



Determinants of Youth's Involvement in Arable Crop Farming in Shendam Local Government Area of Plateau State, Nigeria

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ABSTRACT: Involving young people in arable crop farming has the ability to generate jobs, alleviate poverty, curb hunger, lower crime rates, stop rural-urban migration, and open up prospects for start-ups in the supplier-processor-marketing sector among Nigeria's burgeoning youth population. The objective of this paper was to evaluate the determinants of youth's involvement in arable crop farming in Shendam Local Government Area of Plateau State, Nigeria using 180 youths in appropriate standard techniques. Findings from the study indicated that the youths were 27 years on average. About 59% of the youths were males and 80% of them married. About 44% of the youths had secondary education and a mean farming experience of 7 years. About 74% of the youths were involved in arable crop farming. The major arable crops the youths were engaged in farming included; rice (32%), yams (26%) and cassava (17%). Age, educational status, marital status and parents' occupation were significant factors that influenced youths' involvement in arable crop farming in the study area. The major constraints to youths' involvement in arable crop farming included inadequate credit facilities (43.3%), lack of effective agricultural insurance policy (39.4%), insufficient initial capital (36%) among others. The study recommended an urgent need to stimulate the interest of the youths in agriculture early in life through career guidance. Grants should be provided to agriculture graduates who want to embark on commercial agriculture shortly after graduation.

DOI: <https://dx.doi.org/10.4314/jasem.v27i12.25>

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Cite this paper as: VIHI, S. K; SELZING, P. M; JESSE, B; ADENIYI, F. O. (2023). Determinants of Youth's Involvement in Arable Crop Farming in Shendam Local Government Area of Plateau State, Nigeria. *J. Appl. Sci. Environ. Manage.* 27 (12) 2857-2864

Dates: Received: 12 November 2023; Revised: 10 December 2023; Accepted: 21 December 2023 Published: 30 December 2023

Keywords: Youths involvement; determinants; rural-urban migration; arable crop farming;

Arable crops are staple agricultural food crops which provide the required nutrients for man and livestock. Majority of the population in sub-Saharan African countries like Nigeria live in rural areas and they depend on arable crop production as their major source of livelihoods (Ibeagwa *et al.*, 2019). Arable farming entails the production of wide range of food crops or annual crops. This entails crops in which the life cycle is within one year; from germination to seed production and maturity. Arable crops included; yam, maize, cocoyam, cassava, among others. Within the agricultural sector, the crops sub-sector is the largest, with arable crop production dominating about 30 percent of overall GDP (CBN, 2016). The arable crop

sub-sector is particularly important not only because of the size and employment generation potentials, but also because it supplies food and therefore has the potential for dampening the rate of inflation since the price of food accounts for about 60 percent of the overall rate of inflation (Udeorah and Vincent, 2018). Arable crops are important food items to the livelihood of millions of people providing nourishment and generating income. Nigeria produces a wide variety of arable crops most of which are consumed as food. The major food crops include rice, maize, cassava, yam, sorghum, millet and cowpea and the minor ones are cocoyam, melon, sweet potato and plantain. Other arable crops which double as industrial and food crops

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to some extent also include groundnut, cotton and beni-seed (Ibidapo *et al.*, 2018). However, Arable farming is subjected to various challenges ranging from scarcity of land and poor soil fertility, natural hazards, soil degradation, pests and diseases infestation, variations in rainfall and temperature, among others. Aside these challenges, labour which is a key input in agricultural production posed as a major challenge to arable crop production. In most developing countries bulk of the agricultural production efforts are still left in the hands of aged farmers who presently constitute the major farming population (Adefalu *et al.*, 2009). It is worrisome that the agricultural productivity level of older people cannot meet the speedily growing population's food and fibre needs (Kwenye and Sichone, 2016). Additionally, the new ideas and techniques used to improve agricultural production are not user-friendly for older people most of whom are not learned. As a result, encouraging adolescent participation in agriculture becomes essential to economic development in the majority of emerging nations. The youth continue to be a crucial and significant component of the human resources that can shoulder the burden of development, including agriculture, and get over some of the major obstacles to increasing agricultural productivity in emerging nations (Adeogun, 2015; Isaac, *et al.*, 2014). Although the United Nations defines youth as individuals aged between 15 and 24 years old, the Federal Government of Nigeria and the National Youth Policy (NYP, 2009) defines youth as Nigerian citizens between 18 and 35 years old. For the purposes of this study, a youth is defined as an individual within the age range of 18 to 35 years. United Nations Department of Economic and Social Affairs (UNDESA, 2011) indicates that population around the globe is projected to reach 9 billion by 2050. Population for young people (aged 15 to 24 years) is also expected to increase to 1.3 billion, accounting for almost 14 per cent of the projected global population. According to Food and Agriculture Organization (FAO, 2014) and the International Fund for Agricultural Development (IFAD, 2014), rural youth are the future of food security, yet around the world, few young people see a future for themselves in agriculture. Africa is faced with the problem of inadequate involvement of rural youth in agricultural-based livelihoods (Leavy and Smith, 2010; Anyidoho *et al.*, 2012). Young people and mainly the rural youth face many challenges in trying to earn a livelihood yet agriculture offers a lot of opportunities. The low participation of rural youth in agricultural livelihoods raises concerns for the future of agriculture (Mapila, 2014). IFAD (2011) attributes this to lack of lucrative incentives in smallholder subsistence farming in many third world countries. Amadi (2012) opined that the

