



## **SOCIO-ECONOMIC AND CONSTRAINTS ANALYSIS OF *FARO-44* RICE FARMERS UNDER *FADAMA* III ADDITIONAL FINANCE II IN TARABA STATE, NIGERIA**

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### **ABSTRACT**

The study examined the socio-economic and constraints analysis of *faro-44* rice farmers under *fadama* III additional finance II in Taraba State, Nigeria. Multi-stage sampling procedure was used to select the respondents. Data collected from 500 respondents were analyzed using descriptive statistics (frequency, percentages, mean scores and standard deviation). The results showed that majority (83.80%) of the *faro-44* rice farmers were male; 78.80% were married; 58.20% had informal education; 33.80% acquired land through inheritance; about half (52%) had access to extension agents and a few (47.80%) had no access. Frequency of extension agent visits showed that few (28.60%) had fortnightly visits, weekly (18.60%), monthly (20.00%), quarterly (18.00%) and none (14.80%). Some (28.60%) of the respondents revealed that own sources were their main credit. Results showed a mean age of 43 years for the *faro-4* rice farmers. The respondents had mean household size of 9 persons per household. The *faro-44* rice farmers in Taraba State, Nigeria had a mean farm size of 2.66 ha. Findings also revealed that *faro-44* rice farmers had minimum and maximum of 1 year and 25 years experiences, respectively, with an average of 14.02 years farming experience. The major constraints faced by the farmers were pests and diseases (93.80%), inadequacy of information on improved rice production technologies (89.20%), farmer-herder conflicts (78.60%), inadequate capital (76.40%), high cost of farm inputs (70.20%), poor road network/transportation (66.20%), climatic factors, e.g., flood, ground water depletion, drought (66%), high cost of labour (64.60%), poor market outlet (44.20%), scarcity of improved seeds (39.60%), high cost of seedling (26.80%), land fragmentation (21.00%), inadequate extension services or contact (19.20%), price fluctuation (6.20%) and kidnapping/banditry (5.60%). It was concluded that *faro-44* rice farmers under *fadama* III additional finance II in Taraba State, Nigeria is dominated by males and the major constraints faced by the farmers were pests and diseases, inadequate information on improved rice production technologies and farmer-herder conflicts. The study recommended that women farmers in Taraba State should form strong cooperative associations in order to benefit more from such laudable *fadama* AF-II intervention/supports taking cognizance also of the enormous benefit of the women in agriculture programmes.

**Keywords:** Constraints, *Faro-44* rice farmers, Multi-stage, Socio-economic, Taraba.

### **INTRODUCTION**

Agriculture is the major sector of the Nigerian economy that has the potential to make significant impact in poverty reduction efforts since it accounts for 22% of the country's gross domestic product (GDP) and employs 54% of the 54.5 million workforces (National Bureau of Statistics [NBS], 2012). Based on 2021 projection at 3.2% annual employment growth rate, the sector employs 54% of the 123.6 million workforce (NBS, 2021). The NBS (2021) reported that on year-by-year basis, Nigeria's GDP decreased by 6.10% in real terms in the second



quarter of 2020, ending the three (3) year trend of low but positive real growth rates recorded since the 2016/2017 recession.

In Sub-Saharan Africa, particularly West African region, rice is an important food commodity for most people in their daily consumption. In Nigeria, rice has assumed a strategic position in the food basket of rural and urban households (Oyinbo *et al.*, 2013). It has changed from being a luxury to a necessity whose consumption will continue to increase with per capita GDP growth implying that its importance in the Nigerians' diet, as a major food item for food security will increase as economic growth continues to increase (Ojogho and Alufohai, 2010) and most of the farmers operated below the production frontier, hence will not be able to maximize their yield per hectare (Sani *et al.*, 2018). Oyinbo *et al.* (2013) stressed that the status of rice as a necessity in most household's food basket justifies the growing consumer preference for rice in Nigeria. This has therefore, made rice the major staple food in Nigeria where every household, both rich and poor, consumes a greater quantity (Godwin, 2012).

