

Factors influencing Cassava Farmers' Level of Access to Agricultural Information in Makurdi Local Government Area, Benue State, Nigeria

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Abstract

The study assessed the factors influencing the level of access agricultural information accessed among cassava farmers in Makurdi Local Government Area of Benue State. A two-stage sampling technique was used in the selection of the 120 respondents. Data were analyzed using descriptive statistics and logit regression. The results revealed that 63% of the respondents were within 21-40 years, 52% were males, 75% were married, 86% were literate and had 10 years farming experience. The result further revealed 61% had low annual income (<N100,000) and 63% had no extension contact. The respondents had access to information on various prevailing diseases, better cassava varieties, accurate planting, marketing, land preparation and weed control. The logit regression showed that level of education ($p=0.012$), age (0.030), gender ($p=0.042$) had significant effect at 5% on the level of access to agricultural information. It was concluded that factors such as education, age and gender influence the level of access of cassava farmers to agricultural information in Makurdi. It is therefore recommended that farmers should be encouraged to pursue education as it is a prerequisite to accessing agricultural information.

Keywords: Assessment, information, dissemination, cassava, farmers

Introduction

Cassava is a major root crop in Nigeria grown throughout the country for cash, food, feed, and raw materials for agro-allied, alcohol, pharmaceuticals, gun and confectionaries (Onyeagocha et al., 2014). Obisesan (2012) opines that cassava generates cash income for the largest number of households, in comparison with other cultivated crops. It has grown from a minor crop to a major crop that accounts for 40- 50% of all calories consumed in Southern and Central Nigeria. Cassava and cassava based products are the most important food for the people of south eastern Nigeria. Cassava is almost a daily menu in households especially in south eastern Nigeria. It is highly adapted to marginal soils and erratic rainfall conditions, a key food security crop with many comparative advantages. Cassava became popular

with the introduction and implementation of structural adjustment programme (SAP) since 1986 with increasing output. This policy made importation of cereals to be costly, making cassava a relatively cheap source of energy. This increasing trend in output has continued to make Nigeria the world leading producer of cassava since the beginning of 1990s (National Report, 2006). Production in 2009 was 36.8 million metric tonnes (FAOSTAT, 2010). The north-central zone produced over 7 million tons of cassava from 2000 to 2002, with Benue and Kogi being the highest producers (IITA, 2004).

Systematic intervention in the cassava sector began in the early 1980's with the introduction of high yielding, bulky varieties resistant to cassava mosaic virus and cassava bacterial blight and the establishment of small scale

processing facilities produced at IITA. The second wave was the presidential initiative on cassava, started in 2003. This brought about increased cassava production by small scale farmers via the production and distribution of certified stock of improved cassava varieties over a period of three years and a fast-track of farmer participatory of new varieties. Although cassava has been in cultivation for a long time, the demand for this important crop in the study area outweighs its supply due to its usage in various forms.

With the need for increased cassava production and efficient marketing of agricultural produce comes the need for agricultural information dissemination. Information dissemination is primarily aimed at providing messages or ideas to an intended audience. Agricultural information dissemination is necessary for the improvement of agricultural activities. Information is crucial for increasing agricultural production, improving marketing and distribution strategies (Oladele, 2006). Bala and Sharma (2008) and Singh *et al.* (2011) argue that to compete the global market today, our farmers should have latest information regarding new techniques of farming, new methods of cultivation, new crops, seeds, pesticides, water management, marketing of the product, government policies regarding agriculture, export potential of their crops and the information about the allied activities like fish farming, apiculture, poultry, dairy and weather information on local and regional levels. The availability and indeed free flow of information through an effective dissemination network represents a necessary precondition for the emergence of a well-informed citizenry.

According to Rogers and Shoemaker (2001), as cited by Oladele (2006) access to information is very crucial to increase cassava production by farmers. Rehman (2010) argues that socio-economic variables may influence the accessibility of farmers to agricultural information. Meenakshi, Subrahmanyam and Ravichandran (2013) posited that inform-

ation is a veritable tool in empowering rural youths and women. While Okwoche and Asogwa (2012) conducted a study on the impact of extension services on cassava production in Benue State, Omoregbee and Banmeke (2014) studied the information needs of cassava farmers in Delta State. This study is therefore aimed at assessing the factors that influence the level of access to agricultural information by cassava farmers in Makurdi Local Government Area in order to fill in the information gap

Methodology

The study was conducted in Makurdi Local Government Area of Benue State. It is located at Latitude 7° 20" North, 8° North and Longitude 8° 20" East and 9° East respectively. A two stage sampling technique was used in the selection of the respondents. At the first stage a simple random sampling was used to select six council wards they are; Modern Market (strata A), Fiidi (strata B), Agan (strata C), Ankpa (strata D), Wadata (strata E), and Makurdi central (strata F). At the second stage Twenty percent (20%) of farm families were randomly sampled from each selected council ward and that made the total population of farm families sampled in the entire six council wards to give a total of 120 respondents as seen in Table 1.