rapid decline in agricultural production is connected to the continuous decline in agricultural labour which he attributed to the continued efflux of the youth and school leavers from the rural farming communities in search of employment in fields other than agriculture.

According to International Labour Organization (ILO, 2021), the observed global increase in the youth population and unemployment have become a source of concern and currently attracts considerable attention in many discussions on international development. With a national population of about 200 million, Nigeria is the most populated country in Africa and has a high proportion of young people and an increasing rate of youth underemployment and unemployment (Adesugba and Mavrotas, 2016). According to the National Bureau of Statistics (NBS, 2012), the youth population (15–35 years of age) in Nigeria is approximately 64 million. More than half (54 percent) of youth are unemployed, with more females being unemployed (52 percent) than males (48 percent). More importantly, many of these youth are also highly educated, and some are graduates of higher institutions. It is reported that about 1.5 million youth graduate every year (Adesugba and Mavrotas, 2016). The NBS (2012) reported that a sizeable percentage of young adults who graduate each year and are unemployed typically choose employment that increase their likelihood of being underemployed. The key sector to rely on to address these difficulties, according to the numerous continuing discussions regarding youth unemployment, is agriculture. As a result, youngsters must find enough incentives to enable their active involvement in the sector as part of any plans to resuscitate the agricultural sector in Sub-Saharan Africa. Therefore, the objective of this paper was to evaluate the determinants of youth's involvement in arable crop farming in Shendam Local Government Area of Plateau State, Nigeria.

MATERIALS AND METHODS

Study Area: Shendam Local Government is one of the seventeen local government areas of Plateau State. It has four districts namely: Dorok, Derteng, Dokan Tofa and Shendam. The LGA occupies a total land area of 2,477km² with a population of 208,017 people consisting of 109,519 males and 98,498 females (NPC, 2006). It lies on latitude 8°53'N and longitude 9°32'E with mean annual rainfall of 57in and annual average temperature of 22°C. Shendam LGA is bounded in the north by Mikang LGA, Quan Pan LGA in the west, Langtang South in the east and Taraba State in the south. The hottest months are normally March and September while the coldest months occur between December and January with a lot of

harmattan haze. The rainy season is normally between the months of May to October while the other months remain dry. The population within the LGA is majorly agrarian. Rice and yam form the major food crops produced within this lower Benue basin having soils ranging from rich silt deposits to a sandy-loamy texture.

Sampling Technique: Multi-stage sampling technique was used to select the sample size for this study. The first stage involved the selection of the three districts in the Local Government for the study. They are Shendam, Dakan Tofa and Dorok districts. The second stage involved a purposive selection of three communities from each of the districts giving a total of nine communities for the study. The communities in Shendam districts are Derlit, Guras and Dungba. In Dakan Tofa district, the communities selected are Katai, Kirgangan and Tok Doka while in Dorok district, the communities selected are Gonvel, Kuka and Makera. The purposive selection is based on high volume of agricultural production in the areas. The third stage will involve random selection of twenty (20) youths from each of the communities selected. This will give a total of one hundred and eighty (180) respondents for the study. Data for this study was obtained through primary source. The primary data was generated through the administration of structured questionnaire designed in line with the objectives of the study.

Data Analysis: Both descriptive and inferential statistics were used to analyze the data. Descriptive statistics (i.e. frequency counts, percentages, mean) and Logit regression was used to achieve objectives of the study.