The Additional Financing (AF) is aimed at scaling up the impacts recorded under *Fadama* III and therefore, to support clusters of farmers in six (6) selected States with comparative advantage and high potential to increase production and productivity of cassava, rice, sorghum and horticulture value chains and link them to organized markets including the State coordinating project zones (SCPZs) when established (National *Fadama* Coordination Office [NFCO], 2017).

As reported by FAOSTAT (2012), rice plant can grow to 1–1.8 m (3.3–5.9 ft) tall, occasionally more depending on the variety and soil fertility. It has long, slender leaves 50–100 cm (20–39 in) long and 2–2.5 cm (0.79–0.98 in) broad. *faro-44* rice has medium maturing of between 100–110 days, has long grain, high yield potential and optimum production under low management (Value Seeds Catalogue, 2021).

Age has a positive relationship to productivity and attainment of technical and economic efficiencies since the older farmers believed to be more responsible and experience in carrying out farm productive decisions than the younger farmers (Ani *et al.*, 2014). As reported by Sani *et al.* (2014b), majority of *fadama* III beneficiaries and non-beneficiaries were males signifying that men dominate agricultural production activities while women are more in processing and marketing of farm produce. *Fadama* III project impact on crop productivity was statistically significant by 43%, increase among male beneficiaries (25%), and female beneficiaries has 157% (Sani *et al.*, 2014b).

Osanyinlusi and Adenegan (2016) expressed that age was positively related to productivity. This implies that an increase in age of the respondents would lead to an increase in productivity. The increase in age could make them to have had a mastery of the rice production activity in the aspect of management and resource utilization.

Pest infestations and financial constraints were ranked as the most challenging factors limiting rice production (Osanyinlusi and Adenegan, 2016). Extension services should be intensified in the area to educate the farmers on the appropriate application rate of fertilizer and seed rate per hectare; and in addition, the relevant research institutes should develop a technology for controlling or preventing birds' infestations and financial constraints were ranked as the most challenging factors limiting rice production (Osanyinlusi and Adenegan, 2016).

## MATERIALS AND METHODS

### The Study Area

Taraba State lies between Latitude 8°30' North and 9°30' North of the Equator and Longitude 8°30' East and 10°30' East of the Greenwich meridian. The State covers landmass of 14,099km<sup>2</sup>. The State had 2,300,736 people (National Population Commission [NPC], 2006)

and a projected 3,552,344 people as at 2023 based on 3.2% annual population growth of the State. The State has annual rainfall of between 1,000 mm to 1,250 mm and maximum temperature ranges of between 21.1<sup>0</sup>C to 26.7<sup>0</sup>C. The mean annual rainfall ranges from 800mm to over 1800mm in the southern Taraba.

The State shares boundary with Nasarawa and Plateau State to the North-west, Benue State to the South-west and Republic of Cameroun to the Southeast (Taraba Agricultural Development Programme [TADP], 2010; TADP, 2019). The zone has a tropical climate marked by dry and rainy seasons. The rainy season starts in April and ends in October. The wettest months are August and September. The dry season starts in November and ends in April. The mean minimum daily temperature recorded is 14.8<sup>0</sup>C and the mean maximum daily temperature recorded is 34.4<sup>0</sup>C (TADP, 2010). The vegetation of the zone is Guinea savannah type. The study area is predominantly agrarian with about 80% of its inhabitants depending on subsistence agriculture practices mainly in food and cash crops like rice, cassava, yams, benni seed and maize (TADP, 2010; TADP, 2019).

