# Socio Economic Characteristics of Rice Farmers in Sokoto State: A Baseline Assessment for Agricultural Projects Intervention

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**Abstract:** The paper examined socio economic characteristics of rice farmers in Sokoto State with a view to providing baseline information for agricultural projects intervention. Using multi state sampling technique and structured questionnaires, 300 rice farmers were randomly selected from 6 purposively selected local government areas of the State. Descriptive statistics were used to analyzed the data.Result revealed that the farmers were not formally educated and are middle aged and ageing male farmers with household size of 6-10 members. Majority of the farmers had over 16 years of experience in rice production and were engaged in different occupation (farming, trading, civil service, etc) but farming is their main occupation. The results also indicated that more than a half of the rice farmers in the study area are neither members of any cooperative society nor ever contacted by extension agents throughout their lives of farming. The major problems faced by the farmers were high cost of inputs and the menace of birds, pests and diseases. The paper recommends that Government, NGOs, development partners need to conceive a policy or project that will inspire youths to venture in to farming and encourage all farmers to acquire more education through formal education, among others.

Key Words: Socio-economic, Characteristics, rice, farmers

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# I. Introduction

The Nigerian agricultural sector, still faces four (4) critical challenges, namely, limited access to financing and inputs for farmers; serious threat of climate change on yield; limited access to agricultural outputs at the national and international markets; and security threats to agricultural investment including cattle rustling, kidnapping and destruction of farmlands by herdsmen(FMARD, 2016). The lingering challenges in the country has translated into low production and productivity among farmers thereby limiting the sector to perform its traditional role in economic development. Most farmers struggle to obtain financing to modernize or expand their farms, invest in productive assets or buy inputs. In a bid to break this challenges and improve the performance of the agricultural sector, the Nigerian government over the years introduced and implemented several policies and programs aimed at revamping the sector (Ajibefun and Aderinola, 2004).

Nigeria must resolve the fundamental challenges in its agricultural sector either through appropriate policy context, provision of sufficient infrastructure, suitable technology, political will and institutional realignment and soliciting intervention support from development partners, NGOs, private organisations, etc. A better approach which take into cognizance of the socio-economic characteristics of the local farmers is crucial towards boosting economic activities, food security, and enhancing the welfare of farmers. Agricultural Developmentinitiatives support government's strategic objectives to enhance growth in order to achieve increased food security, reduce poverty, and create employment and improved opportunities in rural areas (NFCO, 2013). For Nigerian agricultural intervention projects to makeimprovements in the agricultural sector it must consider baseline information such as socio economic characteristics of the farmers, continuous changes of the food system, and at the same time reflect the heterogeneity of the agricultural sector in terms of farmers' experiences in an increasingly globalized world, which carries with it both opportunities and various challenges (Carola, 2010).

As an attempt towardsdocumenting baseline information and encouraging investments fromprivate individuals, NGOs, development partners, etc., this paper identifies socio economic potentials and deficiencies associated with rice farmers in Sokoto State, Nigeria with a view to providing baseline information to guide agricultural projects interventions.

# II. Methodology

The study was conducted across six selected local government areas of Sokoto State. Sokoto State is located between latitude  $13^{\circ}$  03' N and longitude  $5^{\circ}$  14' E with a land area of 28,232.37 Square kilometers. It is bordered in the north by Niger Republic, Zamfara State to the east and Kebbi State to the south and west (SOSG, 2015). Sokoto State is found in the sudansavannah zone. The State has a mean annual rainfall fluctuating between 500mm – 700m per annum, usually occurring between May and September.Farming is the leading occupation of the people of Sokoto State. The key crops produced include millet, guinea corn, rice, beans, tomato, onion, pepper and sweet potato (SOSG, 2015).

Multi-stage random sampling technique was used to draw the sample. The first stage involved a purposive selection of six leading Local Government Areas based on preponderance for rice production in Sokoto state; the local Governments selected included Wurno, Goronyo, Rabah, Kware, Kebbe and Silame local government areas. Stage two involved a random selection of two rice producing villages in each of the selected Local Government Areas. Stage three involved random selection of 25 rice farmers from each of the sampled communities. A total of 300 rice farmers were sampled and interviewed. Primary data were collected using interview schedule administered by trained enumerators, while secondary data were sourced from text books, journals, CBN bulletins, past project works, and other relevant materials. Type of data collected included socio-economic characteristics such as age, farming experience, level of education, household size, etc, and production data such as farm size (ha), quantity of utilized production inputs, etc. The tools of data analysis used were descriptive statistics such as frequency distribution and mean to describe data collected on socio-economics characteristics.