Logit Regression: Youth involvement in arable crop farming was measured using a binary, categorical variable taking up the value of 1 for youth involvement, and 0 for the youth non-involvement in arable crop production. Since the dependent variable (youth involvement) is dichotomous, its relationship with the independent variables (factors) was estimated using a binary logistic regression model. The logit model is specified as:

$$\text{Ln}y = \text{Ln} (p/1 - p)$$

$$\text{Ln} (p/1 - p) = f (\beta_i X_i) + e_i$$

Where; Y = Level of involvement (1= involved, 0 = not involved); P = Probability of youths involvement in arable crop production; 1 – P = probability of youths not involving in arable crop production; Ln = Natural logarithm function; β_i = vector of logistic regression

coefficients; X_1 = Age of respondent (Years); X_2 = Gender (1 if male, 2 female); X_3 = Marital status (Yes= 1, No= 0) ; X_4 = Educational level (Years of formal education); X_5 = Household size (number of persons); X_6 = Participation experience (years); X_7 = Parents occupation (1 if farming, 0 if otherwise); X_8 = Locality (rural= 1, urban= 0)

RESULTS AND DISCUSSION

Socio-economic Characteristics of Farmers: The findings in Table 1 show that 46% of the youths were in the 26 – 30 years age group, 22% were in the 21–25 years age group, 20% were above 30 years, and 12% were in the 15–20 years age group. The mean age of the youths was 27 years of. This suggests that the majority of the young people were in their prime and formative years, when their energies may be directed into worthwhile endeavours. They have the strength necessary for agricultural tasks at this age, but if they are not properly oriented, they could acquire the typical unfavourable opinion about agriculture. This is in line with the research conducted by Abebo and Sekumade (2013), who found that this age group was productive and active and could be used to further the expansion of the agricultural sector and the economy as a whole. According to the gender of the respondents, 59.0% of the youths were male while 41.0% were female. This demonstrates a high degree of gender parity, with both sexes having an equal chance of being chosen for the research. This finding supports Chikezie *et al.* (2012)'s assertion that gender is not a barrier to active participation in agricultural production activities. But the outcome defies Akpan's (2010) assertion that men are often more gregarious and are hence more likely to be available for physically demanding professions or hobbies. The finding also indicates that 80% of youths in the study area were married, compared to 20% of respondents who were single, indicating how important marriage and family are to the people living in this study area. Having a family will make it more important for one to work at one or more jobs to make ends meet and guarantee that the family has access to food and shelter. Compared to single youths, married youths are more likely to farm. Result on educational attainment of the youth's revealed that, 44% had completed secondary education, 27% had completed primary education, 18% had completed tertiary education, and 1% had no formal education. It is clear that the majority of respondents had little formal education, and as a result, the youth population in the research area is significantly illiterate. This finding implies that the respondents have a lower likelihood of obtaining agricultural knowledge. According to Akpan (2010), education will probably encourage young people to adopt modern farm technologies, which will support a

large farming population. However, if these young people have low levels of education, they are likely to adopt modern agricultural techniques at a lower rate, which will lower the amount of output from their activities. Additionally, the results showed that 48% of the farmers had households with 6-10 people, 24% had households with 1-5 people, 20% had households with 11-15 people, and the remaining 8% had households with 15 or more people. Nine (9) people made up the average household size of the respondents. These are normal circumstances in rural communities because the majority of family heads, particularly farmers, think that having more children who will work on the farm is preferable to using outside labour. This might have an impact on involvement in agricultural endeavours since those who decide to pursue farming as a career may have family members who can provide labour and support. According to the results, 62% of the youth's parents were farmers, 24% worked as civil servants, and 14% were entrepreneurs or business people.

Table 1: Socio-economic Characteristics of the Youths

Age	Frequency	Percentage	Mean
15-20	21	12.0	
21-25	40	22.0	
26-30	83	46.0	
>30	36	20.0	27
Sex			
Male	107	59.0	
Female	73	41.0	
Marital status			
Married	144	80.0	
Single	36	20.0	
Educational status			
Primary	44	27.0	
Secondary	70	44.0	
Tertiary	29	18.0	
Non formal	17	11.0	
Household size			
1-5	39	22.0	
6-10	77	43.0	
11-15	42	23.0	
>15	22	12.0	9
Occupation			
Farming	112	62.0	
Civil servant	43	24.0	
Business	25	14.0	
Locality			
Rural	129	72.0	
Semi urban	51	28.0	

Source: Field survey, 2023

Being from a farming background, the majority of the responders should be aware of the importance of agriculture as a source of income. Thus, the choice of arable crop farming may be influenced by the respondents' parents' backgrounds. The results also showed that 72% of the youths lived in rural areas, where agriculture is the main industry while the remaining 28% live in semi-urban settlements. The study area is primarily rural and is distinguished by a

high concentration of farming operations for both commercial and subsistence use. The respondents' choice of occupation is directly influenced by their locality. Since farming especially crop farming is the primary activity or occupation in rural area due to availability vast land, it is typical for people living there to choose crop farming as their means of livelihood.

