



# Effect of Farmers Field Business School (FFBS) on yield of small-scale rice farmers in Taraba state, Nigeria

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## Abstract

The study was conducted on Effect of Farmers Field Business School (FFBS) on yield of small-scale rice farmers in Taraba State, Nigeria. The specific objectives were to; describe the socioeconomic characteristics of the farmers; determine the effect of FFBS on yield of the farmers and identify the constraints associated with FFBS in the study area. Multi-stage sampling technique was used in selecting of eighty (80) respondents. Data were collected through structured questionnaire and analyze using frequency, percentage, likert scale and chi-square. The result on socio-economic characteristics of the respondents revealed that the average age was 30years. Majority 65.2% of them were male and most 65.2% were married. The mean household size was 6 persons; most 78.8% attained one form of education or the order while the mean year of rice farming experience was 6years. Most (96.3%) of them have contacts with the extension workers and their mean farm size was 3 hectares. The chi-square result indicated that FFBS improved yield of participatory farmers. The findings also indicated that insecurity, inadequate numbers of extension worker/facilitators and no follow up after training of farmers were the majors' constraint which affected FFBS activities in the study area. Recommendations; government should device means of improve the security of life and properties of farmers, government should employ more extension workers to the ratio of 1:100 for effective training (FFBS) and extension workers should endeavour to follow up the farmers to ensure that what they have been trained was successful implemented appropriately and proffered solution to areas of challenges.

**Keywords:** effect, Farmers Field Business School (FFBS), yield, small scale, rice, farmers

## 1. Introduction

Agriculture is a major driver of economic growth in Nigeria with the involvement of 70% of the rural population in one form of production or the other and a contribution of about 50% to the Gross Domestic Product in 2020/2021 (National Bureau of Statistic /Federal Ministry of Agriculture and Rural Development, 2020). Over the years, Nigerian farmers working under difficult circumstances have deployed their local knowledge and expertise in ensuring that they feed the nation. A combination of increasing population and degradation of natural resource base for agricultural production has stretched the use of traditional agricultural system by farmers to the limit (FAO, 2020). They still rely on traditional technology characterized by low productivity due to limited access to improved farming technologies, farm machines, farm inputs and approaches. According to the World Bank (2020), only 10 tractors are available per 100 hectares of farm land in Nigeria as compared to 241 tractors per 100 hectares in Indonesia. Fertilizer application in Nigeria is estimated at 13 kg per hectare while the fertilizer usage for the rest of the world is 100 kg per hectare (International Fertilizer Distribution Center, 2018).

However, Small scale farmers living in rural areas are the predominant producers of food in Nigeria and the food they produced is not enough to feed it timid population. The stagnation in Nigerian agricultural productivity is as a result of loss of efficiency in Agricultural production (International

Food Policy Research Institute, 2016). Cereal crop such as rice is a very important staple in Nigeria. Thus, the demand for rice will continue to grow, due to rapid population growth (IFPRI, 2016). Nigeria is the second largest importer of rice in the world, and the highest importer of rice in countries in West Africa (Cadoni and Angelucci, 2013; Onyekwena, 2016).

Therefore, for the Government of Nigeria to increase its productivity and meet up with its demand for rice, it adopted extension strategies and approaches known as Farmers Field Business School (FFBS) that will enable the farmers to develop skills and knowledge that will increase their yields and well-being (FAO, 2014). Farmers Field Business School (FFBS) is one of the approaches which based on an innovative, participatory, interactive, demonstration and learning whereby farming is a business while farm is the school (FAO, 2014). It emerged as a way for small-scale farmers to investigate and learn how to acquire required skills for quality production technologies and marketing techniques. Although the programme and activities for each FFBS are different, FFBS aims to provide farmers with knowledge and skills in market-oriented farm business planning and management through a "learning by doing" approach. The lessons learned will help the farmers to become better decision makers, and to better react to market requirements (FAO, 2014).