## III. Results And Discussions Socio-Economic Characteristics of the Rice Farmers

## Sex and age of the rice farmers

Sex is a yardstick for differentiating people into males and females, which in turn define the function of each in the society. The results showed that all the rice farmers were males. This might not be unconnected with the fact that 'purdah', an Islamic doctrine that requires women to stay indoors is strictly observed in rural areas of Sokoto State. This is in line with the finding of FAO (2007) which reported that in the north-western Nigeria males participate fully in farming activities whereas females engage mostly in processing and selling of farm produce. The Islamic doctrine of 'purdah' might explain the absence of women in rice farming in the study area. Table 1 shows the age distribution of the rice farmers in the study area. The result shows that rice production in the study area was dominated by middle aged (31-40 years) and ageing males (41-50 years) representing 60 percent of the sampled rice farmers. These are the economically active age brackets and people in this age brackets are usually self motivated and innovative (Yunusa, 1999). The Table also revealed that 17.33 percent and 12.67 percent of the farmers fall within the age brackets of 51-60 years and 60 years and above, respectively. By implication, youth involvement in rice production is low.

Age Range (Years)	Frequency	Percentage		
20 - 30	30	10.00		
31 - 40	89	29.67		
41 - 50	91	30.33		
51 - 60	52	17.33		
61 Above	38	12.67		
Total	300	100		

Table 1: Distribution of the rice farmers according to age

Source: Survey data, 2012

Age of the farmers is an important factor affecting crop production, consumption and household food security in Nigeria. Farmers are mostly located in the rural areas, and because of inadequate infrastructural facilities most rural youth migrate to the urban areas in search of white collar jobs leaving the aged farmers in the villages (FAO, 2007). This greatly affects agriculture because old farmers do not have the necessary strength to cultivate large areas of land. In this respect, William (1978) found that only about 5 percent of youth leaving school wanted to engage in one form of agriculture or another. This poses a threat to food supply and by extension food security in the study area.

## Marital status and household size

The result indicated that 95 percent of the farmers interviewed were married and 5 percent were not. The common cultural practice of early marriage and labour demand among farming households in the villages of northern Nigeria might explain this scenario. Because expansion of the family occurs through marriage, marital status has a significant impact on household size and household labour availability. Household size is an

important variable which determine the availability of labour to the household. The distribution of the farmers according to household size is presented in Table 2.

<b>Tuble 2</b> . Distribution of the field furniers according to nousehold size				
Household size	Frequency	Percentage		
1-5	58	19.30		
6-10	154	51.40		
11 – 15	58	19.30		
16 and above	30	10.00		
Total	300	100		

**Table 2**: Distribution of the rice farmers according to household size

Source: Survey data, 2012

Table 2 shows that majority (51.40 %) of the rice farmers had a family sizes of between 6 and 10 members. This agrees with findings of Idowu et al. (2009). The distribution depicts the usual Islamic religious doctrine where emphasis is placed on the belief that a man should marry more than one wife and begets children as a source of labour and in accordance with Islamic injunction. The large family size in the Sokoto might imply that large proportion of the farm income would have to be used in catering for the family so that only a meager sum is saved and invested eventually on farming. It also implied availability of labour for farming as opined by Ndanitse (2005). The large household size could be further explained by the polygamy and extended families prevalent in Sokoto State. This, according to Akinyosoye (1992), depletes farmers' income so that there is little incentive for the farmers to increase production. In food security studies, increase in household size increases the chances of being food secure. However, if the bulk of the household members are unproductive, food security status deteriorates (Mohammed et al., 2009).

#### Level of education

Table 3 shows that all the rice farmers had undergone one form of education or the other. Majority (59.67 %) of the rice farmers had Qur'anic education while 14.67 percent had primary education. Only 10.67 percent and 8.33 percent had secondary and tertiary education, respectively.

Table 3: Distribution of the rice farmers	s according to level of education
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Level of education	Frequency	Percentage	
Quran	179	59.67	
Adult	20	6.67	
Primary	44	14.67	
Secondary	32	10.67	
Tertiary	25	8.33	
Total	300	100	

Source: Survey data, 2012

The result demonstrates that although all the farmers were literate, only 19 percent had formal education. This arbitrarily indicates the likelihood of the farmers to yearn for productivity enhancing information and new technologies. This finding is in line with that of Yusuf et al. (2009) who reported that 62percent of farmers in the rural areas had no formal education. Based on this background, new methods of farming and innovation should be introduced to farmers through Arabic language or 'ajami' (Hausa language written in Arabic) to facilitate easy understanding and adoption. Researches had severally shown that the level of education of the farmers influences adoption of improved practices. The educational attainment of farmers does not only increase his productivity, but also increases his ability to understand and evaluate the information on new techniques and processes being disseminated through extension services. Level of education has also been used to determine the rate at which people in a social system respond towards an introduced technology (John, 2000).