Youths' Involvement in Arable Crop Production: The result in Table 2 shows that majority (74%) of the respondents indicated that they were involved in arable crop farming while the remaining 26% did not engage in arable crop farming. The predominant rate of involvement in arable crop production could be attributed for the availability of farmland and the dependence on land for existence by rural dwellers.

Table 2: Distribution of Farmers based on Involvement in Arable crop Production

Involvement	Frequency	Percentage
Yes	133	74.0
No	47	26.0
Total	180	100

Source: Field survey, 2023

Farming experience of the Youths: Farming experience in this study refers to the total number of years one has been in farming. A farmer's decision-making processes become more efficient with experience, and he is also more prepared to take the risks involved in embracing innovation to boost his output. Table 3 reveals that, 53% of the youth's had been cultivating arable crops for 6-10 years. 31% of youth's have been in the arable crop business for 1-5 years, and 16% have been in it for 11-15 years. Seven (7) years was the average amount of farming experience.

This suggests that the majority of young people have been engaged in crop farming for a respectable amount of time. The years of experience that farmers have gathered may enable them to employ productive resources more effectively. The results of Bamire *et al.* (2010) and Mignouna *et al.* (2011), who claimed that farmers should be able to assess the benefits of new technology and enhance their production skills given sufficient experience, are consistent with this finding.

Table 3: Distribution of Farmers based on their Years of Farming Experience

Years of farming	Frequency	Percentage
1-5	56	31.0
6-10	96	53.0
11-15	28	16.0
Total	180	100
Mean	7	

Source: Field survey, 2023

Arable Crops Produced by the Youths in the Study Area: The major arable crops produced by the youths are presented in Table 4. Rice ranked first with 32% followed by yam (26%). This was followed by cassava with 17%, millet (10%), maize (8%) sorghum (4.0%) and potato (3%). The overall result indicates that youths in the study area are significantly involved in arable crop production with majority of them involved in rice and yam production for both home consumption and commercial purpose.

Table 4: Distribution of Youths based on the Type of Agricultural-based

Participation	Frequency	Percentage	Rank
Rice	58	32.0	1 st
Yam	46	26.0	2 nd
Cassava	31	17.0	3 rd
Millet	18	10.0	4 th
Maize	14	8.0	5 th
Sorghum	7	4.0	6 th
Potato	6	3.0	7 th

Source: Field survey, 2023

Determinants of Youths' Involvement in Arable Crop Production: The Logit model was used in estimating factors that influenced youths' involvement in arable crop farming in the study area. The log-likelihood function (-76.08) shows that the estimated model including a constant and the set of explanatory variable fit the data better. This implies that all the variables included in the Logit model are jointly significant in influencing youth involvement in arable crop production. According to the results presented in Table 5, four out of eight predicators namely; age, educational status, marital status and parents' occupation were statistically significant factors that influenced youths' involvement in arable crop farming. The regression coefficients were all positive indicating that an increase in these variables holding others constant, will lead to an increase in youths involvement in arable crop production. The age (X_1) coefficient indicates a positive and significant (8.6964) connection with youth involvement in arable crop production at the 5% probability level. According