The data for this study were collected using structured questionnaire which was administered to the respondents. The questions raised were structured on a four-point Likert-type rating scale of Strongly Agreed (4 points), Agreed (3 points), Strongly Disagreed (2 points), and disagreed (1 points). Data were analyzed using descriptive and inferential statistics. The descriptive statistical tools include percentages, mean score and frequency distribution and standard deviation, while the inferential statistical tool used was binary logit regression. The model is explicitly expressed as:

$$Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + U_i$$

Where,

Z_i = Level of access to agricultural information

$\beta(1,2...7)$ = Estimates parameter/coefficients

X₁ = Age of cassava farmers (in years)

X₂ = Sex

X₃ = Marital status (in years)

X₄ = Educational status (in years)

X₅ = Household size (number of persons)

X₆ = Income (Naira per annum)

X₇ = Farm size (in hectares)

X₈ = Major occupation (farming=1, teaching=2, civil service=3, trading=4)

X₉ = Membership of cooperative associations

U_i = Error term

Results and Discussion

Socioeconomic characteristics of respondents

Result from Table 2 shows that 63.3% of the respondents were between the age range of 21-40 years. This suggests that most of the respondents are young and middle aged. This tally with the findings of Okoedo-Okojie (2015) who reported that young people who are active and within the productive age group dominate cassava production and constitute the major work force. A good number (51.7%) of the respondents were male while 48.3% of them were female. This shows that males were more involved in cassava farming than their female counter part in the study area. This finding is contrary to Afolabi (2008) as cited in (Olayemi *et al.*, 2011) who observed that women are known to be more involved in Agricultural activities than men in sub Saharan African (SSA) countries, Nigeria inclusive especially in Benue State.

Majority (53.3%) of the respondent were married. This agrees with the findings of a study undertaken by Atibioke *et al.*, (2012) who observed that most (75%) rural farmers were married. The respondents' educational level clearly indicates that 46.7% of the respondents had Secondary education, 25% had tertiary education, 14.2% primary and 14.2% had non-formal education. The respondents were therefore literate and thus could access and utilize agricultural information. Education as an important variable improves an individual's ability to make informed decisions and choices (Lapper and Pandey, 1999) as cited in Bett and Nguyo (2007).

Analysis of the respondents' household size reveals that 49.2% had household size of between 6 and 10, 17.5% had 11 - 15, 30% less than or equal to 5, 3.3% had greater than 16. The respondents have large household sizes which might translate to more family labour which reduces cost of farming and is also necessary for effective production. This is in line with a study by Fadipe *et al.* (2014) which posited that relatively large household can be linked to the need for family labour.

About 44.2% of the respondents have farm size of 1.1-2 hectares. This contradicts Ramesh *et al.*, (2011) findings of larger farm size holdings in their study. They suggested that increase in agricultural production is almost entirely dependent on farm size and farmers with larger farm size tend to adopt more technologies. Farmers in the study area need to increase their farm size in order to improve their productivity and subsequently income. The result further shows that 59.2% of the respondent had less than or equal to 10 years of farming experience, (44.2%) of the respondents had annual income of #100,000, This shows that most of the farmers have low income and may find it somewhat tasking to get the necessary gadgets and materials like phones, required to constantly access or update themselves with agricultural information.

The income as at last season indicated in Table 2 shows that; 60.8% of the respondents obtained less than or equal to ₦100,000, 27.5% of them obtained income of between the range of #100,001 to #200,000, 7.5% obtained between #200,001 to #300,000 and 4.2% obtained more than #300,000 annual income. This indicates that there was an increase in the annual income of the respondents which may result to increased access to agricultural information necessary for higher yield and productivity.

Majority (68.3%) of the respondent did not have contact with extension agent, 25.8% had 1-2 contacts with extension agents, 4.2% had 3 - 4 contacts with extension agent and 1.7% had 5 contacts

with extension agents. The respondents were unable to access adequate agricultural information disseminated from the extension agents due to the dearth of agricultural extension agents in the study area. Agricultural extension agents are important sources of agricultural information Fadiji *et al.* (2005). Okwoche and Asogwa, (2012) indicated in a study that only 47.78% of the farmers had access to extension services which leads to poor farmers' performance, low productivity and profitability. Also, 75% of the respondents were not members of any organization, This means that the respondents lack access to agricultural information from any organization. This agrees with the work of Gwary *et al.*, (2012) who found in their study that farmers who were members of cooperative organizations adopted more technologies than non-members. Belonging to a cooperative society can expose the farmer to benefits of social capital and credit facility that will help in adopting or sustaining innovations.