The vegetation of Taraba State is the Guinea Savannah type with the State being predominantly agrarian and some of the major crop produced are cassava, yam, maize, rice, soybeans, oil palm, cocoa, coffee, mangoes, citrus, and banana, dry season production of maize, rice sugarcane and vegetable. Other economic activities include: livestock rearing, fishing, trading and tailoring. Taraba State was predominantly agrarian in nature with about 50% of its inhabitants depending on subsistence agricultural practices mainly in food crops. The soil type in the study area was predominantly alluvial and sandy light loamy soil with occasional laterite out-grouped here and there. There are rugged hills and mountains with fertile plains and valleys intervening within the northern part of the local government area (Taraba State Government (2015). The ethnic groups include: Chambas, Mambilas, Mumuyes, Jukuns, Wurkums, Fulani, Jenjo and the Tivs among others (Taraba diary, 2014). TADP (2019) revealed that as at 2019, the number of farm families in Taraba State was 230, 000 and is projected 0.5% annual growth to be 1,265,000 as at 2021 (Taraba diary, 2014). The index map of Taraba State showing locations of sampled areas is presented in Figure 1.

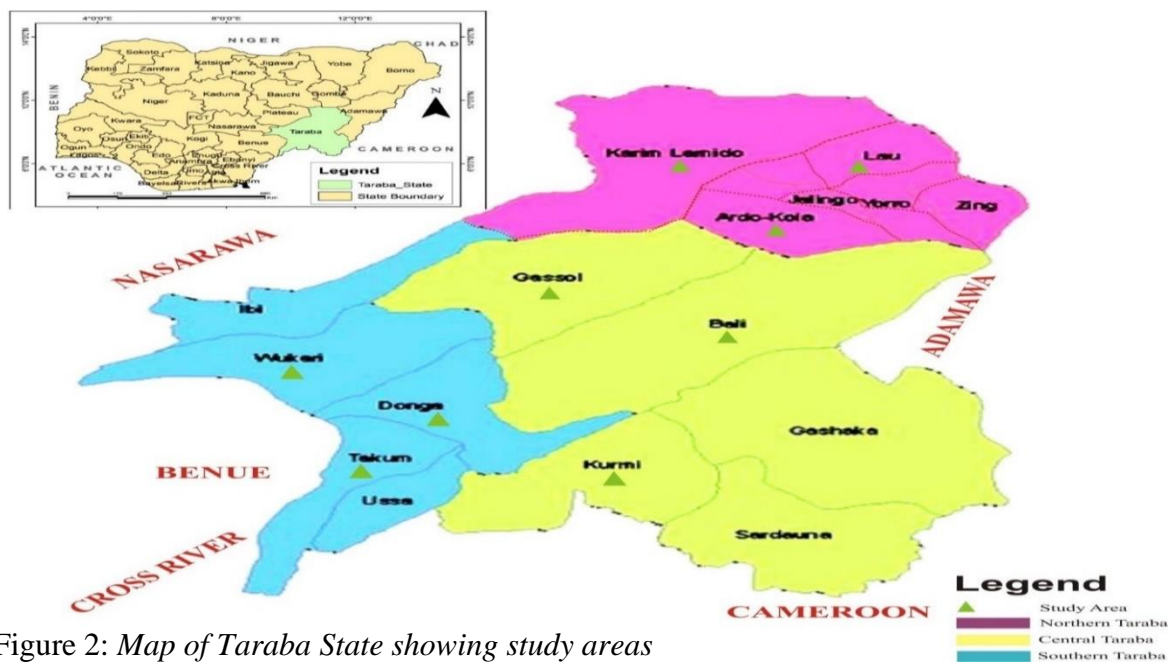


Figure 2: Map of Taraba State showing study areas

Source: Department of Survey and Geoinformatics, ATBU, Bauchi, 2021



### Sampling Procedure and Sample Size

A sample size of 500 *faro-44* rice farmers beneficiaries of the *fadama* III AF II out of 5,000 sample frame was used for this study. Multi-stage random sampling procedure was used in selecting the farmers from *fadama* Community Associations (FCAs) of farmers who benefitted from the *fadama* III additional finance II (AF-II) project in selected Local Government Areas (LGAs). *Faro-44* rice variety is the most commonly adopted rice varieties among farmers in Taraba State. It yields higher compared to other *rice* varieties and can be grown in all the agro-ecological regions of Nigeria.

