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Assessment of Rice Farmers' Perception on WACOT Out-grower Scheme in Kebbi State, Nigeria

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ABSTRACT: This study was conducted in Kebbi State. The objectives were to describe the socioeconomic characteristics of rice farmers who participated in West African Cotton Company (WACOT) (WACOT) out-growers scheme in Kebbi State and assess the rice farmers' perception small holder rice farmers on WACOT out-grower scheme. A two-stage sampling technique was used to select respondents for this study. The first stage involved a purposive selection of all the four out-grower Local Government Areas in Kebbi State which are Suru, Augie, Argungu and Kamba LGAs. Each out-grower LGA had 1,500 out-grower rice farmers. Lastly, a sample frame of six thousand (6,000) out-grower rice farmers was collected from WACOT rice for the four LGAs. Finally, Raosoft method was used to calculate the sample size. This was calculated to be 362. Primary data were collected through the use of questionnaire which were administered to respondents by the researcher and trained enumerators. Descriptive statistics were used to analyze data collected. The results revealed that most (94%) of the respondents were males, 34% of the respondents were between the ages of 41-50, most (89%) of them were married, majority (64%) of the respondents had household size of 1-10, most (96%) of the respondents had less than 10 years of rice farming experience, 40.3% of the respondents had less than 5ha of farm size, and about a half (53%) of the respondents had Adult education. It was found that the respondents' body agreed with all the positive statements against WACOT and disagreed with the negative statements. It was concluded that rice farming activities are dominated middle aged, male farmers in the area, with the majority having a household size of 1-10. Rice farmers had a positive perception and attitude on WACOT out-grower scheme. Hence, recommended that more female farmers should be engaged in the WACOT out-growers schemes by the stakeholders so as to bridge the difference between male and female rice farmers' participation in the WACOT out-growers scheme.

Keywords: Rice, farmers, perception, out-grower
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INTRODUCTION

Rice (Oryza sativa) is one of the crops that have long served as a main source of food, profit, and employment in Nigeria. It is cultivated all around the country in a range of industrial structures, including swampy lowland, upland, irrigated, and mangrove. Nigeria is a global reference point for rice-producing countries. Nigeria is now the leading rice producer in Africa (Statita 2021). Between 1970 and 2017, it had the biggest reduction in yield performance (9.86 million tons) (FAOSTAT, 2018). Given Nigeria's expanding population, mounting worries regarding rice production and the proportion of household income spent on it are understandable. If present global processes and population growth trends continue, another 2.4 billion people, predominantly in Nigeria,

would reside in developing nations by 2050 (Cilluffo and Ruiz, 2019). The number of urbanized regions is anticipated to treble between 2000 and 2030 (d'Amour *et al.,* 2017).

The major rice-producing states in Nigeria are Kebbi, Borno, Kano, Ebonyi, and Kaduna, among others, where most of the farmers producing rice rely on traditional technology with low use of improved input technologies (Kamai *et al*., 2020). According to Danmaigoro *et al*., (2023) Kebbi State is one of the rice producing States in Nigeria with a high prospect for an increase in production over the years. Rice potential in terms of yield and quality of the product has not been fully exploited. Consequently, there is still a deficit in rice supply in the country. This could be attributed to the inaccessibility of farmers to appropriate modern technology and innovations such as improved seeds, fertilizer, adequate credit/funds, and adequate extension services. Hence, Akinbile *et al*., (2006) highlighted that farmers need to be assisted to have current knowledge of improved sources of information and have access to all inputs needed for effective production. Otherwise according to Danmaigoro *et al*., (2023) this poses a serious threat to the general food supply in the future if nothing is done to correct the imbalance in rice production.

However, Out-grower schemes and contract farming are seen by many policy-makers and analysts as in effect a 'new' development paradigm for linking small-holders farmers to markets. A study by the Organization for Economic Co-operation and Development (OECD) states that "contract farming appears to be the main road towards making African agriculture more market-oriented" (Actionaid 2015). According to WACOT Rice and USAID (2021) an out-grower scheme is designed as a contractual partnership between farmers of landholder and a company for the production of agricultural produce. Out-grower schemes or partnerships vary in the extent to which inputs, cost, risk and benefits are shared between farmers/landowners and companies. Partners may be short or long term (depending on agreements), and may offer growers only financial benefits or a wider range of benefits. Also, farmers may act individually or as a group in partnership with a company, and use private or communal land. According to The World Bank and United Nation (2018) out-grower schemes have been operated with varying degrees of success. At their best, these models ensure that local growers benefit from the presence of commercial investors by facilitating access to markets and finance, improving postharvest storage and transportation, and rewarding improved farming practices. Equally, investors gain access to land, labor, and good-quality produce.

