

THE ROLE OF WOMEN IN THE PRODUCTION AND PROCESSING OF RICE IN IVO L.G.A OF EBONYI STATE.

Mbah, S.O.

Federal College of Agriculture, Ishiagu P. M. B. 7008, Umuahia, Abia State *E-mail:*
sam.uche@yahoo.com

ABSTRACT

The study examined the role of women in the production and processing of rice in Ivo L.G.A of Ebonyi State. Information was gathered from 120 women rice farmers in the study area and data were collected on the extent of involvement of women farmers in the production and processing of rice; examined the socio-economic characteristics of women engaged in rice production and processing in the area; determined the socio-economic factors affecting the quantity of rice produced by women in the area and identified the major production constraints. Both descriptive statistics and multiple regression analysis were used to analyse the data. The results showed that most (66%) of the these women rice farmers in the area fall within the highly reproductive age-range of 30-50years and also they play very important roles in rice production activities; including processing and marketing. The result further revealed that almost all the socio-economic variables understudy positively influenced the quantity of rice produced. The identified constraints include: use of unimproved varieties, high cost of labour, lack of infrastructural facilities, "inadequate capital and land fragmentation". These constraints were responsible for the smallness of their farms. With the increasing demand for rice, there is need to overcome the identified constraints in the study area.

Keywords: Women, rice production, processing, marketing, production constraints.

INTRODUCTION

Women farmers play vital role in food production, processing and marketing in Nigeria (Rahman et al, 2004). They produce 60 to 80 percent of food in the country (Buckland and Haleegoah, 1996). They also provide about 60 to 80 percent of agricultural labour force and contribute to household well-being through their income-generating activities (Mgbada, 2000; Rahman and Usman, 2004).

Right from the onset, women have been the innovators in the business of production and processing of rice. Despite these important roles women farmers play in agricultural production, it is observed that research and documentation on their activities is very limited (Ezumah and Didomonica, 1995). The major problem being that their activities have not been honoured and respected; in spite of the fact that they have remained the fillers of the nation's food basket. Thus, the invaluable contributions of these rural women farmers to agricultural production (including rice production) have been marginalized and undervalued in conventional agriculture, economic analysis and policy formulation (Jiggins, et al, 1997). In most parts of the world (Abiola and Omoabugan, 2001) noted that the contributions of women to the issues of crop production are being relegated to the background.

In most regions, women small-holder farmers lack access to adequate productive resources. However, women's access to critical productive resources and services suffers more limitation

due to various socio-economic factors. Their control over resources, such as land, credit, agricultural inputs, education, training, extension services, research and appropriate technology must therefore be seen within a broad gender and socio-economic context (Carney, 1992). However, within a community, there can be many different views on how resources should be used. These differences often fall along gender lines of age, ethnicity, caste, class, etc. A community using traditional farming methods may divide resources among the members of the community based on customary laws or traditions.

THE PLACE OF RICE IN THE NIGERIAN ECONOMY

Nigeria is the most populous country in Africa, with a population of over 140 million people (courtesy of 2006 census provisional figures). Its economy is dominated by agriculture (rice farming inclusive), which accounts for about 40% of the Gross Domestic Product (GDP) and two-thirds of the labour force. The external sector is dominated by petroleum, which generates about 95% of Nigeria's foreign exchange earnings, while agriculture contributes less than 5%. Nigeria is currently pre-occupied with the change of diversifying the structure of its economy (WARDA, 1991).

Nevertheless, the food sub-sector of Nigerian agriculture parades a large array of staple crops made possible by the diversity of agro-ecological production system. The major food crops comprise cereals including sorghum, maize, millet, wheat, rice, etc; tubers (yam, cassava, etc). Legumes (groundnut, cowpea, etc); and others including vegetables.

Of all the staple crops, rice has risen to a position of prominence. Since 1970s, rice consumption in Nigeria has increased tremendously at about 10% per annum due to changing consumer preferences. Domestic production has never been able to meet the demand, leading to considerable imports which today stands at about 1 million metric tonnes yearly. The imports are procured on the world market, with Nigeria spending over US\$300 million annually on rice import alone.