In stage one, three LGAs were randomly selected from each of the three Agricultural zones (Northern Taraba, Central Taraba and Southern Taraba) making a total of nine LGAs that participated in the project. In stage two, 21 FCA districts and 33 FCA wards were randomly selected from the nine selected LGAs. In stage three, purposive sampling technique was used to select the 500 *faro-44* rice beneficiaries' farmers of the *fadama* III AF II project from the study area as presented in Table 1.

In the final stage, from the selected FCAs at the districts and wards level, 10% of 5,000 registered farmers (sample frame) with *fadama* III AF-II project in each ward were randomly selected making 500 sample size for the study as presented in Table 1. This is in line with Eboh (2009) who proposed 10% for 2,000-5,000 sampling frames in social science research.

**Table 1:** Sample size selection procedure of the study

LGA	FCA districts	FCA wards	Sample frame	Sample size (10% of sampling frame)
Northern Taraba:				
Ardo Kola	Ardo Kola	Ardo Kola	191	19
	Mayorenewo	Iware	25	3
		Mayorenewo	92	9
		Tau	92	9
Karim Lamido	Sunkani	Mallum	30	3
	Bachama	Darofoi	585	59
		Kwanchi	177	18
		Jen Ardido	176	18
		Karim A	600	60
		Karim B	520	52
Lau	Garin Dogo	Garin Dogo	222	22
	Lau A	Lau A	388	39
	Lau B	Lau B	130	13
	Mayo Lope	Mayo Lope	105	11
Sub-total			3,333	335
Central Taraba:				
Bali	Bakundi	1. Bali A	120	12
		2. Bali B	75	8
		3. Maihula	100	10
Gassol	Gassol	Gassol	245	25
	Mutum Biyu	Mutum Biyu	420	42
		Namnai	180	18
		Sansani	60	6
Kurmi	Abong	Ashuku/Eneme	40	4
		Asha	60	6
	Ndaforo	Ndaforo	25	3
Sub-total			1,325	134

Source: Reconnaissance survey (2022)





**Table 1:** Sample size selection procedure of the study **Cont'd.**

LGA	FCA districts	FCA wards	Sample frame	Sample size (10% of sampling frame)
<b>Southern Taraba:</b>				
Donga	Akate	Akate	40	4
	Benye	Asibiti	10	1
	Donga	Mararraba	52	5
	Nyita	Nyita	25	3
Takum	Chanchaji	Chanchaji	40	4
		Dutse	10	1
		Kuru	45	5
Wukari	Nwonko	Bantaje	45	5
	Tsokundi	Tsokundi	75	8
<b>Sub-total</b>			<b>342</b>	<b>36</b>
<b>Grand total</b>			<b>5,000</b>	<b>500</b>

Source: Reconnaissance survey (2022)

### Method of Data Collection

Primary data were collected from 500 using structured questionnaire and interview schedule with the aid of properly trained enumerators to generate data for the study in 2021. Information collected was on the socio-economic characteristics of the *faro-44* rice farmers under *fadama* III additional finance II project and the constraints faced by the farmers.

### Method of Data Analysis

The study used both descriptive (frequency, percentages, mean scores and standard deviation) to achieve objectives of the study. The data on constraints faced by the *faro-44* rice farmers in the study area were collected and measured on a 5-point likert rating scale of: strongly agree = 5, agree = 4, undecided = 3, disagree = 2, strongly disagree = 1. The mean scores specified as:

$$\text{Mean score} = \frac{(f_1x_1 + f_2x_2 + f_3x_3 + f_4x_4)}{(f_1 + f_2 + f_3 + f_4)}$$

where;

$F_1 \dots f_4$  = total frequency for each category of item.

$x_1 \dots x_4$  = observed variables.

