



---

## **ACCESS TO AGRICULTURAL EXTENSION SERVICES AMONG CROP FARMERS IN NORTHERN TARABA STATE, NIGERIA**

**<sup>1</sup>JOSHUA, J.J.; <sup>2</sup>NDAGHU, A. A.; AND <sup>3</sup>BASHIR, M.B**

<sup>1</sup>Department of crop science, college of agriculture Jalingo, Taraba state, Nigeria.

<sup>2</sup>Department of Agriculture Economics and Extension, Moddibo Adama University Yola, Adamawa State, Nigeria.

<sup>3</sup>National Agricultural Extension and Research Liaison Services, Ahmadu Bello University, Zaria, Kaduna State, Nigeria

---

### **ABSTRACT**

The study assessed agricultural extension services among crop farmers in Northern Taraba State, Nigeria. Specifically the study describe the socio-economic characteristics of crop farmers, assessed crop farmers access to agricultural extension services and assess the agricultural extension services desired by crop farmers. Purposive and simple random sampling techniques were used to select one hundred and sixty one (161) farmers for the study, comprising of 65, 65 and 39 from Ardo-Kola, Lau and Zing Local Government Areas respectively. Frequency, percentage and mean ranking were used to analyse the data for the study. Results shows that the mean age of the farmers were 35 years, majority (73.9%), 67.1% were male, 59.6% were married while 67.1% had acquired primary and secondary education (59.6%), with farming as their primary occupation (54.0%) and had a mea household size of 7 persons precisely small scale farmers (60.1%) who cultivates <2 ha with no or less contact to extension service (64.%) in the last cropping season, despite the fact that majority (54.7%) were members of cooperative societies, they (65.8%) had no access to credit facilities as well had a mean annual income of ₦124, 539.00. The result of desired extension services by the farmers such as improved seeds (79.5%), pest and disease management practices (88.8%), fertilizer application (77.0%), weed management (72.7), storage and post harvest handling (86.3%), farm tools and machineries (90.1%), security (88.2%) respectively. Result of the logit regression reveals gender (0.0267) and membership of organization (0.0981) were positive and statistically significant at 5%. Based on the findings it is recommended that more extension workers needs to be employ so as to meet up with the high demand of extension services, government and NGOs should proffer communicable means of presenting information to rural farmers..

**Keyword:** Access to Agricultural Extension Services, Crop Farmers, Northern Taraba

## INTRODUCTION

Agriculture is, and for many years to come, will remain the mainstay of the economy of many African countries since it contributes substantially to the gross domestic product (GDP) and exports earnings of these countries (Agunga, 2016). It also remains an important sector in the Nigerian economy due to its central role in building a strong economy, reducing inequalities by increasing incomes and employment opportunities for the poor, while nurturing natural resources (Oladele, 2015). As a result of human population and growth increase urbanization; there is a massive pressure in demand for food production in developing countries. According to Oladele and Akinsorotan (2017), there are about 790 million undernourished people in developing countries whose food intake is insufficient to meet basic energy requirements on a continuous basis. Biotechnology therefore represents one of such novel approaches with the capacity of changing the face of agriculture so as to meet the increasing and varying needs for food, livestock feed and fibre production (Penn, 2013).

The importance of agriculture in the economy of Nigeria is profound. Despite the growth of industries, oil and commerce it continues to be the principal economic activity of the people of Nigeria. Thus 70% of the people are engaged in agriculture but more than 70% of these farm at subsistence level (Okubanjo, 2010; Nigeria millennium Development Report, 2014). The Food and Agriculture Organization, FAO (2013) suggested that in order to enhance agricultural development, new commodities and new methods of production must be developed. In Nigeria, there are various agencies, research institutes, agricultural universities/colleges and non-governmental organizations that generate innovations and improved farm practices or technologies (Ilevbaoje, 2018). The primary function of the dissemination component (agricultural extension, agricultural change agencies, private extension organizations, etc.) is the transformation of the agricultural sector of the national economy through promotion of rapid adoption and utilization of improved farming technologies by the utilization component – the farmers (Ilevbaoje, 2018).