West African Cotton Company (WACOT) Rice Limited, a company under Tropical General Investments Group, is a Nigerian rice processing company operating a state-of-the-art rice mill in Kebbi State. The mill is one of the largest rice mills in Africa and sources paddy from various rice-producing states across Nigeria. WACOT Rice also engages in out-grower farming programs with paddy farmers to boost their yields and guarantees off-take from farmers through a buyback arrangement to ensure farmers get a fair price at the end of the season. The company produces two leading brands of parboiled rice in Nigeria: Big Bull and Patriot (WACOT Partner Factsheet).

A number of studies have been carried out by different researchers (Cai et al., 2008; Osundiya, 2016; Onyekwena, 2016; Akuriba and Tangonyire, 2020; Hoang, 2021; Ezeh *et al.,* 2022; Danmaigoro *et al*., 2023) on rice farmers and or out-growers worldwide and Nigeria in particular but there are limited or no studies on rice farmers out-growers especially WACOT out-grower scheme in Kebbi State. Consequently, it has not been documented on the perception of rice farmers' on WACOT out-grower scheme which is very important for policy implications and decision. Hence, this study intends to answer the following questions.

i. What are the socioeconomic characteristics of rice farmers in Kebbi State?
ii. What are the rice farmers' perceptions on WACOT out-grower scheme?

Objective of the study

The broad objective of this study is to find out the perception of rice farmers on WACOT out-grower scheme in Kebbi State, Nigeria. The specific objectives are to:

i. describe the socioeconomic characteristics of rice farmers who participated in WACOT out-growers scheme in Kebbi State;
ii. assess the rice farmers' perception small holder rice farmers on WACOT out-grower scheme;

METHODOLOGY

The study area

The study was conducted in Kebbi State. The State is located in the north-western part of Nigeria and occupies a land area of about 36,229 square kilometers with a projected population 4,387,096 in 2018 (Gona and Ishaya, 2019). The state is located between latitudes 70 45'N and 90 30'N and longitude Longitudes 3°35 E and 6°0 E. It is positioned in the Semi-arid Sudan-Sahelian ecological zone. However, the Southern portion of the

Table 1: Sampling procedure and sample size.

S/N	Local Government Areas	Sample Frame (N)	Sample Size (n)
1	Suru	1,500	90
2	Augie	1,500	90
3	Argungu	1,500	91
4	Kamba	1,500	91
Total	4	6,000	362

State falls within Northern Guinea Savannah ecological zone. The state is characterized by high temperatures especially in the months of March, April and May. The annual temperature varies from 21°C-38°C (Kebbi Agricultural and Rural Development Authority (KARDA) 2020). Wet season start from April and end October, while dry season last for the remaining part of the year. The yearly precipitation varies from 600mm to 875mm and on average 650mm amid the period 1997 to 2014 (Oluwasemire and Alabi, 2014). The soil type found in the state ranges from heavy clay in the fadama areas to sandy loam and sandy soil in the upland areas. Kebbi State has a projected population of 5,048, 815 in 2019 (KARDA 2020). Over 75% of the state population resides in rural areas and farming is their major occupation. A significant number of urban dwellers also engage in farming to supplement their income (Usman, 2016). In addition, the State has an estimated 13,209 sq. km of land area being used for cultivation and about 200,000 ha of fertile land is *fadama* (wet) land, mainly situated along the flood and mostly used in rice production (Usman, 2016; Oladimeji *et al.,* 2016; Hussaini *et al*., 2020).

Sampling procedure and sample size

A two-stage sampling technique was used to select respondents for this study. The first stage involved a purposive selection of all the four out-grower Local Government Areas in Kebbi State (Table 1) which are Suru, Augie, Argungu and Kamba LGAs. Each out-grower LGA had 1,500 out-grower rice farmers. Lastly, a sample frame of six thousand (6,000) out-grower rice farmers was collected from WACOT rice for the four LGAs. Finally, Raosoft was used to calculate the sample size. This was calculated to be 362.
Raosoft: sample size *n* and margin of error *E* are given by

$$X = Z(^{C}/100)^{2}\, r\,(100\text{-}r)$$
$$n = {}^{NX}/((N\text{-}1)\, E^{2} + X)$$
$$E = \mathrm{Sqrt}[{}^{(N-n)X}/n(N\text{-}1)]$$

Where: N is the population size, *r* is the fraction of responses that you are interested in, and Z(c/100) is the critical value for the confidence level c.