## RESULTS AND DISCUSSION

### Respondents Sex, Marital Status, Level of Education and source of Land

Sex of the household head which is the biological formation and categorization of the farmers into male or female. The marital status is whether the farmers were married, single, divorced or widowed. Table 2 reveals the results of the socio-economic characteristics of the *faro-44* rice farmers. The result shows that 83.80% of the respondents were male while 16.20% were female implying that *faro-44* rice farming is male dominated in the study area as a result of the laborious nature of rice production activities. This finding agrees with Audu and Onoja (2012) that in Northern Nigeria, men dominated field crop production and animal rearing while women do the processing and storage because of the *pudah* system which, confines married women to the family and enclosure in the day time. This finding is also, in consonance with Sani *et al.* (2014b) who report that majority of *fadama* III beneficiaries (87.3%) and non-



beneficiaries (90.5%) are male signifying that men are more attracted in agricultural production activities than the females who most often like to be more engaged in non-farm activities, e.g., processing (winnowing) and marketing. This is in consonance with Orifah *et al.* (2021) that majority (98%) of the rice farmers were males. This result is also in consonance with Osanyinlusi and Adenegan (2016) who states that male farmers dominated rice farming probably due to its nature of intense and time-consuming. By implications, this finding warrants the need for introduction of modern rice harvesting and processing technologies in order to minimize the huge and laborious nature of rice production.

In terms of marital status of the respondents, majority (78.80%) were married and this agrees with Orifah *et al.* (2021) that 90% of rice farmers were and few were single. This alludes to the facts that married farmers could be more productive and engaging in farming activities in order to provide food security for their households. This also implies from the theory of labour opportunities in farm production that been married arising from family members could provide cheap sources of labour sources for across the farm production chains.

Table 2 shows that more than half (58.20%) of the respondents had informal education that can guide the mental attitude of the farmers for the awareness and acceptance of new rice value chain practices. This result is contrary to Orifah *et al.* (2021) that 66.1% of the rice farmers had formal education. Also, (18.80%) never attended school, (13.60%) and (6.00) attained primary and secondary education, respectively. By implications, literate farmers will be more productive on farm production and enhancement skills and would be technically, allocatively and economically efficient than illiterate farmers. It is glaring from the results that the respondents had minimal level of education that could enable them acquire skills and technologies adaptation to enhance farm efficiency. This finding is in line with Boniphace *et al.* (2014) and Oparinde and Daramola (2014) cited in Ndanitsa *et al.* (2020) that education enhances farmer's access to information and proper use of inputs, leading to higher marketable surplus.

Based on the results on farmers educational level, Mustapha *et al.* (2012) and Olumba (2014) also supported these finding as, respectively, reported in their work in Pategi, Kwara State that 39% of the rice farmers had only adult education with very low formal education and in Anambra State that majority of the farmers had primary level of education and as such, land sources is very key to rice and any form of farm production.

As revealed in Table 2, many (33.80%) of the *faro-44* rice farmers acquired land through inheritance, 19.80% by renting and few (12.00%) by lease; purchase (16.00%) and government allocation 49(9.80). These results signify that land by inheritance dominate sources of land for rice cultivation in the study area meaning that customs and traditions plays significant roles in land acquisition by the respondents and those who can afford also renting, and at times by leasing for share cropping as alternative or numerous sources of land acquisition for rice farmers in the study area.



**Table 2:** Distribution of the respondents according to sex, marital status, level of education and source of land for cultivation

Variables	Frequency (n = 500)	Percentage
<b>Sex</b>		
Male	419	83.80
Female	81	16.20
<b>Marital status</b>		
Single	73.00	14.60
Married	394.00	78.80
Divorced	10.00	2.00
Widowed	23.00	4.60
<b>Highest level of education</b>		
Never attended School	94	18.80
Informal education	291	58.20
Primary	68	13.60
Secondary	30	6.00
Tertiary	17	3.40
<b>Source of land</b>		
Inheritance	169	33.80
Lease	62	12.40
Purchased	80	16.00
Join ownership	30	6.00
Gift	13	2.60
Rent	97	19.40
Government allocation	49	9.80