Extension service in agriculture is indispensable and it offers more than just expert assistance in improvement of production and processing, it also enables flow of information and transfer of knowledge and scientific findings to practice. These activities are performed according to rules which regulate establishing of organization, functioning, goals and fields of operation, ways to execute extension activities by the extension agent, their obligations and rights. Information is an indispensable factor in the practice of farming and it is the basis of extension delivery. Information plays a vital role in our present day society as a result of the advancement in information and communication technologies (ICTs) (Norberth, Adesina and Mercy, 2018). Information in its most restricted technical sense is an ordered sequence of symbols that record or transmit a message. It can be recorded as signs or conveyed as signal waves.

### **Objectives of the Study**

The broad objectives of this study was to assess farmers' access to agricultural extension services in Northern Taraba state, while specifically, the study seek to:

- i. describe the socio-economic characteristics of crop farmers in Northern Taraba state and
- ii. assess crop farmers access to agricultural extension services in the study area.

### **Hypothesis**

The study tested null hypothesis:

H<sub>0</sub>: There was no significant relationship between crop farmers socio-economic characteristics and' access to agricultural extension services

### **METHODOLOGY**

Taraba State was created on August 27th, 1991 when the Babangida Military Administration carved it out of the defunct Gongola State. The State derives its name from one of the three major rivers and covers a land area of 60,291.82 square kilometres. At inception, the state comprised only ten Local Government Areas namely; Jalingo, Donga, Zing, Lau, Karim Lamido, Sardauna, Bali, Gashaka, Wukari and Takum created on 27th August 1991 (Taraba State Executive Diary, 2021).

The state lies roughly between latitude 6°30'N and 9°36' North and longitude 9° 10'50' East of the Greenwich meridian. It is bounded by Bauchi and Gombe and Adamawa States in the north-east, and by Plateau State in the north-central. The state is further bounded to the north central by both Nasarawa and Benue States, while it shares an international boundary with the Republic of Cameroun to the south and south-east. Taraba State has population of Two Million, Three Hundred Thousand, Seven Hundred and Thirty-Six people (2,300,736), with a projected population figures of Three Million, Eighty Seven Thousand, Two Hundred and Nine people (3, 087, 209) by 2016 (Taraba State Executive Diary, 2021).

### **Method of data collection**

Data for this study were obtained from primary source. Primary data were collected using structured questionnaires which were administered to the farmers.

### **Sample Size and Sampling Techniques**

Purposive and simple random sampling technique was employed to select arable crop farmers for the study.

Stage I: Purposive selection of three (3) out of the six (6) Local Government Areas (Ardo-Kola, Lau and Zing Local Government Areas) in Northern Taraba State that are well known for their participation in arable crop farming.

Stage 2: Purposive selection of five (5), five (5) and three (3) villages each from Ardo-Kola, Lau and Zing whose major populace were farmers to give a total of 13 villages respectively.

Stage 3: A random sampling technique was used to select 65, 65 and 39 farmers from Ardo-Kola, Lau and Zing Local Government Areas to tally

Stage 4: Finally 13 farmers were selected per community using random sampling technique, in all 169 farmers were involved in the study. However, only 161 questionnaires were finally retrieved and analysed as eight questionnaires could not be accounted for.

### Method of Data Analysis

Descriptive and inferential statistics were used in the analysis of the data. Descriptive statistics in the form of frequency, percentage and mean were used to analyse objectives I, II, and III while inferential statistics in the form of Logit Regression Model was used to test hypothesis for the study

### MEAN

$$\bar{X} = \frac{\sum fn}{N}$$

Where;

$\bar{X}$	=	Mean score
$\Sigma$	=	Summation
F	=	Frequency of response mode
n	=	Number of farmers of farmers to the item
N	=	Number of response

The decision rule that served as basis for acceptance or rejection was determined based on; Decision rule (DR) of 4- point rating scale =  $(4+3 + 2 + 1)/4 = 2.5$

The 4-point rating scale was used to describe the level of farmers access to agricultural extension services in Northern Taraba state as Highly (4), Moderately (3), Low (2) and not at all (1).

A class interval of 0.05 was used to determine the upper limit of the mean, to determine the cut-off point.