#### **Occupation of rice farmers**

The distribution of the farmers on basis of their occupation is presented in Table 4. The result indicated that all the rice farmers interviewed were into farming as a means of livelihood. The result however shows that 53.67 percent of the rice farmers which make up the majority practiced farming only as a means of sustenance while 27.3 percent combines farming and trade.

Table 4: Distribution of the rice farmers according to occupation				
Occupation	Frequency	Percentage		
Farming only	161	53.67		
Farming & Trade	82	27.33		
Farming & Civil Service	40	13.33		
Farming & Fishing	17	5.67		

Total	300	100	
Source: Survey data, 2012			

The result demonstrates that the study area is a typical rural setting where agriculture based occupation is the predominant activity among the populace. The results further reveals that 46.33 percent of the respondents had a second income source (trade, civil service or fishing) in the event of crop failure, and as a supplementary income source. This is an indication of the propensity of such group of farmers to mitigate production risk.

#### **Farming experience**

Farming experience is expected to help farmers in boosting crop production through the knowledge acquired from years of farming. Result on farming experience is presented in Table 5

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Experience(years)	Frequency	Percentage		
6 - 15	75	25.00		
16 - 25	125	41.67		
26 - 35	49	16.33		
Above 35	51	17.00		
Total	300	100		

 Table 5: Distribution of the rice farmers according to farming experience

Source: Survey data, 2012

Response on farming experience shows that majority (41.67 percent) were experienced farmers with 16 - 25 years of farming experience in rice production. Others (25 percent) had 6 - 15 years of experience, and the rest had experience of over 25 years in rice farming. On the whole, 75 percent of the rice farmers in the study area had been cultivating rice for a period of 16 years over. This implied that virtually all the rice farmers have been in farming profession for quite some period of time and are not novice in farming activities.

## Membership of cooperative society

A cooperative has been defined as an association of persons who have voluntarily joined together to achieve a common end through equitable contributions to the required capital and accepting a fair share of the risks and benefits of the undertaking in which the member actively participates (Ihimodu, 1989). Responses on membership of cooperative society are given in Table 6.

LGA	Members		Non-Members		
	Freq Perce	ntage <sup>*</sup>	Freq	Percentage <sup>+</sup>	
Kware	27	4	23	46	
Goronyo	34	68	16	32	
Rabah	10	20	40	80	
Kebbe	33	66	17	34	
Wurno	18	36	32	64	
Silame	23	46	27	54	
Total	145		155		

Table 6: Distribution of the rice farmers according to membership of cooperative society by local government

Source: Survey data,  $2012^*$ Average = 48.33% + Average = 51.67%

Table 6 shows that majority (51.67 percent) of the rice farmers were not members of any cooperative society while 48.33 percent were members of different cooperative societies. However, Goyonyo, Kebbe and Kware local governments areas had the highest members of cooperative society with 68 percent, 66 percent and 54 percent of their respective rice farmers belonging to different cooperative societies. On the other hand, Rabah, Wurno and Silame had the least. The result reveals that majority of the rice farmers are non-members of any cooperative society in the study area. This revelation may be attributed to a minimal or absolute absence of awareness campaign and/or sensitizations on the relevance of cooperative societies to farmers. In a study of the role of cooperative societies in community development, Abubakar et al. (2009) suggested the need for more public enlightenment on the importance and activities of cooperative societies by both government and non-governmental organizations.

# Contact with extension agents

Agricultural extension is an education process directed to bringing about change in people about what they know, how they can react to situation and change in what they can do with their land. High level of extension contact has the tendency of positively affecting the farmers' level of productivity. The reverse will be the case in terms of absence or low level of extension contact. Responses on rice farmers' contact with extension agents are presented in Table 7.

