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Analysis of Youths Involvement in Arable Crop Production in Niger State, Nigeria

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ABSTRACT

Youths' involvement in arable crop production is on a decline in Nigeria. This study was conducted to investigate youths' involvement in crop production in Chanchanga Local Government Area, Niger State, Nigeria. Random sampling technique was used in the selection of 120 respondents for the study. Data for the study were obtained using well-structured questionnaire and were analyzed using descriptive statistics and logit regression model. Crop production was dominated by male (82%) while the average age of the respondents was 19 years. The average household size was five (5), majority (66.7%) were literate. Level of youths' involvement were high for crop production (2.78), farm labour (2.68), agro processing (2.63) output marketing (2.60) and cash crop production. The factors that are likely to influence youths' involvement in crop production were awareness of crop production, membership of cooperatives and income from farming. The major constraints were high cost of improved varieties (4.46), unfavorable weather (4.23), pests and predators (3.87), inadequate arable land (3.84). It is therefore recommended that youths join new or existing cooperatives to enhance their knowledge on arable crop production. There is the need for youths to be trained on climate smart adaptive measures in crop production

Keywords: Youth involvement, arable crop, Logit regression model

1.0 INTRODUCTION

Agriculture sector plays a pivotal role in the economic development of Nigeria. The rural youths have integral part in this sector as high percentage are employed in this sector. However, the sector is plagued with various constraints- poor access to input and output market, land degradation, climate change among others. Oladrosu, (2010) further identified poor access to land, poor financial support, lack of modern tools, inadequate and improper records and weak extension system as constraints. Because of these, according to Girei, *et al.*, (2016) many youths migrate to urban areas to take up low paying jobs.

Furthermore, nowadays parental perception of youths' involvement in agriculture is also a problem. According to Kimaro *et al.* (2015) youths' involvement in agriculture is a function of their perceptions, availability of rural credits, agricultural knowledge, absence of alternative jobs and availability of land leading directly to either labour contribution or investment of youths in their own agribusiness enterprises.

The National Youth Policy 2019-2023 defines youth "as persons between the ages of 15 to 29". The definition of youth has a social dimension which alludes to distinctive youth attributes, peculiarities, developmental needs and other opportunities for economic participation (Ministry of Youths and Social Development, 2019). On the other hand, World Program of Action for Youth (WPAY) (2012) defines "youths" as all people aged 15 to 24 years old and the terms "youth" and "young people" are used interchangeably.

In Nigeria, farming is largely subsistence, which is characterized by use of crude implements, small farm size and labour demanding. The youths at present constitute more than 50% of Nigeria's population in Nigeria (National Population Commission (NPC, 2013). Thus, youths' participation in agriculture presents the nation with an opportunity to expand the agricultural sector. However, of late youths' involvement in agriculture has been declining nationally; for example, Ameyaw *et al.*, (2015) estimated that only about 27.1 % of youths in Nigeria are involved in agriculture.

The over-all effect of this scenario is less food will be produced for ever growing population. Therefore, more Nigerians are going hungry by the day, resources that could be used to improve our infrastructures are spent on importation of stable food into the country. There is therefore a compelling need to boost and sustain youth's interest and participation in agricultural production activities.



Researches have been carried out on youth participation in agriculture (Adekunle *et al.*, (2009); Girei, *et al.*, (2016); and Ezeano *et al.*, (2017) but none within the knowledge of the researcher has focused on Niger State especially Chanchanga Local Government Area. The aim of the study is to analysis youths' involvement in agriculture production in Chanchanga Local Government Area, Niger State, Nigeria. It further identified the major constraints militating against youths' involvement in crop production.