The upper limit  $2.0 + 0.5 = 2.5$

The lower limit  $2.0 - 0.5 = 1.95$

Therefore responses with mean score ( $\bar{X}$ ) up to the above 2.45 were regarded as good while those mean score ( $\bar{X}$ ) below 1.95 were also regarded as not so strong or good.

The regression model is explicitly specified as:

$$P = \exp \frac{(b_0 + b_1X_1 + b_2X_2 \dots \dots + b_pX_p)}{1 + \exp(b_0 + b_1X_1 + b_2X_2 + \dots + b_pX_p)}$$

Where:

P = the level of access to agricultural extension services

$X_1 - X_n$  = Independent variables

$X_1$  = Age

$X_2$  = Gender

X <sub>3</sub>	=	Marital Status
X <sub>4</sub>	=	Household size
X <sub>5</sub>	=	Educational level
X <sub>6</sub>	=	Annual income
X <sub>7</sub>	=	Access to credit facilities
X <sub>8</sub>	=	Membership of cooperative
b <sub>1</sub> -b <sub>8</sub>	=	Regression coefficients

## **RESULTS AND DISCUSSION**

### **Socio-economic Characteristics of the Crop farmers**

According to result of study in table 1 reveal that majority (45.3%) of the farmers were between the age <20-30 years, while 37.9% were 31– 40 years with a mean age of 33 years. The findings clearly indicates that majority of the farmers in the study area were within their youthful age. This result agrees with the findings of Idowu (2015) who reported that majority of the farmers are less than 40 years of age. Also, results in table 1 depict majority (73.9%) of the farmers were male . This is a clear indication that male dominated farming in the study area. This is in line with the findings of Idowu (2015), Ijogu (2016), Onyemekihian (2017), Msuya *et al.* (2017), Sennuga, *et al.* (2020) and Olayemi *et al.* (2020), who all reported that majority of the small scale farmers are undoubtedly male. Similarly Ibitoye (2013) reported that more men were found in farming than women. Moreover, The study reveals majority (67.1%) were married .This implies that farming is a means of livelihood been carried out mostly by married men. This is similar to the findings of Hamisu (2017) and Lawal (2020) who similarly reported that farming was found to be commonly carried out among married individuals in northern Nigeria. Result of the study in table 1 further reveals majority (83.21%) of the farmers had acquired one form of education or the other. It is thus, obvious that, the levels of education of farmers in the study area are generally high which will contribute significantly to the decision making of farmers as innovation can be easily disseminated to the farmers through extension services in the study area. This agrees with the work of Ibitoye and Onimisi, (2013) who found out that the levels of education of farmers are generally high in North-Central, Nigeria and that enhances access to agricultural extension services.

Finding of the study in table1 indicate that, majority (54.0%) of the farmers had farming as their primary occupation, while 26.7% and 19.3% were artisan/business men/women and civil servants respectively This implies that, farming is the major occupation of people in the study area. This agree with the findings of Oloso *et al.* (2020) who reported in their study that agriculture is the mainstay of rural dwellers in Nigeria. furthermore, result in table 1 reveals majority (54.0%) of the farmers had a household size of 6 – 10 persons with a mean household size of 7 persons. This implies that majority of the farmers had large household size that could aid them supplement the required labor for farm activities. The findings is similar to that of Albert (2010), Nasiru (2015)