LGA	Contact	Contact		Zero Contact	
	Frequency	Percentage*	Frequency	Percentage <sup>+</sup>	
Kware	20	40	30	60	
Goronyo	15	30	35	70	
Rabah	12	24	38	76	
Kebbe	39	78	11	22	
Wurno	1	2	49	98	
Silame	17	34	33	66	
Total	104	34.67%	196	65.33%	

**Table 7**: Distribution of the rice formers according to extension contact by I GA

Source: Survey data,  $2012^*$ Average = 34.67% <sup>+</sup>Average = 65.33%

Result from Table 7 shows that on the whole, 65.33 percent of the rice farmers had no contact in whatever form with agricultural extension agents while 34.67 percent had one or more contacts with extension agents. The results also indicate that respondents from Kebbe Local Government area had the highest level of contact (78 percent) with extension agents and Wurno local government area had the least (2 percent). The high level of extension contact of rice farmers in Kebbe local government area could be due to the activities of the National Program on Food Security in the area focusing on rice production to which most farmers were participants. The study however depicts that majority of the rice farmers interviewed had no contact with agricultural extension agents. This could have a negative effect on farmers yield, standard of living and food security status. In line with this, Abubakar et al. (2009) observed that continuous, regular and timely extension contact is needed to explain new technology to farmers and teach them how to increase their production and income. Hence for a boost in rice production, there should be continuous and regular visits by extension agents in the study area. This could help to remedy farmers' problems and improve production though adoption of new methods and technologies.

## Livestock holding unit

Small holder livestock keeping plays a crucial role in food security of the rural poor. They make a significant contribution to food production through the provision of high value protein-rich animal products, income and a store of wealth for small holder farmers. Table8 presents the livestock holding of the rice farmers.

	Table 8: Distribution of the fice farmers according to Tropical Livestock Unit (TLU) by LGA				
LGA	Tropical Livestock Unit (TLU)	mean/Household	Percentage		
Kware	218	4.36	17.97		
Goronyo	189	3.78	15.58		
Rabah	170	3.40	14.01		
Kebbe	218.6	4.37	18.00		
Wurno	75.8	1.52	6.25		
Silame	342	6.84	28.19		
Total	1213.4		100		
n	1				

 $\mathbf{T}_{\mathbf{r}} = \mathbf{h} \mathbf{1}_{\mathbf{r}} \mathbf{0}_{\mathbf{r}} \mathbf{D}_{\mathbf{r}}^{\dagger} \mathbf{1}_{\mathbf{r}} \mathbf{1}_$ anding to Transpol Livestal Unit (TLU) by LCA

Source: Survey data, 2012

Table 8 shows that the Total Livestock Unit (TLU) owned by all the sampled rice farmers was 1213.4 with an average of 4.04 TLU per household. In line with this finding, Ala (2005) reported a mean TLU of 3.97 per household in his study of crop-livestock in Sokoto State, North Western Nigeria. while in contrasts to this finding Goni (2010) reported a higher mean livestock unit (TLU) of 8.61 in a food security study in Borno State, North Eastern Nigeria. Silame local government area in Sokoto State recorded the highest TLU of 342 with a mean of 6.84 TLU per household representing 28.19 percent of the total TLU owned by the rice farmers. This might be attributed to the high prevalence of Fulani dwellers, availability of grazing land and water in Silame Local Government Area

Kebbe and kware Local Government Areas both had a mean TLU of 4.4 each per household and each accounted for 18 percent of the total in the study area. Goronyo and Rabah Local Government Areas owned a mean TLU of 3.78 and 3.40 each accounting for 15.58 percent and 14.01 percent, respectively of the total TLU owned by respondents. Wurno LGA had the least mean TLU of 1.52 per household. On a general note, every rice farmers in the study area owned at least one type of livestock or the other. This might not be unconnected with the age long tradition of rearing one type of livestock or another by almost every farming family in the northern part of Nigeria.

# Farming systems and cropping pattern

The system of farming in the study area and crop mixtures is as shown in Table 9. The results shows that majority of the farmers in the study area practiced mixed farming as indicated by 82.67 percent of the rice farmers. 11.67 percent practiced mixed-cropping while 5.67 percent practiced mono-cropping. Mixed farming is a useful agricultural production system since farm animals and crops can be regarded as having an

Mean = 4.04 TLU/HH

interdependent relationship which is beneficial to both, in that farmer receive income from both the crops and livestock, which will help them to survive any fall in price or demand for his crops.

Table 9. Distribution of the field farmers according to system of farming and crop mixture				
System of farming	Frequency	Percentage		
Mono cropping	17	5.67		
Mix cropping	35	11.67		
Mix farming	248	82.67		
Total	300	100		
Cropping Pattern				
Rice sole	17	5.67		
Rice/Cereals	158	52.67		
Rice/Cereal/Vegetables	110	36.67		
Rice/Vegetables	15	5.00		
Total	300	100		

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Table 9: Distribution	of the rice fa	armers according to	system of farming ar	id crop mixture

Source: Survey data, 2012

The practice of growing more than one crop on same piece of land takes precedence in the study area. Results of the study revealed that 53 percent of the rice farmers cultivated rice and other cereal crops such as millets, sorghum and cowpea. The others are 36.67 percent who cultivated rice/cereals/vegetables while 5.67 percent and 5 percent each cultivated rice sole and rice/vegetables, respectively. This pattern of crop mixtures where a farmer grows more than one crop may be because farmers want to safeguard against crop letdown or maximize land use. Such practice reduces the risk of whole crop failure due to draught, pests and diseases, warrants maximum land use, saves labour and allow for the production of different types of crops under subsistence farming.