Source: Field survey, 2022

### **Farmers' Access to Extension Agent, Frequency of Visits and Source of Farm Credit**

Farmers' access to extension agents refers to the status of extension personnel visits to farmers. Table 3 results further disclosed that half (52.20%) of the respondents had access to extension agents and a few (47.80%) had no access. The results means that faro-44 rice farmers had reasonable access to extension visits or contacts as it could enhance more farmers awareness and adoption of *faro-44* rice farm technologies to enhance farm efficiencies. This implies extension agents visited more on fortnightly basis to the rice farmers as an indication that knowledge sharing and dissemination would improve the farmers' production efficiency. This result is contrary to Madu and Aniobi (2018) in their study that majority (52.4%) of farmers had no contact with extension agents throughout the year. The respondents' frequency of extension agent visits as presented in Table 3 shows that few (28.60%) had fortnightly visits, weekly (18.60%), monthly (20.00%), quarterly (18.00%) and none (14.80%). This finding is consistent with the findings of Abu (2015) and Agwu *et al.* (2013) who both reported that



extension services is needed to facilitate technical advice on farming issues, such as what to produce and when to produce to facilitating access to input supplies, the provision of market information and capacity building training to farmers.

On sources of farm credit (Table 3), some (28.60%) of the respondents stated that own sources were the main credit sources followed by friends/relatives (26.40). This signifies that informal type credit dominates the sources of farm credit in the study area and by implications, farmer would enhance farmers capital formation and credit capacity confidence of the *faro-44* rice farmers in Taraba State. Apata *et al.* (2010) findings support these results as access to farm credits plays significant role in the entire farm production cycle and farmers' welfare.

**Table 3:** Distribution based on farmers' access to extension agent, frequency of extension agent visits and source of farm credit (n = 500)

Variables	Frequency	Percentage
<b>Access to extension agent</b>		
Yes	259	52.20
No	241	47.80
<b>Frequency of extension agent visit</b>		
Weekly	93	18.60
Fortnightly	143	28.60
Monthly	100	20.00
Quarterly	90	18.00
None	74	14.80
<b>Source of farm credit</b>		
Own savings	143	28.60
Friends/relatives	132	26.40
Cooperatives	108	21.60
Institutional sources	117	23.40

Source: Field survey, 2022

### **Farmers' Age, Household Size, Farm Size, Farming Experience and Annual Income**

Table 4 show a mean age of about 43 years, minimum and maximum age of 18 and 67 years, respectively, for the *faro-4* rice farmers in the study area meaning that majority of the total farming population in the study area are still within the productive age and can adequately manage and carry out production activities efficiently. The implication of this results is that *faro-4* rice farm households in Taraba State are in their economically active age group and this may lead to a high tendency of adopting modern technologies for technical progression. The result is in consonance with Orifah *et al.* (2021) who report mean age of 41 years and Ben Chendo - *et al.* (2017) who reports mean age of 49 years. The respondents had mean household size of 9 persons implying availability of family labour in the study area. Also, this result is in agreement with Ndanitsa *et al.* (2020) findings with mean household persons of 9 and 11 for rice investment consortium project participants and non-participants, respectively, in Niger State, Nigeria.





The *faro-44* rice farmers' mean farm size (ha) as presented in Table 4 was 2.66 ha. The implication of this finding is that the respondents have the tendency of operating a medium size farm which could lead to commercialization and generating incentives for marketable surplus for the farmers. This finding corroborates with Ndanitsa *et al.* (2020) reporting a mean farm size of 2.0 ha and 1.85 ha for the rice investment consortium project participants and non-participants, respectively. This means that the respondents were typical smallholders which could negatively affect mechanization and commercialization. However, Abdulrahman *et al.* (2018) and Onyeneke (2017) also differ with this result saying rice farmers operated average farm size of 4 ha and 1.8 ha in Kano and Imo States of Nigeria, respectively.