and Sabo *et al.* (2019) who reported that majority of the farmers had a households size between 1 and 7 persons. The result on farm size also reveals majority (60.1%) of the farmers were precisely small scale farmers who cultivates less than two hectares. With a mean score of 1.8 hectares, it is a clear indication that farmers in the study area are on small scale. This study is in line with the findings of Olagunju (2016), Obisesan (2016) and Saminu (2018) who all reported in their study that majority of the farmers were small scale farmers who often cultivate less than two hectares. On the frequency of extension visit result in table 1 reveals majority (64.0%) of the farmers admitted had not contact with extension services. This implies that majority of the farmers in the study area do not have access to extension service for advice regarding their farm practices they only practice on their own and seek experience from fellow farmers. This is in agreement with the findings of Sambe *et al.* (2020) who reported in their study that scarcity of extension services has been a pivotal issue in agricultural productivity. Moreover, results in table 1 also show majority (54.7%) of the farmers belong to one cooperative organisation or the other. This implies that, majority of the farmers belong to cooperative society that help them have access to farm inputs and other loans in their farming. This finding agreed with that of Ogunyemi and Orowole (2020) who reported in their studies that majority of the farmers belong to farmers' cooperative organization in Nigeria. With regard to access to credit the result in table 1 reveals majority (65.8%) of the farmers in the study area had no access to agricultural credit. This implies that majority of the farmers in the study area practices farming using their own resources. This finding is in agreement with that of Agwu (2016) who reported that only less than one-third of farmers do have access to credit facilities in farming. Shuaib, (2017) also noted that majority of the small scale farmers in the Northern Nigerian have no access to credit facilities. Result in 1 presents the annual income of the farmers. The findings shows that majority (46.5%) of the farmers had an annual income of <₦100, 000, while 34.2% had a range annual income of ₦101, 000 – ₦300, 000,. The findings clearly indicates that majority of the farmers in the study area are low income earners. This finding is Similarly to Apantaku *et al.* (2017) reported that majority of the respondents have an annual income of less than ₦100, 000.

Age	Frequency	Percentages	Mean
<20	11	6.8	33
21 - 30	62	38.5	
31 - 40	61	37.9	
50 and above	27	16.7	
Sex			
Male	119	73.9	
Female	42	26.1	

Marital Status			
<b>Single</b>	39	24.2	
<b>Married</b>	108	67.1	
<b>Widow/Widower</b>	5	3.1	
<b>Divorced/Divorcee</b>	9	5.6	
Educational Status			
<b>Non formal education</b>	27	16.8	
<b>Primary education</b>	38	23.6	
<b>Secondary education</b>	54	33.5	
<b>Tertiary education</b>	42	26.1	
<b>Non formal education</b>	27	16.8	
Occupation			
<b>Farming</b>	87	54.0	
<b>Civil service</b>	31	19.3	
<b>Artisan/Business</b>	43	26.7	
<b>Farming</b>	87	54.0	
Household Size			
<b>&lt;5</b>	12	7.5	6.1
<b>6 - 10</b>	87	54.0	
<b>11 - 15</b>	53	32.9	
<b>16 and above</b>	9	5.6	
Farm size			
<b>&lt;2</b>	97	60.1	1.8
<b>3 - 5</b>	55	34.3	
<b>6 and above</b>	9	5.6	
Extension Contact			
<b>Once</b>	53	32.9	
<b>Often</b>	5	3.1	
<b>Not at all</b>	103	64.0	
Membership of Cooperative			
<b>Yes</b>	88	54.7	
<b>No</b>	73	45.3	
Access to Credit			
<b>Yes</b>	55	34.2	
<b>No</b>	106	65.8	
Annual income (₦)			
<b>&lt;100,000</b>	75	46.5	₦124,539
<b>101,000 - 300,000</b>	55	34.2	
<b>501,000 and above</b>	13	8.1	

Total	161	100	
-------	-----	-----	--

### Crop farmers access to agricultural extension services

Result in Table 2 shows available agricultural extension services in the study area. the result showed that majority (87.6%) of the respondents confirmed that improved seeds as supplied agricultural extension are not available in the study area, 88.8% admits that pest and disease management practices accessible from extension agents are not available, 77.0% admits that services of fertilizer application, 80.7% admits that services on weed management, 87.6% responded that services on storage and post harvest handling, farm tools and machineries (90.1%), security (100%), facilitation of interaction (81.4%), farm planning (95.7%) and services on marketing strategies were confirmed not to be available to the respondents in the study area. This implies that there are low availability of extension services in the study area, and that could mean limited access to modern knowledge of agricultural practices among farming communities in this area as well. This result is in line with the findings of Muktar *et al.* (2016), Ijogu (2016), Petros *et al.* (2017), Msuya *et al.* (2017), Ganawah and Kamara (2021) who all reported that rural farmers had low or no available agricultural extension services in their studies.