Table 1: Rice Trend in Nigeria and the rest of West Africa (000' Kg)

Indicators	Trend 61-75	Trend 75-83	Trend 83-95	Trend 95-99	Mean 61-75	Mean 76-83	Mean 84-95	Mean 96-99
N i g e r i a (0 0 0 ' K g)								
Production (Kg)	8.8	22.0	8.6	2.1	332,800	806,222	2,306,794	525,307
Import (Kg)	7.4	53.6	-2.2	24.6	2,036	420,756	334,974	525,307
Self-reliance ratio	0.0	-2.3	2.9	-3.3	99%	54%	77%	79%
Total Consumption	9.8	21.6	6.4	15.7	178,199	833,640	1,599,609	2,248,113
Per Capita Consumption	7.0	18.3	4.6	12.8	3	12	18	22
W e s t A f r i c a w i t h o u t N i g e r i a (0 0 0 ' K g)								
Production (Kg)	3.7	-0.8	3.6	5.2	1,779,376	2,344,073	2,822,635	4,041,384

Import (Kg)	3.0	21.6	4.2	3.3	416,183	894,073	1,760,884	2,107,146
Self-reliance ratio	0.0	-7.4	0.0	6.2	65%	56%	42%	50%
Total Consumption	3.8	7.5	3.8	5.8	1,178,753	1,958,821	2,973,885	3,985,721
Per Capita Consumption	1.3	4.7	0.6	1.7	21	27	30	34

Source: Computed from FAO-Agrostat (1999).

The demand for rice has been increasing at a much faster rate in Nigeria than in other West African Countries since the mid 1970s as seen in the table above. For instance, during the 1960s, Nigeria had the lowest per capita annual consumption of rice in the sub-region (average of 3kg) (Akpokodje, et al, 2001). Since then, Nigerian per capita consumption levels have grown significantly at 7.3% per annum. Consequently, per capita consumption during the 1980s average 18Kg and reached 22Kg in 1995-1999. The rising demand was partly the result of increasing population growth, increase in income levels, rapid urbanisation and associated change in family occupational structure (Tunji, 2000). Despite the catching up of per capita consumption with respect to the rest of West Africa, Nigerian consumption levels still lag behind the rest of the sub-region (34kg in 1995-1999). Consequently, the above average growth rates in Nigerian per capita rice consumption are likely to continue for sometime (Akpokodje, et al, 2001).

A combination of various factors seems to have triggered the structural increase in rice consumption. Like elsewhere in West Africa, urbanisation appears to be the most important cause of the shift in consumer preferences towards rice in Nigeria (WARDA, 1991). Rice is easy to prepare compared to other traditional cereals, thereby reducing the chore of food preparation and fitting more easily in the urban lifestyles of rich and poor alike. Rice indeed is no longer a luxury food in Nigeria and has become a major source of calories for the urban poor (WARDA, 2000). For example, the poorest third of urban households obtain 33% of the cereal-based calories from rice, and rice purchases represent a major component of cash expenditures on cereals (WARDA, 2000).

Rice is the second most important cereal in the world after wheat in terms of production (Goni, et al, 2007). Nigeria ranks the highest as both producer and consumer of rice in the West African sub-region (Goni, et al, 2007). However, in terms of area of land under food crop production in the country, rice ranks sixth; after sorghum, millet, cowpea, cassava and yam (Oniah and Idiong, 2008).

Oniah and Idiong (2008) reported that as more family income rises in Nigeria, there have been a shift in the consumption pattern from roots and tuber crops in favour of rice. This is one of the probable reasons why, rice that was once reserved for ceremonial occasions, has grown in importance as a daily food intake in most homes today.

THE ROLE OF WOMEN IN AGRICULTURAL PRODUCTION

All over the world, rural women have traditionally played and continue to play an important role in both rice production and post-harvest activities (Kumar, 1985). Thus, in many areas, tasks related to rice planting, weeding, harvesting and processing are the domain of women.

In Nigeria, there is a growing awareness of women in agriculture, as well as their contributions to social and economic development. Women play vital role in producing agricultural products,

such as rice and other important food crops. Recognition of their role in agriculture is important; more so as their concern in the country is to boost rural economy and sustain adequate food supply.

Women produce 80% of food and other products in Africa (Syndar, 1990). Records show that rural women in Nigeria, Sierra Leone, Malawi, Zambia and Zimbabwe contributed two-third of the labour force spent in land preparation, weeding, transportation, processing and marketing of agricultural produce (FAO, 1987). Although women farmers contribute significantly to agricultural production in Nigeria, they benefit little from agricultural services like agricultural extension, credit schemes, land acquisition and technologies that would improve their productivity. Ijere (1991) stipulated that this is as a result of barriers exerted by cultural, social, biological and religious factors. Most rice farms in the study area are owned and managed by women, even though no available data on the level of rice produced by women.

Women responsibility for rice production have been noted to increase as men migrate to the cities in search of wages; women began to participate in tasks such as land preparation; duties that were traditionally the realm of men. Women also apply fertilizers and pesticides, which in some parts of Asia are considered to be traditionally male responsibilities (Truong Thi Ngoochi, 1994). To be able to do this, there is the need for improved statistics on women in agriculture, their level of involvement and contributions in various stages of agricultural production. These are needed for proper policy formulation, implementation, monitoring and evaluation of agricultural development programmes and for increased agricultural production.

