ADOPTION OF NERICA 1 RICE VARIETY AMONG FARMERS IN JALINGO LOCAL GOVERNMENT AREA OF TARABA STATE, NIGERIA

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ABSTRACT

The study examined the adoption of NERICA 1 Rice variety among farmers in Jalingo Local Government Area of Taraba State, Nigeria. Interview schedule were administered to 128 respondents who were randomly selected from the four wards that were purposively selected. The data were analysed using descriptive statistics. The study revealed that majority of the respondents were less than 40 years of age, who had less that 3 hectares of farm size. The study shows that the level of adoption of NERICA 1 Rice variety was low. The most important reasons for adoption of the NERICA 1 variety was early maturity as identified by the respondents. The most glaring constraint affecting the adoption of NERICA 1 Rice variety was lack of credit facilities. Policy recommendations include among others provision of inputs (including agricultural credits) at the right time and the encouragement of farmers to form NERICA/Rice variety cooperatives with a view to improving the food insecurity in the study area.

Keywords: *Adoption, NERICA 1 variety, Jalingo, Taraba state.*

INTRODUCTION

Rice is an annual crop which belongs to the family *graminaea* and *genus Oryza*. It is the seed of monocot plant. *Oryza sativa*, as a cereal grains is the most important staple food for large part of the worlds human population. FAO (2006) reported that rice is the second highest worldwide production after maize. During the past three decades the crop has been in a steady increase in demand and its growing importance is evident given its important place in the strategic food security planning policies of many countries (Normal and Otoo, 2006).

The challenges faced by countries as regards rice production however differs from one country to the other in terms of population, the preference attached to the commodity in lists of household menu, natural endowment for expanded production and the productivity of the rice farm (WARDA 2003; Ajayi, Agunbiade, Oladimeji and Semon 2000). FAO (2000) opined that, globally, annual rice production needs to increase from 586 million metric tons in 2001 to 756 million metric tons by 2030. Sources of such increase are identified as including; increased acreage under high yielding varieties; developing hybrid rice and evolving a more appropriate and efficient crop, soil, water, nutrient management technologies and accelerate technology transfer.

All these factors no doubt go a long way in defining the potentials of a country for expanded rice production. Although the rice technology of the 1960s and 70s focused on irrigated rice, farmers in the upland were not forgotten researchers produced cultivars adapted to poor soil and with improved blast resistance and drought tolerance (Chikoye, Kamara and Omoigui, 2010). NERICA is a research result of West Africa Rice Development Agency (WARDA), it is a new upland rice variety that perfectly adapt to the rain fed upland ecology in Sub - Saharan Africa where small holder farmers lack the means to irrigate or apply chemical fertilizer or pesticide (WARDA), 2006). The NERICA 1 rice variety seeds offers hope to millions of poor farmers and countless others who struggle in urban square, spending most of their meager income on rice (Catling and Alam, 1983; Caulibaly, Akator and Ata, 2006). Today, rice is no longer a luxury food to millions of Nigerians but has become the cereal that constitutes a major source of calories for the rural and urban poor with demand growing at an annual rate of 5% (WARDA, 2003).

NERICA 1 rice variety has good advantages over the much imported rice widely available in African local markets. It has early maturity rate of 50 - 70 days, resistance to local stress (blast, stem borer & termite) and high quality of protein content (25%), it also has a good taste and non - shattering (WARDA,

2006). The Nigerian government is promoting the adoption of the new rice varieties to help boost rice production. Thus, it was found imperative to assess the adoption of the new rice variety in Jalingo Taraba State, Nigeria. The provision of food to meet the teeming population of Nigeria has been a policy goal of the successive governments in the country. However, the country has not been able to produce enough rice for domestic needs of her teeming population, thus creating a gap between domestic demand and domestic supply (Lontgau, 2003). The West Africa Rice Development Agency has introduced new varieties of rice. However, farmers were yet to sufficiently adopt the new varieties (WARDA, 2003). Many studies have been conducted on adoption of rice in Nigeria (Longtau, 2003; Fabiyi et al, 2006). However, there has not been any empirical study on the adoption of NERICA I rice variety among farming households in Jalingo local government area of Taraba state, Nigeria. Therefore, the need to embark on this study. To this end, the study has attempted to provide answers to the following questions:

(i) What were the socio - economic characteristics of the respondents?
(ii) What was the level of adoption of NERICA I Rice variety in the study area?
(iii) What were the possible reasons for adoption of NERICA I Rice variety among respondents?
(iv) What were the constraints to adoption of NERICA I Rice variety among respondents?