**Table 2: Distribution of crop farmers based on access to agricultural extension services**

Access services	Yes	No
Improved seeds	20 (12.4)	141(87.6)
Pest and Disease management	18(11.2)	143(88.8)
Fertilizer application	37(23.0)	124(77.0)
Weed management	31(19.3)	130(80.7)
Storage and post harvest handling	20(12.4)	141(87.6)
Farm tools and machineries	16(9.9)	145(90.1)
Security	0(0.0)	161(100)
Facilitate interaction	30(18.6)	131(81.4)
Farm planning	7(4.3)	154(95.7)
Marketing strategies	24(14.9)	137(85.1)

Figures in parentheses are percentages

Source: Field Survey, 2021

### Testing of Hypothesis of the study on the relationship between the crop farmers socio-economic characteristics and their access to extension services

The result of the analysis in Table 3 showed that, the coefficient of gender (0.0267) and membership of organizations (0.0981) were found to be negative and statistically significant at 5% level. This shows that there exists a relationship between crop farmers' access to agricultural extension services and productivity. Gender as a social



differentiation of an individual into either muscularity or feminity (Salau, 2017) implies that male farmers have access to agricultural extension services than their female counterparts due to their natural features flexibility, energy, freedom and agility (Ayoade, 216). Similarly Pinnaar, (2021) reported that gender variations exists when it comes to accessing agricultural extension services among small households farmers; furthermore, Sheyi, (2018) found out that male crop farmers were found to have access to agricultural extension services than their female counterparts who are often domestically confined in most South-Saharan Africa.

The co-efficient membership of organizations ( $X_1 = 0.0981$ ) was statistically significant at 10% level. This means that there exists a positive relationship between crop farmers' access to agricultural extension services and productivity. This implies that crop farmers belonging to cooperative organizations would have more chances of accessing agricultural extension services to include innovations than other farmers outside the circle. This was similarly reported by Deji *et al.* (2017) who reported that farmers participations in cooperative organisations were more than half beneficiaries of agricultural extension services and innovations delivered at every point in time.

**Table 3: Result of Logit regressions analysis on the relationship between crop farmer socio-economic characteristics and their access to extension services**

Variable	Coefficient	Std. Error	z-Statistic	Prob.
<b>C</b>	0.083934	1.183344	0.070930	<b>0.9435</b>
<b>Age</b>	-0.000724	0.017299	-0.041867	<b>0.9666</b>
<b>Gender</b>	0.755871	0.341204	2.215307	<b>0.0267*</b>
<b>Marital status</b>	0.144574	0.312188	0.463099	<b>0.643388</b>
<b>Educational qualification</b>	0.036877	0.161403	0.228479	<b>0.8193</b>
<b>Household size</b>	0.036168	0.162639	0.222382	<b>0.8240</b>
<b>Farm size</b>	0.004070	0.012749	0.319236	<b>0.7495</b>
<b>Membership of organization</b>	0.376239	0.227473	1.653996	<b>0.0981</b>
<b>Annual income</b>	<b>0.394769</b>	<b>0.359688</b>	<b>1.097530</b>	<b>0.2724</b>

\* = levels of significance at 5%.

Source: Field Survey, 2021

### **Conclusion and Recommendations**

Based on the findings of the study, the following conclusion was drawn. Farmers in the study area were mostly male and youth within a productive age, majority of them had acquired secondary education and do not belong to any cooperative organisation. They mostly had no or less access to extension services such s improved seeds, pest and disease management practices, fertilizer application, weed management practices, storage and post harvest handling, use of farm tools and machineries, security, and services on marketing strategies respectively which were as well desired by farmers to aid their farming activities and to boost productions among stallholder farmers. The

result of the hypothesis showed that age and membership of organizations has a significant relationship with crop farmers' access to agricultural extension services

On the basis of the major findings, the following recommendations were made;

- i. With regards to the emphasis of the ratio of extension workers to farmers, more extension workers needs to be enrolled in the agricultural sector so as to meet up with the high demand of extension services in the study area.
- ii. Government and NGOs should proffer communicable means of presenting information to rural farmers so as to enhance their productivity and efficiency in the agricultural sector.