Methods of data collection

Primary data were collected through the use of questionnaire which were administered to respondents by the researcher and trained enumerators from Kebbi State Agricultural Development Project (KADP).

Analytical technique

Descriptive statistics were used to analyze data collected. The descriptive statistics include percentages, frequency tables, mean and standard deviation.

RESULTS AND DISCUSSION

Socio-economic characteristic of the respondents

The results in (Table 2) revealed that most (94%) of the respondents were males, while only few (6%) were females. This shows that rice farming activities are dominated male farmers in the area. This study agrees with Kudi (2023) who conducted a research on the effects of participation in the System of Rice Intensification (SRI) on the livelihood of farmers in Bakolori Irrigation Scheme, Zamfara State and reported that most (92%) of the rice farmers were males. Also, Akuriba and Tangonyire (2020) found that majority of smallholder farmers in Northern Ghana were males representing 77.3%. This could be as a result of the fact that males are considered as household head, which is responsible for feeding the house. The implication is that female could be left behind in income diversification.

It was found in (Table 2) that 34% of the respondents were between the ages of 41-50, 22% were between the age of 51-60 and 16.6% and 15% were between the ages of 31-40 and 21-30 respectively. The mean age was found to be 45, while the minimum and maximum ages were 22 and 68 respectively. This is a middle aged farming group which could be considered energetic. This result agrees with Akuriba and Tangonyire (2020) found that the average ages of the respondents was 40.1 years for out-growers farmers. This is also in agreement with the study by Kudi (2023) who found that 32.6% of the respondents were between the age range of 41-50, and the mean age of the rice farmers was 41.33, while the minimum and maximum years were 20 and 70 years respectively. The implication is that this age group is in

Table 2: Socio-economic characteristics of respondents (n = 362).

Variables	Items	Frequency	Percent	Mean	Min.	Max.
Sex	Male	342	94.0			
	Female	20	6.0			
Age	21-30	54	15.0	45	22	68
	31-40	60	16.6			
	41-50	125	34.0			
	51-60	81	22.4			
	>60	42	12.0			
Marital Status	Single	41	11.0			
	Married	321	89.0			
Household Size	1-10	232	64.0	12	1	61
	11-20	67	19.0			
	21-30	40	11.0			
	31-40	12	3.0			
	>40	11	3.0			
Years in Rice Farming	<10 Years	348	96.0	6.5	1	18
	11-20 Years	14	4.0			
Farm Size (ha)	<5	146	40.3	7.57	1	30
	6-10	168	46.4			
	11-15	32	9.0			
	16-20	11	3.0			
	>20	5	1.3			
Level of Education	Adult Education	191	53			
	Primary Education	67	18.5			
	Secondary Education	73	20			
	Tertiary Education	31	8.5			

Source: Field survey, 2023

their active and productive age where their strengths and vigour could be utilized in rice production. Based on respondents' marital status the result showed that most (89%) of them were married while only few (11%) were single. This shows that the respondents had marital responsibilities. The implication is that married individuals could be more anxious to go into farming than unmarried. This result is in corroboration with that of Kudi (2023) who reported that 86% of the rice farmers in the study area were married. This result is also in agreement with Chukwu *et al.* (2016) who found that most of the rice farmers (62.50 percent) were married.

The result also indicated that majority (64%) of the respondents had household size of 1-10, it was also found that some (19% and 11%) of the respondents had household size between 11-20 and 21-30 respectively. The mean household size was 12, while minimum and maximum household sizes were 1 and 61 respectively. This indicated that the respondents had household responsibilities and source of farm labour. The implication is that the more a farmer has source of labour among family members; the more the farm is expanded. This is in line with Akuriba and Tangonyire (2020) who discovered that the average household size for out-growers was 13. However, in a different study, Ettah and Kuye (2015) found that the mean household size was 10 while the minimum and maximum were 1 and 25 respectively.

It was also found that most (96%) of the respondents had less than 10 years of rice farming experience, while few (4%) of them had more than 10 years in rice farming. The mean years of rice farming experience was 6.5years, while the minimum and maximum years spent in rice farming were 1 and 18 respectively. This indicated that the rice farmers had experience in rice farming. The implication is that engaging in WACOT out-grower scheme a little longer could have effect on the farmers. A study by Kudi (2023) revealed that 30.9% of the rice farmers had 1-10 years of rice farming experience, 32.6% had between 11-20 years of farming experience. However, in a different study, Hoang, (2021) who conducted a research on the impact of contract farming on farmers' income in the food value chain in Vietnam, found that the average farming experience of 24 years.