2.0 MATERIAL AND METHODS

The Study Area

The study was undertaken in Chanchanga Local Government Area (LGA) of Niger State, Nigeria. Niger State is located between Latitudes 8°22'N and 11°30'N and Longitudes 3°30'E and 7°20'E. The State is bordered by Zamfara and Kebbi States in the North and North-west respectively, Kogi and Kwara States in the South and South-west respectively; while Kaduna State and the Federal Capital Territory, Abuja, border the state to the Northeast and Southeast respectively. The state shares an international boundary with the Republic of Benin at Babanna, in Borgu Local Government Area. Currently, the State covers a total land area of 74, 244 sq.km, which is about 8% of Nigeria's total land area. This makes the State the largest in the Country. The population of the State was 3,950,249, comprising 2,082,725 males and 1,867,524 females (National Population Commission (NPC), 2006). The projected population of the State as at 2016 was 5,556,200 (United Nations Population Fund (UNFPA), 2016). Chanchanga LGA has its headquarters in Minna. It has an area of 72km² with a population of 201,429 at the 2006 census. The projected population of the Chanchanga LGA as at 2016 was 284, 000 (United Nations Population Fund (UNFPA), 2016). There are two distinct climate seasons, rainy (April to October) and dry season (November to March). Common arable crops grown include yam, millet, rice, maize, melon, and cowpea. Livestock raised include birds, fish, cattle, sheep and goat. In 2018 farming season, estimated 616,640mt of rice, 1,748,830mt of cassava, 3,657,800mt of yam and 42,730mt of soybean were produced (NSAIP, 2020).

Sampling technique

A multi-stage sampling procedure was used to select respondents for this study. The first stage involved random selection of two districts. The second stage was the random selection of 10 (ten) villages from each district making a total of twenty villages. The last stage involved random selection of respondents. A total of 120 respondents were selected from a sample frame of 173 registered youths in the study area.

Data collection and analytical techniques

Primary data were used for the study. The data were collected using a well-structured questionnaire administered to the respondents by the researcher. Both descriptive statistics and logit regression model were used in the study. Specification of the Logit regression Models is as follows:

Logit regression model

The logit regression model is a unit or multivariate technique which allows for estimating the probability that an event occurs or not by predicting a binary dependent outcome from a set of independent variables. The logit model is based on cumulative logistic probability function and it is computationally tractable. It is expressed as:

$$P_i = E(Y = 1/X_i) = \beta_1 + \beta_2 X_2 + \beta_i X_i \quad (1)$$

For ease of estimation, equation. 1 is further expressed as:

$$P_i = \frac{1}{1 + e^{-z_i}} = \frac{e^{z_i}}{1 + e^{z_i}} \quad (2)$$

Where: Pi = Probability of an event occurring

$$Z_i = \beta_1 + \beta_2 X_1 \quad (3)$$

The empirical model of the logistic regression for this study assumed that the probability of the youth involvement in agricultural production is expressed as:

$$P_1 = \frac{e^{(b_0 + b_1 X_1 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + \dots + b_{10} X_{10})}}{1 + e^{(b_0 + b_1 X_1 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + \dots + b_{10} X_{10})}} \quad (4)$$

Pi range between zero and one and it is non-linearly related to Zi. Zi is the stimulus index which range from minus infinity to plus infinity and it is expressed as:

$$Z_i = \ln\left(\frac{P_i}{1 - P_i}\right) = b_0 + b_1 X_1 + b_2 X_2 + b_2 X_2 + b_2 X_2 + \dots + b_{10} X_{10} + v \quad (5)$$



To obtain the value of Z_i , the likelihood of observing the sample was formed by introducing a dichotomous response variable. The explicit logit model is expressed as:

$$Y_i = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + \dots + b_{10} X_{10} \quad (6)$$

Where: Y = Dichotomous response variable (1) for high involvement in agriculture, (0) for low involvement). This classification was done using a 3-point Likert scale.

X_1 = Age (years)

X_2 = Years of formal education (years),

X_3 = Gender (dummy = 0 if female, 1 = male),

X_4 = Household size (number of persons),

X_5 = Youth awareness of agriculture (1 = aware, 0 = otherwise),

X_6 = Years of experience in farming (years),

X_7 = Access to Extension services (dummy = 1 if yes, 0 otherwise)

X_8 = Access to Credit (dummy = 1 if yes, 0 otherwise)

X_9 = Farm size (Ha),

b_1 - b_9 = Coefficients of stimulus variables

b_0 = Constant term

u = Error term

3.0 RESULTS AND DISCUSSION

Socio economic characteristics of respondents

The socio-economic characteristics of the respondents as shown on Table 1 showed that majority (82.5%) of the respondents were male while 17.5% were female. This implies that male dominated crop production in the study area which is in line with *a priori* expectations. This may be due to the fact that females play supportive role like trading, cooking, other domestic activities other than farming. Also, this may be attributed to the fact that crop production is a highly risky venture, labour intensive and characterized by uncertainties which in most cases can only be handled by men. The distribution of respondents according to marital status as shown on Table 1 revealed that 74.2% of the respondents were married while 25.8% were single. This indicates that married youths dominated crop production. This finding does not tally with that of Girei *et al.*, (2016); where they found out that majority of youths in the study area were single.