The FFBS was originally developed by the Food and Agriculture Organization (FAO) in the 1980s from Asia, in response to the negative side effects of the Green Revolution

in Southeast-Asian rice production (Gallagher *et al.*, 2009; Kenmore *et al.* 1995). Particularly, insecticide-induced pest outbreaks threatened food security and demonstrated the inability of the prevailing ‘technology transfer’ strategy of agricultural extension to deal with those adverse effects. After Asia, the FFBS approach has extended to several countries in Africa and Latin America in 1995-1996. At the same time, it has shifted from a focus on a single constraint of a single crop (IPM for rice based systems) to an emphasis on the multiple aspects of crop production and management, to cropping systems, to non-crop/forest (livestock production etc.), to natural resource management (soil fertility, water conservation etc.), and to Socio-cultural dimensions of community life (food security & nutrition, savings, health, HIV/AIDS, literacy training, livelihoods etc. (Kenmore *et al.*, 1995). African countries implementing the approach include Kenya, Uganda, Tanzania, Zimbabwe, Zambia, Malawi, Ethiopia, Ghana, Nigeria, Gambia, Egypt, Lesotho, Swaziland and Mozambique.

In Nigeria, this approach (FFBS) was launched by Food and Agriculture Organization of the United Nations through International Fund for Agricultural Development- Value Chain Development (IFAD-VCDP) Programme in 2014. The approach was implemented in six states participating in IFAD-VCDP this include; Anambra, Benue, Ebonyi, Niger, Ogun, Taraba State. In Taraba State, the approach is being implemented in Ardo-kola, Bali, Donga, Gassol, Jalingo, Karim-Lamido, Takum and Wukari LGAs.

However, despite many policies, and strategies adopted by the Nigerian government to as provide programmes, technical assistance and support to improve yields and welfare of small scale farmers’ through farm inputs voucher programme, Fadama I, II, III programme, Value Chain Development Programme and others. With all this, statistics had shown that the productivity of rice couldn’t meet its domestic demand. Therefore, it is imperative to assess the effect of Farmers Field Business School (FFBS) on yield of small scale rice farmers in Taraba State, Nigeria. The specific objectives were;

- Describe the socioeconomic characteristics of the respondents;
- Determine the effect of FFBS on yield of the farmers and
- Identify the constraints associated with FFBS activities in the study area.

### Hypothesis of the study

Null hypothesis (H<sub>0</sub>): there is no significant difference between the yields of the farmers in FFBS activities.

## 2. Methodology

### The study area

The study was conducted in Taraba State, Nigeria. Taraba State is located at the north eastern part of Nigeria. It lies between latitude 8° 00’ and 0° 00’ north of the equator and longitude 10° 30’ and 10° 500’ east of the Greenwich meridian. The state shares boundaries with Bauchi and Gombe states in the north, Adamawa state in the east, and the Cameroon Republic in the south. The state is bounded along its western side by Plateau,

Nassarawa and Benue states. The state has a land area of 58,795 km<sup>2</sup> with a population of about 3,609,800 million people (projected at 2.9% from the 2006-2022 National Population Census). It is divided into sixteen Local Government Areas (LGAs) and three senatorial districts (Taraba north, central and south). The state has an average annual rainfall of 100.64mm with a temperature of about 30°C – 40°C. It is characterized by dry and rainy season common to tropical region. Taraba State is regarded as Nature’s Gift to the Nation because of its abundant natural resource endowment. The state is well endowed with abundant solid mineral resources, surface water resources, arable and grazing land. The major occupation of the people of Taraba State is agriculture. The state is blessed with good climate and vegetation types that cut across the State, ranging from a more humid climate to a forest vegetation in the south to a more seasonal wet and dry climate and savanna vegetation in the north. These favours the growth of cereals crops like rice, maize, millet, sorghum and guinea corn while tree crops such as palm oil, banana/plantain and orange. Root crops grown in the state include cassava, potato and yam, while Cash crops produced in the state include coffee, tea and groundnuts. In addition, cattle, sheep and goats are reared in large numbers, especially on the Mambilla Plateau, and along the Benue and Taraba river valleys (Oruonye and Abbas, 2011).