Based on farm size, the result in (Table 2) showed that 40.3% of the respondents had less than 5ha of farm size, also, 46.4% of the respondents had 6-10 ha of farm size. The mean farm size was 7.57, while the minimum and maximum sizes of rice farms were 1 and 30 hectares respectively. This could be as result of rice farm expansion through WACOT which helped many farmers to increase farm sizes. The implication is that the rice farmer could have large production which could improve their income and ultimately affect their level of living. This result is contrary to Kudi (2023) who reported that 61.8% of the rice farmers had less than one (1) hectare. The result is also contrary to the finding of Hoang, (2021) who found that the mean farm size is relatively small with 0.58 ha.

It was found in (Table 2) that about a half (53%) of the

Table 3: Rice farmers' perception on WACOT out-grower scheme.

Construct	Mean	Std. Dev.	Decision	Rank
WACOT out-grower scheme has a guaranteed market for rice production in Kebbi	4.30	0.570	A	1st
WACOT out-grower scheme offers access to land	4.21	0.501	A	2nd
Out-grower scheme provides farm inputs for farmers	4.21	0.608	A	3rd
WACOT out-grower scheme provides rewarding improved farming practices for farmers	4.18	0.595	A	4th
Out grower scheme promotes farmers participation	4.16	0.589	A	5th
Postharvest storage and transportation of farm produce have improved with WACOT out-grower scheme	4.15	0.486	A	6th
Out-grower scheme promoted good working relationship	4.01	0.564	A	7th
There is improved accessed to finance With WACOT out-grower scheme	3.91	0.529	A	8th
WACOT out-grower scheme is sustainable	3.80	0.664	A	9th
WACOT out-grower scheme provided unequal power relationship between the company and rice farmers	3.65	0.649	A	10th
Women have less access to contract farming than men	2.71	1.053	DA	11th
WACOT out-grower scheme is geared towards (often non-food crops for export or large urban markets)	2.70	1.091	DA	12th
Farmers often provide both the land and cheap labour	2.25	0.992	DA	13th
Farmers carry most of the risk in WACOT out-grower scheme	1.69	0.788	DA	14th

respondents had Adult education, about 18.5% of them had primary education, and 20% had secondary education, while few (8.5%) had tertiary education. This result showed that though, the respondents had one form of education or the other, the level of education was low. The implication is that having certain level of education could help farmers in engaging in out-grower schemes and other agricultural programs. This result agrees with Umar *et al.* (2020) who conducted a study on factors influencing the use of mobile phones among rice farmers in BirninKebbi Local Government Area and found that about 17.2% and 82.7% of the rice farmers had non-formal and formal education, respectively. The result also agrees that of Akuriba and Tangonyire (2020) who found that smallholder farmers in Ghana generally have low level of formal education. They reported that majority of the smallholder farmers in Northern Ghana had no formal education representing 82.4%.

Rice farmers' perception on WACOT out-grower scheme

The result in (Table 3) showed that on a scale of 5 'WACOT out-grower scheme has a guaranteed market for rice production in Kebbi' had a mean of 4.30 and a standard deviation of 0.570 hence, ranked 1st. It was also found that 'WACOT out-grower scheme offers access to land' had a mean of 4.21 and standard deviation of 0.501 and ranked 2nd. 'Out-grower scheme provides farm inputs for farmers' and 'WACOT out-grower scheme provides rewarding improved farming practices for farmers' had means of 4.21 (SD = 0.608) and 4.18 (SD = 0.598), and ranked 3rd and 4th respectively. However, the result also showed that on a scale of 5 'Farmers often provide both the land and cheap labour' and 'Farmers carry most of the risk in WACOT out-grower scheme' had means of 2.25 (SD = 0.992) and 1.69 (SD = 0.788) hence ranked 13th and 14th respectively. This showed that the respondents' body agreed with all the positive statements against WACOT and disagreed with the negative statements. This also showed that the respondents had positive perception on the WACOT out-grower scheme. The implication is that respondents' positive perception could help them in participating in WACOT out-grower scheme. This result agrees with Kudi (2023) who found that the farmers have positive perception on system of rice intensification in Zamfara State. Alarima *et al.* (2018) in a study on adoption of Sawah eco-technology in rice production by farm households in Kebbi State discovered that the attributes of Sawah, production factors, information and extension and perception of respondent toward Sawah technology influenced participation.

Conclusion and recommendation

The study concluded that rice farming activities are dominated middle aged, male farmers in the area, with the majority having a household size of 1-10. Rice farmers had a positive perception and attitude on WACOT out-grower scheme. Hence, recommended that more female farmers should be engaged in the WACOT out-growers schemes by the stakeholders so as to bridge the difference between male and female rice farmers' participation in the WACOT out-growers scheme.

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