Table 1 present the distribution of respondents according to age. The result shows a mean age of 19 with 60.0% accounting for age range of below 20 years and 26.7% above 30 years respectively. By implication they are more likely to be more involved in crop production faster than others in the other age brackets that will improve their participation in crop production because they are still very active, energetic and productive. Furthermore, Table 1 shows the distribution of respondents according to household size. The results reveal that majority (47.5%) of the respondents had household size of between 1 – 5 persons with a mean household size of 5 persons.

Table 1 presents the distribution of respondents according to years spent in school. The results show that majority (66.7%) of the respondents' attained one form of education or the other. About 38.3% attained secondary education while 9.2% attained tertiary education respectively. This means that sampled respondents were generally literate.

Level of youth's involvement in crop production

Distribution of respondents according level of involvement in crop production is presented in Table 2. The results show that youths were highly involved in all facet of crop production. The youth's levels of involvement were: food crop production (2.78), farm labour (2.68), agro processing (2.63), output marketing (2.60) and cash crop production (2.53) respectively. This is in agreement with the findings of Girei *et al.*, (2016) that reported that majority of youths were involved in crop production and farm labour.



Table 1: Socio-economic characteristics of respondents

Variables	Frequency	Percentage	Mean
Gender			
Female	21	17.5	
Male	99	82.5	
Total	120	100.0	
Marital Status			
Married	89	74.2	
Single	31	25.8	
Total	120	100.0	
Age			
Below 20	72	60.0	19
21 – 30	16	13.3	
Above 30	32	26.7	
Total	120	100.0	
Household size			
1 – 5	57	47.5	5
6 – 10	48	40.0	
11 – 15	12	10.0	
Above 15	3	2.5	
Total	120	100.0	
Years in school			
Non formal	40	33.3	
Primary	23	19.2	
Secondary education	46	38.3	12
Tertiary education	11	9.2	
Total	120	100.0	

Source: Field survey, 2019

Table 2: Level of involvement of youths' in crop production

Level of involvement	Highly involved Frequency (Percentage)	Partially involved Frequency (Percentage)	Not involved Frequency (Percentage)	Mean	Remarks
Food crop production	95 (79.2)	24 (20.0)	1 (0.8)	2.78	Involved
Farm labour	85 (70.8)	32 (26.7)	3 (2.5)	2.68	Involved
Agro processing	82 (68.3)	32 (26.7)	6 (5.0)	2.63	Involved
Input marketing	82 (68.3)	27 (22.5)	11 (9.2)	2.59	Involved
Output marketing	81 (67.5)	30 (25.0)	9 (7.5)	2.60	Involved
Cash crop production	78 (65.0)	27 (22.5)	15 (12.5)	2.53	Involved

Source: Field survey, 2019

Factors influencing youths' involvement in crop production

The results of the logit regression as shown in Table 3 show the factors influencing youths' involvement in crop production. The statistical diagnostic test showed that the estimated model had a good fit with chi-square statistics significant at $p < 0.01$ level of significance. This implies that the variables specified in the model are relevant in explaining the participation decision of the respondents. Also, the Log-likelihood statistic ratio (LR) of 98.06 was significant, meaning that the independent variables included in the model jointly explained the probability of the factors influencing youths' involvement in agriculture. The result revealed that three variables were significant namely youth awareness, membership of cooperative and income from farming. Youth awareness and income from farming were positively significant at $p < 0.01\%$ level while membership of cooperative was positively significant at $p < 0.05$ level respectively. The results revealed that a unit increase of youth awareness by 1%, holding other variables constant will lead to probability of youths' involvement by 8.8031%. This implies that the



higher youths' awareness on agriculture, the more likelihood of youths engaging in crop production which could result in reduction in poverty among the youths.

Also, a unit increase of income from farming by 1% holding other variables constant will lead to increase in probability of youths engaging more in crop production by 0.0041%. This result is in consonance with a those of Yunusa *et al.*, (2017).

Membership of cooperative was positively significant at $p < 0.05$ which implies that as there is a unit increase in youths joining cooperatives by 1%, there will be proportionate increase in the level of involvement of youths in agriculture by 5.0729%, holding other variables constant. This indicates that as more youths join cooperative, the probability of the youths engaging more in crop production increases.

