Herbicide	35(34.3)	50(49)	17(16.7)	226	306	72.5	High
- Pesticide	32(31.4)	50(49)	20(19.6)	218	306	71.9	High
- Rice processing techniques	16(15.7)	43(42.1)	43(42.1)	175	306	57.8	Moderate
- Storage techniques	6(5.8)	16(15.7)	80(78.4)	130	306	42.5	less relevant
-Exhibition of impr rice seeds	64(62.7)	36(35.3)	2(1.9)	266	306	87.6	High
- Feed back from famers	18(17.6)	39(38.3)	45(44.1)	177	306	57.6	Moderate
Radio Topics:							
- Land preparation	40(39.2)	44(43.1)	18(17.6)	226	306	73.85	High
- Herbicide	50(50)	33(32.3)	19(18.6)	235	306	76.79	High
- Pesticide application	31(30.4)	44(43.1)	27(26.5)	206	306	67.9	Very relevant
- Economic returns on rice production	37(36.3)	39(38.2)	26(25.5)	215	306	70.26	High
Television Programme:							
- Land preparation	30(29.4)	44(43.1)	28(27.4)	206	306	67.32	High
- Herbicide application	33(32.3)	46(45)	23(22.5)	214	306	69.9	High
- Pesticide application	20(19.6)	28(27.4)	54(52.9)	230	306	75.2	High
- Econ. returns on rice production	56(54.9)	2524.5)	21(20.6)	133	306	44.3	Less relevant
Linkage With Buyers	62(60.8)	36(35.3)	4(3.9)	200	306	66.66	High
Price Information	54(52.9)	25(24.5)	23(22.5	181	306	59.1	Moderate
- Exposure to seed production technologies	56(54.9)	37(36.3)	9(8.8)	195	306	63.7	Moderate.
Extension Leaflets on:							
- Rice production tech.	47(46.1)	32(31.4)	23(22.5)	195	306	59.15	Moderate
- Processing techniques	46(45)	33(32.3)	23(22.5)	181	306	59.15	Moderate
-Pests and disease control	69(67.6)	20(19.6)	13(12.7)	191	306	62.4	Moderate
- Storage techniques	32(31.4)	51(50)	19(18.6)	185	306	60.45	Moderate
Financial Assistance:							
- Provision of credit	102(100)	-	-	306	306	100	High
Total relevance score	**1062**	**940**	**752**				
Maximum score	**2754**	**2754**	**2754**				
Percentage score	**38.56**	**34.12**	**27.32**				

KEY
35% – 49% = Less Relevant
50% – 65 = Moderate
66% and above = High

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**	

TABLE 4
t-test analysis for significance difference between participants rice yield before and after the introduction of SRP.

Variable	Df	t	Level of significance	Remarks
Yield of Rice	2	3.843	000	Significant difference exists

$p<0.05$ level

Result of Hypothesis

The result of the hypothesis shown on Table 4 (above) revealed that there is a significant difference between rice yield of SRP participants before and after SRP was introduced($t = 3.843$, $P \leq 0.05$). This might be due to the fact that SRP participants were able to access production resources which enable them to operate larger farm size. They were exposed to improved agronomic practices..

CONCLUSION

The study has shown that Special Rice Project initiative has led to the operation of large farms, higher yield and income to participating farmers. The study also showed that most of the activities of SRP were provision of credit, price information, linkage with market outlet, land preparation, seed production technique, processing techniques, On Farm Adaptive Research, Management Training Plot (MTP) for result demonstration, exhibition of improve rice seeds, herbicide, pesticide, fertilizer supply and information on economic returns on rice production were found to be relevant to rice production by the participating farmers.

RECOMMENDATION

SRP activities should be strengthened as the activities showed potential to increase rice yield and generate better income for the participants. In addition the scope of the SRP activities has to be expanded to cover all categories of farmers if the nation's rice requirement is to be met.

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