Table 4 also reveal that, *faro-44* rice farmers have minimum and maximum of 1 year and 25 years experiences, respectively, with an average of 14.02 years farming experience implying that the farmers had sufficient years of experience to enable them cope and manage rice farm production activities to attain farm efficiency. The *faro-44* rice farmers in the study area earns minimum annual income of ₦28,722.00 and maximum income of ₦189,101.00 with a mean income of ₦108,194.64 annually. This implication of these results is that the farmers annual realizable incomes can sustain the farmers' family welfare, production expenses and could still have income savings.

**Table 4:** Distribution based on farmers' age, household size, farm size, farming experience and annual income (n = 500)

Variables	Minimum	Maximum	Mean
Age (Years)	18	67	42.64
Household size (Number of persons)	1	18	9.17
Farm size (ha)	0.21	5.97	2.66
Farming experience (Years)	1.00	25.00	14.02
Annual income on <i>faro-44</i> rice (₦)	28,722.00	189,101.00	108,194.64

Source: Field survey, 2022

### Constraints faced by *Fadama III AF-II Faro-44* Rice Farmers in Taraba State

The results (Table 5) of major constraints faced by *fadama III AF-II faro-44* rice farmers in Taraba State, Nigeria were identified and discussed in this section. Pests and diseases were the major (93.80%) constraints faced by *fadama AF-II faro-44* rice farmers in Taraba State, Nigeria. This finding is in consonance with Osanyinlusi and Adenegan (2016) that pest and diseases infestations as major factors limiting rice production. Majority (89.20%) of the respondent reveals inadequate information on improved rice production technologies as constraint hindering *Fadama AF-II Faro-44* rice farmers in Taraba State, Nigeria. Information flows on improved rice production technologies such as varieties, processing technologies and marketing technologies could contribute greatly to sustainability of *faro-44* rice yield increase in Taraba State, Nigeria.

Farmer-herder conflicts led to households' livelihoods devastated due to farmer-herder conflicts in the study area. The results show that majority (78.60%) of the respondents attested that farmer-herder conflicts had affected their rice production greatly. This finding is in agreement with Oguntolu and Sani (2021) where it was established that crops and properties, destruction of livestock and disruption of peace were the major effects of crop farmers-pastoralists conflicts in Benue State, Nigeria.

The 4th constraints were inadequate capital with 76.40% of the respondents saying it affected their *faro-44* rice farming in Taraba State, Nigeria. Ogundeke and Okoruwa (2006)



cited in Osanyinlusi and Adenegan (2016); Fakayode (2009); Apata (2007) reported inadequate funds or capital as the greatest challenge in rice production. High cost of farm inputs (70.20%) was another constraint in *faro-44* rice production in Taraba State, Nigeria. There has been high cost of farm inputs such as fertilizers, land, labour, herbicides and insecticides in the study area. This may be due to high competition for farm inputs against low supplies of the inputs. Banseka (2015) reported that most farmers are in dire need of farm inputs, but, very often, the inputs are not available.

Poor road network/transportation problem as said by the respondents constitute 66.20% and ranked as 6th constraint to *faro-44* rice farming in Taraba State, Nigeria. The aim of *fadama* III Additional finance II is to support farmers with rural network of roads and rehabilitations (NFCO, 2018). This will go a long way in easing transportation of farm produce at reduced cost all things being equal (*ceteris paribus*).

In Taraba State, Nigeria 66% of *faro-44* respondents reveals that climatic factors, e.g., flood, ground water depletion, drought ranked 7th affected their production. Ayinde *et al.* (2013) supported this result saying a 1% rise in humidity may bring about 17% decrease in rice production. Environmental factors, like rainfall irregular and temperature correlate with crop production and yield of rice production in Nigeria (Bersir and Ceylan, 2013; Sawa and Adebayo, 2011).