#### Mode of land preparation

Farming operations in the Sokoto are mostly performed either with traditional farm tools powered by human, implements powered by draft animals or other sophisticated implements which are powered by machines. The methods used by the rice farmers for tilling their lands are presented in Table 10.

Table 10: Distribution of the rice farmers according to mode of land preparation					
Mode of Tillage	Frequency	Percentage			
Manual only	172	57.33			
Animal traction	21	7.00			
Tractor	70	23.33			
Animals/Tractor	37	12.33			
Total	300	100			

Table 10: Distribution of the rice farmers according to mode of land preparation

Source: Survey data, 2012

Table 10 shows traditional hand tools as the common mode of tillage in the study area as indicated by 57.33 percent of the rice farmers. These are followed by 23.33 percent that used both manual and tractor in tilling their land. This high level of utilization of manual/hand tools could be as a result of the expensive nature of mechanized farm implements. Moreover, farmers in rural areas commonly cultivate small sized farms which may not favour the use of farm machinery.

#### Problems Associated with rice production in the study area

The problems faced by the farmers in rice production are presented in Table 11. The Table shows that high cost of inputs was ranked  $1^{st}$  with 65% of the total farmers interviewed. This is a serious problem as it limit the productive capacities of the rice farmers because they cannot expand the scale of operations due to high cost of production. The second important problem is the menace of birds, pests and diseases which was indicated by 50% of the farmers. Other problems are insufficient capital and sporadic flood.

Table 11:	: Orderly	ranking of	problems	faced by	y the	farmers	in rice	production
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Problem	Erequency*	Percentage	Rank
High cost of inputs	105	65.00	1 <sup>st</sup>
D' 1 Cost of inputs	195	50.00	n d
Birds, pests and diseases	150	50.00	2 <sup></sup>
Insufficient capital	145	48.33	3 <sup>14</sup>
Flood problem	135	45.00	4 <sup>th</sup>
Total*			
Source: Survey data, 2012	* Multiple response		
<b>j</b>			1 1

## IV. Conclusion

Results of the study revealed that rice production is dominated by middle aged and ageing male farmers with household size of 6-10 members. Education wise, result indicated that only 19 percent had secondary and tertiary education. Majority of the farmers had over 16 years of experience in rice production and were engaged in different occupation (farming, trading, civil service, etc) but farming is their main occupation. The results also indicated that more than a half of the rice farmers in the study area are neither members of any cooperative society nor ever contacted by extension agents throughout their lives of farming. On livestock holding unit, the Total Livestock Unit (TLU) owned by the rice farmers in the study area was 1213.4 with a mean holding of 4.04 TLU per household. The result shows that rice farmers in Silame LGA had the highest mean TLU of 6.84 per household while those in Wurno LGA had the least TLU of 1.52 per household. The practice of growing more that one crop on same piece of land and rearing livestock takes precedence in the study area. Result of the study shows that majority (82.67 percent) of the farmers practice mixed farming while only 5.67 percent practiced mixed cropping. However by virtue of cropping pattern, most farmers cultivated rice and cereal crops such as millet, sorghum, cowpea and vegetables. The common mode of land preparation in the study area was the use of traditional hand tools, only 23.33 percent of the rice farmers utilized mechanized farming. This may not be unconnected with the small sized farms commonly cultivated by rural resource poor farmers which do not favour mechanization. The major problems faced by the farmers were high cost of inputs and the menace of birds, pests and diseases.

#### **Policy Implications and Recommendations**

1. Youths involvement in rice production is relatively low, and this poses a risk to food supply in the future.Government, NGOs, development partners need to conceive apolicy or project that will inspireyouths to venture in to farming.

2. Considering the relevance of education in facilitating the transfer and adoption of technologies, government should reactivate and strengthens the formal adult and continuing education program with functional branches in all local government areas of Sokoto State.

3. Agricultural extension is an essential ingredient for continued food supply but extension activities are found to be low in the study area. It is therefore recommended that extension service delivery be improved across the State.

4. Government should devise appropriate means of providing credit facilities to farmers and ensure effective credit utilization through the establishment of farmers credit utilization authorities.

5. The farmers are also encouraged to form cooperative societies in their respective communities and link with input supplies and off-takers in order to enjoy economies of large scale transactions.

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