### Method of data collection

Data for this study was collected from primary source using structured questionnaire administered.

### Sampling procedure and sample size

A multi-stage random sampling technique was used in selecting the sample for the study. IFAD-VCDP rice farmers constituted the population for the study. In the first stage, five (5) Local Government Areas were purposively selected namely; Ardo-kola, Gassol, Karim-lamido, Takum and Wukari respectively. This was because they are participatory Local Government of IFAD-VCDP in Taraba State.. In the second stage, two (2) communities were randomly selected from each of Local Government to give a total of 10 communities. In the third stage, from sample frame of 550 registered rice farmers with IFAD-VCDP, 110 respondents were randomly selected at 20% proportionate to each of the communities selected which form sample size for the study. However, out of 110 questionnaires administered 80 were properly filled and retrieved

### Analytical techniques

The study adopted both descriptive and inferential statistics to analyze the data. The descriptive statistics such as frequency, mean, standard deviation and Likert scale were used to analyze objective (i) and (iii) while inferential statistics such as chi-square was used to analyze objective (ii).

Chi-square is expressed mathematically as;

$$X^2 = \sum (O-E)^2/E$$

Where:

$$X^2 = \text{Chi-square}$$

Σ=Summation

O=Observed value

E=Expected value

### 3. Results and discussion

#### Socio-economic characteristics of the respondent

The result in Table 1 shows that the average age of the respondents was 30 years with standard deviation of 5. This indicates that most of respondents were young, who were at their youthful age and can adopt any new technologies introduced to them. Majority 65.2% of the respondents were male, while 34.8% were female. This implies that male were the dominant participants in FFBS than their counterpart. This might be fact that male is risk taker and more willing to adopt new technologies. Most 65.2% of the respondents were married, while 34.8% was single. This indicates that most of the respondents were married men and women. This indicates that the cooperation between husband and wives will enable them to adopted new technologies and make productive decision. Access to helpful information by the couple could be mutually well-thought –out for supreme decision.

The mean household size of the respondents was 6 persons This is an indication the households may not need to involve paid labour for rice production activities since the family labour if not engaged elsewhere, could be effectively utilized to boost level of production and increase income..The participants in the approach were reasonably educated with 53.8%, 5% and 20% who attained secondary, tertiary and primary education respectively While 21.3 % didn't attained any formal education. This implies that most 78.8% of the respondents attained one form of education or the order which enable them to had greater potentials for understanding and adopting any new technologies introduced to them.

The mean year of rice farming experience of the respondents was 6years. This indicates that the respondents were well experienced rice farmers. With their high level of experience they could adopt innovative skills and make decision that would increase their production.

The result in Table 1 revealed that 96.3% of the respondents had contact with the extension workers, while 3.8% of the respondents didn't have contact with extension workers. This implies that most (96.3%) of the respondents have contacts with the extension workers which enable them to have more knowledge and techniques that would increase their production. The mean farm size of the respondents was 3 hectare. This implies that respondents were mostly small- scale farmers who cultivated less than 5 hectare in the study area

#### Effect of FFBS on yield of the farmers

The result of Table 2 shows that the calculated chi-square  $X^2$ -value was 5.49, p- value was 0.05 significant and degree of freedom was 79 while the Tabulated  $X^2$ -value was 1.98. Based on decision rule of chi-square  $X^2$  since the calculated  $X^2$ -value was (5.49) is greater than Tabulated  $X^2$ -value was (1.98), so we reject the null ( $H_0$ ) hypothesis which stated that there is no

significant difference between the yield of farmers in FFBS activities and accept the alternative ( $H_a$ ) hypothesis. This indicated that those farmers who participated in FFBS activities got more yield than others who didn't participated which may be due to the skills, technique, demonstration, learning, contact with extension workers, adoption of new technologies, etc. This also indicated that FFBS had impacted positively on the livelihood of farmers in the study area.