Level of access to agricultural information

The result of the level of access to agricultural information is presented in Table 3. It shows the means of agricultural information accessed and the various variables involved and those variables with mean below 2.5 indicate low access those above indicate high access. The result indicated that respondents had high level of access to agricultural information in area such as; information on land preparation (2.86), appropriate soil for cassava production (2.83), better cassava yielding variety (2.75), weed control (2.69), various prevailing diseases (2.61), accurate planting method (2.60), and sale of produced cassava (2.53). This result is in agreement with the findings of Omoregbee and Banmeke (2014) who in a study of information needs of cassava farmers in Delta State posited that the respondents are mainly aware of recommended planting time,

improved cassava varieties, pesticides and recommended crop spacing.

Factors influencing access to agricultural information

To determine the effects of socio-economic characteristics of respondents on their level of access to agricultural information, a logistic regression was carried out and the result is presented in Table 4. The result shows that age (p-value=0.030), gender (p-value=.042), level of education (p-value=.012) were all significant at 5% while farm size (p-value=.089) was significant at 10% level of significance.

With regard to age, different studies report different results. Haba (2004), assessed the willingness to pay for agricultural information delivery technologies such as print, radio, farmer-to-farmer, expert visit, and television. He revealed that, as age increased, the willingness to pay for these agricultural information delivery technologies decreased, meaning that older farmers were less willing to get information than younger ones. On the other hand, study conducted by Katungi (2006), on social capital and information exchange in rural Uganda reveal that older men are less likely to engage in simultaneous receiving and providing of information, perhaps due to the low ability to communicate associated with old age. All this points assure that, as age increase the getting of agricultural information also decrease.

Level of education significantly and positively influenced the respondents' access to agricultural information. This is because individuals with high level of education can access agricultural information from various sources, and will have a better understanding of the messages they have accessed. They have the ability to read, write and understand their environment. Therefore can access agricultural information from any source (extension agent or through the radio) and utilize such information in a short period of time to get optimum yield. This is in consonance with the findings of Koskei *et al.*, (2013) who reported that educational level influenced farmers'

access to information about tea production. Similarly, there is a general agreement that education is associated with receiving, absorbing, agricultural information and utilization of information. Because education is believed to increase farmers' ability to obtain, process and analyze information disseminated by different sources and helps him to make appropriate decision to utilize agricultural information through reading and analyzing in a better way. A study conducted by Katungi (2006), on social capital and information exchange in rural Uganda reveal that, among women; more educated women are more likely to engage in two-way information sharing, so that more educated farmers have more information access. Pipy(2006), found significant difference between different educational level in poultry production sources of information and utilization of information.

More so, gender also had a significant and positive effect on the respondents' level of access to agricultural information at 5% level of significance (sig=.042). This is in agreement with the findings of Katungi(2006) that Gender is another factor that limits access to and utilization of agricultural information. He posited that due to the prevailing socio-cultural values and norms males have freedom of mobility, participate in different meetings and trainings consequently have greater access to information. He further revealed that Male-headed households are said to have better access to agricultural information than female-headed households, which is attributed to negative influence of cultural norms and traditions. Yahaya (2001) reported similar results in previous studies that sourcing of agricultural information and utilization is along gender lines. He had posited that women are less likely to participate because they have limited time to access or utilize available information due to pressure of household responsibilities. Married women in particular are bypassed in the transfer of improved agricultural technologies assuming that they will get the information through their husbands (EARO,2000)

Importantly too, farm size was shown in the regression result to have a positive and significant effect on the respondents' level of access to agricultural information at 10% level of significance (sig=.089). This implies that respondents with larger farm sizes have greater probability of having higher level of access to agricultural information. This may be due to the fact that higher farm size which translates to higher income means the farmer will be able to purchase agricultural information dissemination media such as radio, television newspaper etc.

The χ^2 value of the logit regression model is 33.599 and was significant at 1% level of probability (sig. = 0.000). This implies that the socio-economic characteristics of the respondents significantly affected their level of access to agricultural information. The Nagelkerke R^2 for the regression is 0.333, indicating that the variables tested accounted for only 33.3% of the variations in the dependent variable. Based on this logistic result, we reject the null and accept the alternate hypothesis which states that socioeconomic characteristics of the farmers have significant effect on their level of access to agricultural information.