The broad objective of the study was to examine the adoption of NERICA I Rice variety among farming households in Jalingo local government area of Taraba State, Nigeria. The specific objectives were to:

(i) Identify the socio - economic characteristics of respondents
(ii) Determine the level of adoption of NERICA I Rice variety
(iii) Examine the possible reasons for adoption of NERICA I Rice variety among respondents and
(iv) Assess the constraints to adoption of NERICA I Rice variety among respondents.

METHODOLOGY

The study was conducted in Jalingo local government area of Taraba State, Nigeria. Jalingo has a land mass of about 3,871km^2 with a population of 1239,845 people (NPC, 2006). The study area has tropical type of climate comprising dry and rainy seasons. Data for the study were mainly obtained

through primary sources which were collected through the use of structural interview schedules. Multi-stage random and purposive sampling technique was employed in the study. At the first stages, four wards were purposively selected on the predominance of rice production. At the second stage four villages were selected at random. At the third stage eight rice farmers were selected at random. Therefore, the sample size for the study was 128 who served as respondents. The analytical tool used for the study was descriptive statistics such as frequency distribution, percentages and mean scores by Likert - type rating. In general, it is recognized that quantification of adoptions of natural resources is elusive since partial and incremental adoption by farmers makes precise measurement difficult (Ajayi, 2007). In this study farmer's level of adoption of NERICA I Rice variety measurement was based on Muneer (2008), adoption continuum on which farmers occupy positions depending on the extent to which they have taken different steps towards full adoption of the technology particularly the area of the field (farm land) denoted to NERICA I Rice variety. Consequently, an adoption scale that ranges from zero to four was used as follows.

% of Field	(Farm Land)
75	4 points
50 - 74	3 points
25 - 49	2 points
1 - 24	1 point
0	0 point

The scores obtained by respondents on questionnaire items were weighted in order to get their mean scores. Weighted in the sense that the respondents scores against each questionnaire item multiplied by products were added together on each column in order to find out the average (mean scores) using the number of respondents involved. The mean scores obtained were interpreted as follows:

Mean Scores Range	Interpretation
3.56	very high
2.56 - 3.55	high
1.56 - 2.55	low
0.56 - 1.55	very low
0.55no	adoption

RESULTS AND DISCUSSION

Socio- economic Characteristics of the Respondents: The socio - economic characteristics of the respondents considered include Age, Gender, Level of Education, Marital Status, Farming Experience and House - Hold size. Table 1

revealed that majority of the respondents were less than 40 years of age, hence were most likely to adopt the new rice variety than the elderly. Younger farmers are more flexible and adopt improved technologies easier than the elderly. This agrees with the finding of Muneer (2008) who reported an inverse correlation between age and the adoption of innovations.

The table also reveals that 60% of the respondents were male, while 40% were female. This indicates that the adoption of NERICA 1 Rice variety is more among the male gender than the female. This might be attributed to fact that household heads are responsible for major production decisions, hence agreeing with (Johnson, Dingkuhn and Jones 1998). The mean household size is about 8 persons. This implies that majority of the respondents have relatively large household size which may necessitate the adoption of the improve rice variety for higher yields. This is important because increased rice output has the potentials to raise the living condition of households and reduce the spread of poverty.

It was further revealed that 30% of the respondent's attained primary education, 20% attained secondary education, while only 2.5% attained tertiary education. However, 47.5% of the respondents did not have any formal education. It can be concluded that majority of the respondents have attained one form of formal education or the other, hence they are more likely to accept the new rice variety than the uneducated ones. Muneer (2008) reports that educated farmers are more innovative and knowledgeable. The study revealed that majority of the respondents have farm size of less than 3hectares, while only 4.69% of the respondents had farm size of more than 6hectares. The result has therefore revealed that majority of the adopters of the NERICA 1 Rice variety are involved in small scale production.