Specially, to be able to do this, there is the need to ascertain the level of involvement of women in various stages of the rice production and processing, examine the socio – economic characteristics of women participating in rice farming, determine the socio – economic factors affecting the quantity of rice produced by women in the area and identify the problems militating against women involvement in rice production and processing in the study. These are needed for proper policy formulation, implementation, monitoring and evaluation of agricultural development programmes and for increased agricultural production.

The results of this study will also help the research and extension specialists direct their attention to developing and transferring relevant agricultural technologies that will enhance women farmers in rice production. It will further help the research and extension to appreciate the need to tap the rich knowledge and experience of these rural women farmers to increased their productive potentials for increased sustainable agricultural production, food security and poverty alleviation. In addition, the study would hopefully, provide policy makers, development planners and workers in women in agricultural programmes with the necessary data and insight needed to facilitate effective participation of rural women farmers in rice production and processing in the study area.

METHODOLOGY

The study was purposively carried out at the three major rice producing communities in Ivo Local Government Area of Ebonyi State in south eastern part of Nigeria. These are: *Ishiagu*, *Ihie* and *Akaze* communities. It has a tropical rain forest ecology, but with a derived savannah type of vegetation. Its minimum and maximum temperature are 21°C and 37°C respectively; and can even fall below 19°C during harmattan. It has an annual rainfall of about 1500mm – 1700mm.

The people are known for their vast agricultural activities, crafts and solid minerals. Being agrarian in nature, the crops grown include; rice, okro, yam, cassava, maize, cucumber and sweet potatoes; in that order of importance. However, their production is on a small – scale basis. In the study, a multi-stage random sampling technique was thus, adopted in selecting the areas for the study. Firstly, four (4) villages were randomly selected from each of the three rice producing autonomous communities; giving a total of twelve (12) villages. Secondly, ten (10) respondent female rice farmers were also randomly selected from each of the villages. In all, one hundred and twenty (120) respondent female rice farmers were reached and administered with questionnaires. Data collected were analysed using descriptive statistics and multiple regression analysis.

To measure the level of women involvement in rice production, the frequency of participation in each of the 18 – activities identified was indicated using a four point likert-type rating of 0, 1, 2 and 3; representing “not involved”, “less involved”, “much involved” and “very much involved” respectively. The degree of involvement score for each respondent was realised by multiplying the frequency of participation by the total number of activities involved as *Madukwe and Ayichi* (1997), did. Then based on the maximum score of 54 for the 18 – activities indicated, 3 – categories were further created as: 1 – 18 = less involved; 19 – 36 = much involved; 37 – 54 = very much involved.

However, multiple regression analysis involving the use of ordinary least squares (OLS) estimation technique was used to determine the socio-economic factors affecting the quantity of rice produced by women in the area. Linear, Semi-log and Double-log functional forms were fitted and tried, and on the basis of statistical criteria; the double-log functional form gave the best estimated regression line and was therefore used for decision as in most production functions analysis (Heady and Dillion, 1972). The implicit form of the model is specified as thus:

$$\text{LN}(Y) = \text{LN}(X_1) + \text{LN}(X_2) + \text{LN}(X_3) + \text{LN}(X_4) + \text{LN}(X_5) + U$$

Where Y = Output of rice in Kg/ha.

X_1 = Age of the farmer in years

X_2 = Level of education in years

X_3 = Farm size in hectares

X_4 = Family size (number of persons in a household)

X_5 = Farming experience in years.

RESULTS AND DISCUSSION

Socio-economic Characteristics of Respondents

Table 1: Socio – economic Characteristic of Respondents

Variables	Frequency	Percentages
Age in years		
Less than 20	25	20.83
20 – 30	35	29.17
40 -50	45	37.50
Greater than 50	15	12.50
Total	120	100.00
Educational Status		
No formal education	36	30.00
Primary education	50	41.67
Secondary education	25	20.83
Tertiary education	9	7.50
Total	120	100.00
Farming experience (years)		
1- 8	10	8.33
9 – 16	42	35.00
17 – 24	45	37.50
25 – 32	23	19.17
Total	120	100.00
Household size		
1- 4	12	10.00
5 – 8	40	33.33
9 – 12	45	37.50
13 – 16	23	19.17
Total	120	100.00
Farm size hectares		
0.1 – 0.25	35	29.17
0.3 – 0.5	45	37.50
0.6 – 0.75	20	16.66
1.0 and Above	20	16.67
Total	120	100.00

Source: Field survey data, 2006

The results show in Table 1 that larger proportions of the respondents (66%) are between the ages of 30-50 years. This implies that most of the respondents are in their economically active and productive ages; hence there is high prospect for increased rice production; if they are well motivated. The mean household size (labour availability) is 10, with the majority of them having between 5-15 adult members. This invariably is a leeway to increased rice production because of the availability of cheap farm labour in the household. About 70% of the respondents are literates, with larger proportion having only primary school education; while 80% of them are married. However, the mean farming experience is 20 years.