Conclusion

The study revealed that the respondents were young, married, educated had large households, small farm sizes, low income and poor extension contacts. Some socio economic factors influenced the level of access of the respondents to agricultural information. The variables are age, gender, level of education and farm size. The respondents had adequate information on land preparation, appropriate soil for cassava production, better cassava varieties and weed control. However, they need more information on various diseases, planting methods, marketing of produced cassava, pesticide usage and fertilizer application. The study further revealed that education significantly influenced the level of access to agricultural information. This implies that the respondents can effectively use

of agricultural information in their productive activities since they are literate. The finding implied that there is dearth of extension agents in the country. There is, therefore, the need to increase the use of information and communication technology to disseminate agricultural information to Nigerian farmers. The government should also use other available avenues and channels to enlighten farmers on improved methods of cassava production.

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Table 1: sample size selection plan

<i>Strata</i>	<i>Sample frame</i>	<i>Percentage used</i>	<i>Sample size</i>
A (modern market)	120	0.2	24.0
B (Fiidi)	95	0.2	19.0
C (Agan)	100	0.2	20.0
D (Ankpa)	95	0.2	19.0
E (Wadata)	90	0.2	18.0
F (Makurdi Central)	100	0.2	20.0
Total			120

Table2: Distribution of Respondents by socioeconomic characteristics

<i>Variable</i>	<i>Frequency (n=120)</i>	<i>Percentage</i>	<i>Mean</i>
Age			
< = 20	7	5.8	
21 – 40	76	63.3	35,62
41 – 60	35	29.2	
>60	2	1.7	
Gender			
Female	58	48.3	
Male	62	51.7	
Marital Status			
Divorced	7	5.8	
Married	64	53.4	
Single	43	35.8	
Widowed	6	5.0	
Level of Education			
Non-formal	17	14.2	
Primary	17	14.2	
Secondary	56	46.7	
Tertiary	30	25.0	
Household Size			
< = 5	36	30.0	
6 – 10	59	49.2	7.89
11 – 15	21	17.5	
> 16	4	3.3	
Farm Size			
< 1.0	38	31	
1.1 – 2.0	53	44.2	1.928
2.1 – 3.0	17	14.2	
> 3.0	12	10.0	
Farming Experience			
< = 10	71	59.2	
11 – 20	36	30.0	11.43
21 – 30	11	9.2	
> 30	2	1.7	
Annual farm income ₦			
< = 100,000	53	44.2	
00.001 – 200,000	35	29.2	176668.79
00.001 – 300,000	18	15.0	
> 300,000	14	11.7	
Last season's cassava income			
< = 100,000	73	60.8	
100,001 – 200,000	33	27.5	108350.42
200,001 – 300,000	9	7.5	
> 300,000	5	4.2	
Extension visits per year			
0	82	68.3	
1 – 2	31	25.8	0.64
3 – 4	5	4.2	
> 5	2	1.7	
No of Organization			
0	90	75.0	
1	10	8.3	0.48
2	12	10.0	
3	8	6.7	

Table3: Level of access to agricultural information by respondents

Variable	Mean	Std Deviation	Rank	Decision
Land preparation	2.86	1.023	1 st	High
Appropriate Soil for cassava production	2.83	1.007	2 nd	High
Better cassava varieties	2.75	0.910	3 rd	High
Weed control	2.69	1.151	4 th	High
Various prevailing diseases	2.61	1.040	5 th	High
Planting method	2.60	1.064	6 th	High
Marketing of produced cassava	2.53	1.020	7 th	High
Pesticides usage	2.37	0.995	8 th	Low
Fertilizer application	2.13	1.020	9 th	Low
Cut value = 2.5				

Table4: Logit regression on socioeconomic factors influencing access to information

Variable	B	Wald	Sig	Exp(B)
Level of Edu	0.114	6.318	0.012*	1.121
Age	0.070	4.708	0.030*	1.072
Gender	1.003	4.129	0.042*	2.728
Farm Size	0.400	2.891	0.089**	1.491
Farming Experience	-0.061	2.357	0.125	0.941
Marital Status	-0.768	2.143	0.143	0.464
Non-farm income	0.000	1.933	0.164	1.000
Annual farm income	0.000	1.494	0.222	1.000
Extension contacts	0.120	0.410	0.522	1.128
Cassava income last season	0.000	0.409	0.523	1.000
Constant	-2.124	4.834	0.028*	0.120

* Significant at 5%, $\chi^2 = 33.599$, Sig. = 0.000, 2log likelihood = 125.176, Nagelkerke $R^2 = 0.333$