The marginal effect results revealed that a marginal increase in youth awareness, income from farming and membership of cooperative will lead to increase in probability of youths involving more in agriculture by 0.3055, 0.00004 and 0.1760 resulting in increase in the level of involvement of youths in the study area respectively.

Table 3: Logit Regression result on factors influencing youths' involvement in crop production

Variables	Coefficient	Standard error	Z-Value	Marginal effect
Constant	-32.4112	10.6816	-3.03	
Years in school	0.1323	0.2378	0.56	
Gender	1.3301	1.0913	1.22	
Household size	-0.2172	0.4583	-0.47	
Youth awareness	8.8031	2.7105	3.25***	0.3055 (6.04)***
Farm size	0.1046	0.5793	0.18	
Membership of Cooperative	5.0729	2.1102	2.40**	0.1760 (3.05)***
Income from farming	0.0041	0.00013	3.11***	0.00004 (5.00)***
Number of extension visits	-0.8951	0.7484	-1.20	
Age	0.1661	0.1222	1.36	
Farming experience	0.1095	0.2097	0.52	

*** $p < 0.01$, ** $p < 0.05$

LR $\chi^2(11) = 98.06$

Prob > $\chi^2 = 0.0000$

Pseudo $R^2 = 0.7817$

Constraints faced by youths in participating in crop production

The distribution of respondents according to constraints faced by youths is as presented in Table 4. The mean responses of the listed constraints show all the constraints statements were significant. The result revealed that the major constraints were high cost of improved varieties (4.46), unfavourable weather (4.23), pests and predators (3.87), inadequate arable land (3.84), poor agricultural practices (3.78), lack of improved varieties (3.68), lack of information for improved technology on crop (3.66), lack of ready market (3.51) and inefficient cash flow projection marketing strategies (3.50).

Table 4: Constraints faced by crop production farmers

Constraints						Mean	Remark
	Very serious Frequency (Percentage)	serious Frequency (Percentage)	Indifferent Frequency (Percentage)	Not serious Frequency (Percentage)	Not very serious Frequency (Percentage)		
High cost of improved varieties	73 (60.8)	32 (26.7)	12 (10.0)	3 (2.5)	0 (0.0)	4.46	Serious
Unfavorable weather	53 (44.2)	52 (43.3)	8 (6.7)	4 (3.3)	3 (2.5)	4.23	Serious
Lack of improved varieties	21 (17.5)	61 (50.8)	23 (19.2)	8 (6.7)	7 (5.8)	3.68	Serious
Pest and predators	26 (21.7)	64 (53.3)	20 (16.7)	8 (6.7)	2 (1.7)	3.87	Serious
Lack of information for improved technology on crop	19 (15.8)	62 (51.7)	21 (17.5)	15 (12.5)	3 (2.5)	3.66	Serious
Lack of ready market	18 (15.0)	62 (51.7)	17 (14.2)	8 (6.7)	15 (12.5)	3.51	Serious
Inefficient cash flow projection marketing strategies	25 (20.8)	63 (52.5)	18 (15.0)	9 (7.5)	5 (4.2)	3.50	Serious
Poor agricultural policies	27 (22.5)	62 (51.7)	15 (12.5)	15 (12.5)	3 (2.5)	3.78	Serious
Inadequate arable land	27 (22.5)	62 (51.7)	15 (12.5)	15 (12.5)	1 (0.8)	3.84	Serious
Poor agricultural services	30 (25.0)	59 (49.2)	9 (7.5)	13 (10.8)	9 (7.5)	3.73	Serious

Source: Field survey, 2019

CONCLUSION AND RECOMMENDATIONS

Based on the findings of the study, it was concluded that youths were involved in crop production and saw crop production as an income generating venture. Major constraint was high cost of improved varieties. Based on the research findings, the following recommendations were made:

- i. Youths should join cooperatives and agricultural associations so that they will be able to pull their resources together which will enhance their access to inputs and facilities.
- ii. There is the need for youths to adopt climate smart adaptive measures in crop production as precaution against unfavorable weather.
- iii. Governments and Non-governmental Organisations (NGOs) should conduct more agricultural trainings to boost youths' knowledge of basic and modern farming techniques.
- iv. Establishment of micro-finance youth credit scheme that will make credit affordable and easily accessible.

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