Level of Involvement of Women Farmers in Rice Production

Table 2: Distribution of respondents based on their involvement in rice production (N=120)

Activities	Frequency	Percentage
Decision-making/initiation	115	95.83
Land clearing	100	83.33
Tilling/Puddling	95	79.16
Sowing/Nursery establishment	120	100.00
Transplanting	120	100.00
Weeding	120	100.00
Fertilizer application	90	75.00
Birds scaring	75	62.50
Harvesting	110	91.67
Threshing	120	100.00
Winnowing	120	100.00
Sun-drying	120	100.00
Parboiling	120	100.00
Sun-drying	120	100.00
Transportation	115	95.83
Milling	110	91.67
Storage	110	91.67
Marketing	115	95.83

Source: Multiple responses from the field survey data 2006.

Table 2 shows that on the average; 92.36% of the respondents were involved in almost all the activities carried out in rice production, starting from decision making to marketing of the rice produced.

Table 3: Distribution of respondents based on the degree of involvement in rice production (N=120)

Degree of involvement scores (quantified)	Frequency	Percentage
1 – 18 (less involved)	0	0
19 – 36 (much involved)	10	8.33
37 – 54 (very much involved)	110	91.67
Total	120	100.00

Source: Field survey data, 2006.

Where N = Total number of respondents interviewed.

Table 3 further revealed the degree of the respondents' involvement in the 18 – activities identified. This table indicates that 91.67% of the respondents were "very much involved", while 8.33% were "much involved". This result therefore implies a high degree of respondents' involvement in rice production.

EFFECT OF SOCIO-ECONOMIC FACTORS ON THE QUANTITY OF RICE PRODUCED

Empirical results

Double-log regression model was chosen as the lead equation based on the magnitude of R^2 , Adjusted R^2 , the significance of the overall production as judged by the F-ratio and the individual regression coefficients.

Table 4: Shows regression result of estimates in the analysis

Variables	Coefficients	Standard error	t-values
X_1 - Age of the farmer	-0.029	0.009	0.009*
X_2 - Level of education	0.022	0.004	0.008*
X_3 - Farm size	0.628	0.843	0.984
X_4 - Family size	0.069	0.028	0.022*
X_5 - Farming experience	0.024	0.010	0.004*

Source: Field survey data, 2006.

$R^2 = 0.8026$; Adjusted $R^2 = 0.7426$; F-ratio = 27.696

*Significant at 5% level.

The result in Table 4 showed that all the independent variables (X_1 - X_5) explained 80.26% of the variation in the dependent variable. All the estimated coefficients, except for X_1 , has positive sign. This implies that any increase in the variables would result to an increase in the output of rice; ceteris paribus. On the other hand, age of the farmer (X_1) has negative coefficient; and this shows that productivity declines with advancement in age. This variable however, was statistically significant at 5% level. This is because majority (66%) of the female farmers in the area fall within the highly productive age range of 30-50 years.

The variables (X_2 , X_4 and X_5) were also statistically significant at 5% level; indicating that these variables have greater influence on the output of rice; and that output is mostly dependent on them. Farm size (X_3) was not statistically significant at 5% level because majority (83.3%) of these female rice farmers in the study area had a farm size of less than one hectare. This however, portrayed their small-scale nature.

CONCLUSION

In Nigeria, women constitute approximately 50% of the entire population (courtesy of 2006 census provisional figures), and their productive potentials in agricultural development cannot be achieved without their full participation in agriculture. Rice is one of the most important tropical cereal crops in the world today.

The results showed that most (66%) of the female rice farmers in the area fall within the highly reproductive age –range of 30-50 years. All the estimated coefficients, except for age (X_1), had direct relationship with the output of rice. However, farm size (X_3) was not significant at all the levels tested because majority (83.33%) of these female rice farmers in the study area had a farm size of less than one hectare. The identified constraints include; use of unimproved seed varieties, high cost of labour, lack of infrastructural facilities, "inadequate capital and land fragmentation".

RECOMMENDATIONS

To overcome the production constraints identified, it is recommended that:-

1. These women rice farmers in the area could be provided with soft loans to help them adopt technologies and expand their scale of farm operation.
2. Infrastructural facilities should be provided in the area so as to enable them perform at optimum and also raise their standard of living.
3. The women rice farmers should be encouraged to form cooperative where they can practice land consolidation which enables them to hire tractors and minimize the use of manual labour.
4. The State Agricultural Development programmes through the state ministries of Agriculture should make available to these women rice farmers, improved rice seed varieties that are resistant to pests and diseases.

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