#### Constraints associated with FFBS activities

The major constraints associated with FFBS activities in the study area were presented in Table 3. Constraints encountered by the respondents were ranked according to their relative severity. The insecurity had mean of 3.9 with standard deviation (SD) of 0.0337526, inadequate numbers of extension worker/facilitators had mean of 3.79 with (SD) of 0.049343, No follow up after training of farmers had mean of 3.61 with (SD) of 0.0824731, Lack of farm inputs and machinery had mean of 2.93 with (SD) of 0.0770808, Individual difference among the farmers had mean of 2.78 with (SD) of 0.1179667, Promise made by extension workers were not met had mean of 2.76 with (SD) of 0.1128511, Lack of access to loan among the farmers had mean of 2.75 with (SD) of 0.1128511 and Time consuming had mean of 2.4 with (SD) of 0.1174620. This implies that insecurity, inadequate numbers of extension worker/facilitators and No follow up after training of farmers were the majors' constraint which affected FFBS activities in the study area.

### 4. Conclusion and recommendations

The FFBS has impacted positively on the livelihood of farmers in the study area. Participation in FFBS approach has enhanced the yield of farmers remarkably. This may be due to adoption of skills, technique, innovation and contact with extension agents. But major constraints associated with FFBS activities were; insecurity, inadequate numbers of extension worker/facilitators and no follow up after training of farmers were the majors' constraint which affected FFBS activities in the study area. Recommendations include;

- The government should devise means of improve the security of life and properties of farmers through establishment of peace and conflict resolution committee, hunters and vigilante groups and create more awareness among farmers to avoid taken laws into their hands. They should always report any suspicious act to the appropriate authority. The affected farmers should also dialogue and forgive one another for peace to reign among them.
- The government should employ more extension workers to the ratio of 1:100 that is one extension worker to hundred farmers for effective training (FFBS).
- The extension workers should Endeavour to follow up the farmers to observed whether what they have been trained was successful implemented appropriated or not and also proffered solution to areas of challenges.

**Table 1:** Socio-economic characteristics of the respondents (n=80)

Variables	Respondents	Percentage (%)	Mean	Minimum	Maximum	Std. Dev.
Age	--	-	30	22	50	5.02
Sex						
Male	52	65.2	-	-	-	-
Female	28	34.8	-	-	-	-
Married status						
Married	52	65.2	-	-	-	-
Single	28	34.8	-	-	-	-
Household size(persons)	-	-	6.34	1	12	1.79
Educational status						
Non formal education	17	21.3	-	-	-	-
Primary Education	16	20	-	-	-	-
Secondary Education	43	53.8	-	-	-	-
Tertiary Education	04	5.0	-	-	-	-
Farming Experience	-	-	5.75	2	12	1.66
Extension contact						
Yes	77	96.3	-	-	-	-
No	03	3.8	-	-	-	-
Farm Size (Ha)	-	-	2.81	1	5	1.28

Source: Field survey, 2024

**Table 2:** Effect of FFBS on yield of the farmers

Variation	Calculated value $X^2$	Tabulated value $X^2$	DF = at 0.005%	Decision Rule
There is no significant difference between the yield of farmers in FFBS activities	5.49	1.98	79	Reject the Ho and Accept the Ha

Field survey, 2024

**Table 3:** Constraints associated with FFBS activities in the study area

S/N	Variables	Mean	S. D.	Rank
1	Insecurity	3.9	0.0337526	1
2	Inadequate numbers of extension worker/facilitators	3.79	0.049343	2
3	No follow up after training of farmers	3.61	0.0824731	3
4	Lack of farm inputs and machinery	2.93	0.0770808	4
5	Individual difference among the farmers	2.78	0.1179667	5
6	Promise made by extension workers were not met	2.76	0.1128511	6
7	Lack of access to loan among the farmers	2.75	0.1128511	7
8	Time consuming	2.4	0.1174620	8

Source: Field Survey, 2024

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