Respondents level of adoption of NERICA 1 Rice Variety: The level of adoption of NERICA 1 Rice variety as identified by respondents was shown Table 2. The results indicated that the level of adoption of NERICA 1 Rice variety was low. This could be as a result of either low level of accessibility of the technology to respondents or as a result of economic factors. That is the extra - cost of technology which some farmers could not afford.

Reasons for adoption of Nerica 1 Rice Variety by respondents: The possible reasons for adoption of NERICA 1 Rice variety among respondents were presented on table 2. The results indicated that the most important characteristics of NERICA 1 Rice variety that influenced its adoption were early maturity. This could be as a result of the fact that most of the respondents might be small scale

farmers who could want to harvest their produce early for domestic consumption and as well to sale with a view to purchasing other domestic necessitates of their households. The second most important characteristics of the NERICA 1 Rice variety was insect and disease resistance. This could be due to the fact that local varieties might be destroyed by insects and diseases, because they may not strong resistant characteristics. Thus, the respondents reasons for adopting the NERICA 1 Rice variety which proved to have resistant characteristics was storage quality. The implication could be that the respondents had no capacity to store for longer periods.

Constraints affecting the adoption of NERICA 1 Rice Variety: Table 3 shows that the most glaring constraint affecting the adoption of NERICA 1 Rice variety among the respondents was lack of credits facilities (40.62%), and poor extension services (32.03%). The other constraint of poor market information (29.69%) was the least important. The implication could be that the constraints might limit the level of adoption of NERICA 1 Rice variety in the study area.

CONCLUSION AND RECOMMENDATIONS

The study revealed that the level of adoption of NERICA 1 Rice variety among respondents was low. The results equally showed that the major constraints affecting the adoption of the variety was lack of credit facilities and high cost of NERICA 1 Rice variety in the study area. Based on the findings of the study, the approaches to foster the adoption of NERICA 1 Rice variety were as follows; -

- Adequate sensitization should be made to elicit responses that would lead to improved adoption of the NERICA 1 Rice variety with a view to improving food security in the study area.
- Adequate provision of inputs (including agricultural credits) should be provided at the right time.
- NERICA 1 Rice variety seeds should be highly subsidized with a view to making it more affordable by small scale rice farmers.
- Extension services of the state agricultural development
- NERICA 1 Rice variety cooperatives should be formed with a view to improving the food insecurity in the study area.

Table 1: Distribution of respondents by Socio - economic characteristics (N = 128)

Variable	Frequency	Percentage
Age (Years)		
29	29	22.66
30 - 39	41	32.03
40 - 49	45	35.16
50	13	10.16
Gender		
Male	77	60.16
Female	51	39.94
Family Size (No)		
5	32	25.00
6 - 10	61	47.60
11	35	27.40
Educational Level		
No - formal education	28	30.00
Primary education	26	20.00
Post primary education	3	02,00
Tertiary education	61	47.50
Farm Size (ha)		
3	109	85.15
3 - 6	13	10.16
6	06	4.69

Source: Field survey, 2010

Table 2: Distribution of respondents based on their reasons for adopting NERICA 1 Rice variety (N = 128)

Characteristics	Frequency*	Percentage*
Early maturity	26	24.52
Yield/unit area	23	21.70
Non - shattering	21	19.81
Tillering capacity	22	20.75
Seedling vigour	16	15.09
Storage quality	14	13.21
Grain size	19	17.21
Insect & disease resistance	25	23.59
Lodging resistance	20	18.87

Source: Field Survey, 2010 * Multiple response exists

Table 3: Distribution of respondents by constraints affecting the adoption of NERICA 1 Rice variety (n = 128)

Characteristics	Frequency*	Percentage*
Lack of credit facilities	52	40.62
Poor market information	38	29.69
High cost of NERICA 1 Variety	48	37.50
Poor extension services	41	32.03

Source: Field Survey, 2010 * Multiple response exists

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