to the results, there is an 8.69% increase in the likelihood that young people will be involved in the cultivation of arable crops for every unit increase in youth age. The likelihood that young people will produce arable crops is projected to increase with the youth's age. This may be explained by growing awareness of the value of agriculture and a self-realization of its significance as people age. This result is consistent with Sunday *et al.* (2015) and Akpan (2010) findings. In reality, Nigerian agriculture operates in this manner. Because agricultural output will continue to be controlled by elderly farmers with low productivity and efficiency, this trend does not indicate a promising future for Nigerian agriculture. At the 5% level, the coefficient of marital status (X_6) was significant and positive (1.286). This suggests that youth participation in the cultivation of arable crops is directly correlated with this. This finding implies that there will be a greater number of young people getting married and producing more arable crops. For married youth, there is a higher estimated possibility of involvement in arable crop production. This may be connected to growing worries about the well-being of the family and food security after marriage obligations. At the 10% probability level, the educational status coefficient (X_4) was significant and positive (.0958). This implies that a rise in the number of years that young people spend in formal education would result in a rise in their engagement in the production of arable crops. This validates the expected sign a priori. The occupation coefficient of the parents (X_7) was found to be significant at 1% and positive (2.0490). It can be inferred that there is a 2.04% rise in the likelihood of youth becoming involved in arable crop farming for every unit increase in parents' farming employment. This lends credence to the generalisation that children of farmers are more likely than those of non-farmers to engage in agricultural activities. Due to their parents' work, the youngsters' upbringing and orientation will have an impact on their interest in and desire to pursue such a career.

Table 5: Factors Influencing Youth's Involvement in Arable Crop Farming

Variable	Coefficient	Std Error	Z	P value
Constant	16.8951	6.6256	2.55	0.011
Age (X_1)	8.6964	3.4680	2.51	0.012**
Gender (X_2)	-.3138	.2302	-1.36	0.173
Marital status (X_3)	1.2086	.5732	2.11	0.035**
Educational status (X_4)	.0958	.0562	1.70	0.088*
Household size (X_5)	.0107	.5669	0.02	0.985
Parents occupation (X_6)	2.0490	.6040	3.39	0.001***
Farming Experience (X_7)	2.5581	1.6822	1.52	0.128
Locality (X_8)	.4421	.4351	1.02	0.310
No. of observations	180			
LR Chi2 (8)	30.17			
Log likelihood	-76.0870			
Pseudo R ²	0.1654			

Note: ***, ** and * Significant at 1%, 5% and 10%

Constraints to Youth Involvement in Arable Crop Farming: Constraints limiting youth involvement in arable crop farming in the study area are presented in Table 6. The major constraints include, inadequate credit facilities (43.3%) followed by no agricultural insurance (39.4%), insufficient initial capital (36%), insufficient land (43.4), poor investment on return (28.3%), Inadequate credit facilities limit the involvement of youths in arable crop production in the study area. Since majority of the youths have low formal education, they are most likely not aware of loan acquisition organization and process which may affect their productivity in the long run as they are limited to the level of production at which their capital can afford. Lack of agricultural insurance is another problem that hinders youth in venturing into agriculture due to its risky nature. The youths in the study area do not have any form of insurance covering their agricultural assets; this can also be linked to their

low level of education. Table 6 further revealed insufficient initial capital is another limitation to youth's participation in arable crop production. This result shows that youths in the study area are limited by lack of capital to increase production which will enhance output and increase food security in the area. Land tenure system is another obstacle to youth participation in agriculture. The common means of land tenure is through inheritance and rent which is not sustainable for large scale production. Poor investment on returns also limits youth involvement in agriculture-based activities. This becomes pertinent in view of the low pricing of agricultural goods and services, after putting in so much efforts in production but the income generated from the sales of those goods marginally return profit and the profit is lesser compared to the efforts put into the production process.

Table 6: Constraints to Involvement in Arable crop Farming

Constraints	*Frequency	Percentage	Rank
Insufficient initial capital	65	36.0	3 rd
Inadequate credit facility	78	43.3	1 st
Poor returns to investment	51	28.3	5 th
No agricultural insurance	71	39.4	2 nd
Insufficient land	62	34.4	4 th

*Multiple responses

Conclusion: Findings from the study revealed that majority of the farmers were young, married and had low level of formal education and operated on small scale holdings with low to moderate annual incomes. Many of the youths were involved in farming of arable crops like rice, yams, cassava, millet etc. Age, educational status, marital status and parents' occupation were statistically significant factors that influenced youths' involvement in arable crop production. Inadequate credit facilities, lack of agricultural insurance and insufficient initial capital, were the major constraints to youths' involvement in arable crop farming. The study recommended that it is imperative that young people's interest in agriculture be piqued early in life through career guidance in order to instill in young people the value of agriculture as a career and the spirit of farming. Agriculture education ought to be mandatory at the basic and secondary levels. Incentives such as input supply, good market outlet and attractive price of agricultural produce should be put in place to encourage youth and make them know that agriculture can be profitable. Policies should be designed to encourage suitable access to credit facility since it was found to be a strong factor that prevents youth from embarking on large scale agricultural production.

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