## References

- Agunga, R. (2016). The Role of Agricultural Extension in Africa's Development, the Importance of Extension Workers and the Need for Change. *International Journal of Agricultural Extension*, 05 (01): 59-70
- Albert, T. L. (2010). "Agricultural Extension Systems in West Africa: Adoptable Strategies for Nigeria's Agricultural Extension Reform Agenda." *Journal of Agricultural Extension*, 1(5) :55-67.
- Hamisu, S., Ardo, A. M., Makinta, M.M., Garba, L. & Musa, G. (2017). A Review on Current Status of Agricultural Extension Service in Nigeria. *Asian Journal of Advances in Agricultural Research*, 1(3): 1-8
- Ibitoye, S.J. and Onimisi, J.A. (2013). Influence of training on farmer's productivity in poultry production in Kogi State, Nigeria. *International Journal of Poultry Science*, 12 (4): 239-244.
- Idowu, M.L. (2015). Adoption of soil conservation: The case of the Philippine uplands. *Journal of Agricultural Economics*, 21(3):241-256.
- Ilevbaaje A, (2010). The role of education on the adoption of chemical fertilizer under different socioeconomic environments. *Journal of Agricultural Economics*, 7(30): 215-228.
- Lawal, A. A., (2020). Economic Analysis of Small-Scale Cow Fattening Enterprise in Bama Local Government Area of Borno State, Nigeria. *Production Agriculture and Technology (PAT)*, 4(1):1-10.
- Msula, K. A., McNamara, K.T., Wetzstein, M.E., and Douce, G.K. (2017). Factors affecting peanut producer adoption of integrated pest management. *Review of Agricultural Economics*, 1(3):129-139.
- Nasiru, A.A. (2015). Legislated policy as the basis for effective extension delivery: Lessons from the United Kingdom. *Journal of Agricultural Extension*, 12 (2): 109-121.
- Norberthe, L., Nederlof, E.S. and Odonkor, E. (2018). Lessons from an Experiential Learning Process: The Case of Cowpea Farmer Field Schools in Ghana. *Journal of Agricultural Education and Extension*, 12(4): 249 - 271.
- Okubanjo, E.P. (2010). Legislated policy as the basis for effective extension delivery: Lessons from the United Kingdom. *Journal of Agricultural Extension*, 12 (2): 112-137.
- Oladele, A. M. (2015). Institutional arrangement for effective participation of the private sector in extension delivery services in Kaduna State, Nigeria. *Journal of Agricultural Extension*, 15 (12): 1-5.
- Oladele, A. M. and Akinsorotan, A. O. (2017). Institutional arrangement for effective participation of the private sector in extension delivery services in Kaduna State, Nigeria. *Journal of Agricultural Extension*, 15 (12): 1-5.
- Oladele, O. I. (2015). Effect of information communication technology (ICT) on agricultural information access among extension officers in North West Province South Africa. *South African Journal of Agricultural Extension*, 43(2): 30-41.
- Olayemi, S.N., Matthews-Njoku, E.C. and Ejiogu-Okereke, N. (2020). Impacts of the women-in-agriculture (WIA) extension programme on women's lives; implications for subsistence agricultural production of women in Imo State, Nigeria. *Livestock Journal of Agricultural Education and Extension*, 15(4):341-355.
- Oloso, L. Sammy, D. P. and Magret, M. A. (2020). Bundled Adoption of Precision Agriculture Technologies by Cotton Producers. *Journal of Agricultural and Resource Economics*, 40(2): 325- 345.
- Onyemehian, J., (2017). Socioeconomic determinants of organic cotton adoption in Benin, West Africa. *Agric. Food Econ.* 3: 1-22.
- Penn, E. I. O. (2013). Scaling up participatory agroforestry extension in Kenya: from pilot projects to extension policy; *Development in Practice*, 11:4: 449-459.
- Sabo E., Bakari D., Adamu, J.T. and Philemon, B. (2019). Broiler Production Technology Practices among farmers in Jalingo local government area, Taraba state Nigeria. Adamawa State University. *Journal of Scientific Research*, 7 (2): 188-196.
- Sennuga, S.O. (2019). Use of Information and Communication Technologies (ICTs) among Smallholder Farmers and Extension Workers and its Relevance to Sustainable Agricultural Practices in, A Thesis submitted for the degree of Doctor of Philosophy (PhD), Coventry University, United Kingdom.