With regards to high cost of labour, many (64.60%) of *faro-44* rice farmers said it affected their production and is ranked as 8th constraints. As we all know, labour (family and hired) is critical in rice farming as revealed by Madu and Aniobi (2018) cost of labour accounted for the largest proportion (54.0%) of the total variable costs in rice production.

Poor market outlet was ranked 9th with many (44.20%) of the *faro-44* rice farmers saying poor market outlets was a constraint faced in their production. Ogundele and Okoruwa (2006) cited in Osanyinlusi and Adenegan (2016) reported that market failures contribute to decrease in rice production margins; and Suwanmaneepong *et al.* (2020) reported that price differences across market segments within the rice distribution channel and profitability may be due to poor market information and outlet.

Scarcity of improved seeds as a constraint was ranked 10th with 39.60% of the *faro-44* rice farmers who reveals that scarcity of improved rice seeds affected their output yield. Consequently, the farmers were able to source additional improved seed varieties from open markets at high cost. As reported by Ayedun and Adeniyi (2019), improved seeds (43%) were a constraint in reducing gross margin of rice production and that 68% of the sourced their seeds from self and in most cases recycled over time. Similarly, 26.80% of *faro-44* rice farmers in Taraba State, Nigeria reported high cost of seeds ranked 11th as additional constraints faced in their production.

Table 5 shows that land fragmentation as a constraint was ranked 12th with few (21.00%) by the respondents. Land fragmentation has implications on farm resource planning as this result is in agreement with Ohen and Ajah (2015) who stated that poor storage facilities constraint rice production. Furthermore, poor storage facilities as ranked 13th with few (20.20%) stating it as a constraint.

Inadequate extension services or contact was a constraint ranked 14th with only (19.20%) of the respondents saying so. Extension services is key in farm and off-farm production. Price fluctuation as ranked as 15th constraint (6.20%) in *faro-44* rice farming in Taraba State, Nigeria. Lastly, only 5.60% of the *faro-44* rice farmers in Taraba State, Nigeria reported fear of kidnapping/banditry as a constraint and ranked as the 16th constraint.



**Table 5:** Constraints faced in dry and wet season by *faro-44* rice farmers (n = 500)

Constraints	*Frequency	Percentage	Rank
Pests and diseases	469	93.80	1st
Inadequate information on improved rice production technologies	446	89.20	2nd
Farmer-herder conflicts	393	78.60	3rd
Inadequate capital	382	76.40	4th
High cost of farm inputs	351	70.20	5th
Poor road network/transportation problem	331	66.20	6th
Climatic factors (flood, ground water depletion, drought)	330	66.00	7th
High cost of labour	323	64.60	8th
Poor market outlet	221	44.20	9th
Scarcity of improved seeds	198	39.60	10th
High cost of seedling	134	26.80	11th
Land fragmentation	105	21.00	12th
Poor storage facilities	101	20.20	13th
Inadequate extension services or contact	96	19.20	14th
Price fluctuation	31	6.20	15th
Kidnapping/banditry	28	5.60	16th
<b>Total</b>	<b>3,939</b>		

\*Multiple response exists

Source: Field survey, 2022

## CONCLUSION AND RECOMMENDATIONS

The study concuded that the *faro-44* rice farmers under *fadama* III additional finance II in Taraba State, Nigeria is dominated by males and the major constraints faced by the farmers were pests and diseases, inadequate information on improved rice production technologies, farmer-herder conflicts, inadequate capital and high cost of farm inputs. It was recommended as follows:

1. Women farmers in Taraba State, Nigeria should form strong cooperative associations in order to benefit more from such laudable *fadama* AF-II intervention/supports taking cognizance also of the enormous benefit of the women in agriculture programmes.
2. More of the farmers should be scaled-up to formal educational levels through farmers forming cooperative societies for scholarship supports to further boost the farmers capacity in rice production.
3. Finally, there is urgent need for the government and non-governmental organization (NGOs) and farmers to cooperate and tackle farmer-herder conflicts, kidnapping and banditry in order to boost farmers confidence and safety while working on their rice farm.

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