Determinants of Constraints to Information Sources Utilization among Maize Farmers in Edo State, Nigeria

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Author's contribution

The sole author designed, analyzed and interpreted and prepared the manuscript.

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ABSTRACT

This study identified determinants of constraints to information sources utilization among maize farmers in Edo state, Nigeria. Data were collected from 150 randomly selected maize farmers with the aid of structured questionnaire validated by expert judgment, and analyzed using frequency, percentage, mean and Chi-square for hypothesis testing. Results showed that majority (66.0%) (59.3%) (53.3%) and (50.7%) of the respondents had farm size of < 1 hectare, were married and males and household heads, respectively. Most preferred information sources were radio (M = 2.69) fellow farmer (M = 2.60), posters and bill board (M = 2.59), and books and leaflets (M = 2.58). Most serious constraints faced in the use of information sources were poor radio and television signals (M = 3.42), inadequate rural electrification and constant power interruption (M = 3.23), agriculture information and radio aired at odd hours (M = 3.15), lack of time to listen to agriculture information (M = 3.10), agriculture information is not broadcast on radio and television in my area (M = 2.99). There was a significant relationship between access to credit (R^2 = 7.416), farm ownership (R^2 = 12.497) sex (X^2 = 13.759) of respondents and constraints encountered in information sources utilization at 0.05 level of significance. It was recommended that the Ministry of Agriculture should study time for broadcasting agriculture information in understandable language to attract maize farmers to listen, Radio and television signals needs to reach rural areas to improve audience level of farmers for increased proven technologies information utilization.

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1. INTRODUCTION

Agriculture with its positive impact on the Nigerian population is faced with myriad of problems among which is low utilization of technologies. The low utilization of technologies by the farmers may be ascribed to inadequacy of information. Information, in a broad context, refers to organized data recorded in various forms [1]. [2] stated that lack of information on modern agricultural technology is a key factor limiting agricultural development in Nigeria. Low accessibility to agricultural information leads to low adoption of improved technologies, which invariably affects farmers" productivity and could lead to poverty [3]. Utilisation of improved farm practices requires adequate information, which has to be effectively disseminated so that the clientele receives it, understands it and regards it as a valid basis for action. For instance, while it has been established that farmers use various media sources [4], it is where farmers seek information that they also find information relating to agricultural practices ranging from agronomic, processing and storage, which are of tremendous importance to the success of arable farmers. The choice usually lies with the source of the message to be transmitted; it must be knowledgeable about a particular channel of communication before employing it. The undisputable fact is that different channels perform different functions in the transmission of information on farm matters (agricultural development), depending on the stage of adoption process, the characteristics of innovation, the socio - economic and personal characteristics of audience [5]. [5,6], have established that the effectiveness of any communication channel depends most in particular on its selection as an appropriate channel or medium of communication. Hence a better way of understanding information utilization is to determine the sources of such information. The selection depends on the size and type of audience, the characteristics of methods, e.g. cost of procurement, complexity, availability and feedback potential [5]. Any system initiating and stimulating development has a responsibility to provide and disseminate information about its activities to make the people knowledgeable about things happening around them, and also generate in them the right attitudes and encourage the adoption of desirable value systems.

In agriculture, the role of information cannot be over emphasized in enhancing the agricultural development. Information is crucial for increasing agricultural production and improving marketing & distribution strategies [7]. Communication is critical to finding solution to problems of food production through facilitating research-farmer linkage using ICTs [8]. Information and Communication Technologies (ICTs) are foundation of the new global information-based economy.

Maize (*Zea mays* L); is also known as "Indian crop" or "simple corn". It is a cereal crop that is grown widely throughout the world. Maize is produced annually similar to any other grain. About 50 species exist and consist of different colours, textures, grain shapes and sizes. White and yellow varieties are preferred by people in Edo. Maize is the most important cereal crop in this region. All parts of the crop can be used. Maize can be used for the following purposes: - As a staple human food, maize is a stable food in Edo and Delta State. It is eaten as boiled or roasted maize. Corn meal and cornflakes are examples of food products made for human consumption. Maize is, however, unsuitable for bread making as it is deficient in gluten. As feed for livestock, it is the cheapest and most palatable carbonaceous feed for animals such as pigs, cattle, sheep and poultry. Most of the maize crop is fed to livestock as grain, silage or fodder on the farms where it is produced. It is relatively high in fat and starch but is low in proteins. It is therefore essential to feed it together with protein feed to provide a balanced diet. Corn starch, corn oil, corn syrup and corn sugar are the chief industrial products obtained from maize. Corn starch, is universal food stuff. It is used for starching clothes, in the manufacture of asbestos, ceramics, dyes, plastics, oil cloths and linoleum. Corn oil is used in the manufacture of soaps, vanishes, paints and other similar products.

Corn syrup is used in shoe polish and in tobacco industry. Corn sugar is used in the manufacture of jams and jellies, chemicals, dyes and explosives. Other minor uses include the use of stalks and leaves for making paper, paper board and wall-board [9].

Agricultural information are messages that are of perceivable and recognizable value to the farmers. Information is therefore a raw resource

for knowledge. In the agricultural sector, maize farmers need information about their farming activities.

Maize farmers in Edo state, Nigeria need information on their farming activities. However, the constraints they face in utilization as important as information is to farmers, the constraint maize farmers in Edo state and face in information and determinants of these constraints sources utilization are not properly assessed for policy formulation and implementation. So, the researcher attempted to undertake the study with the following objectives:

i. examine the socio-economic characteristics of maize farmers in the study area;
ii. ascertain respondents' preferred information sources;
iii. identify constraints respondents face in utilizing information sources; and
iv. explore the factors affecting respondents' agricultural information sources utilization.

2. METHODOLOGY

This study was conducted in Edo State, Nigeria. The State has 19 Local Government Areas (LGAs) with a population of 3,218,332 [10]. Multistage Sampling procedure was adopted. The first stage was a purposive selection of the 3 agricultural zones in the state: Edo North, Edo Central and Edo South as delineated by the Edo State Agricultural Development Programme (EDADP). The third stage was the random selection of 25 communities per LGA i.e. 18 communities. The fourth stage was a random selection of 09 farmers per community, which gave 162 respondents for the study, however only 150 responses were found useful for analysis. A structured questionnaire validated by expert judgment was used to solicit responses. Respondents preferred information sources was measured in a 3-point rating scale of highly preferred coded 3, preferred coded 2, and not preferred coded 1. A mean score of 2.0 (3+2+1 = 6/3 = 2.0) and above was taken that respondents preferred a particular information source. Respondents constraints to information sources utilization was measured in a 4-point rating scale of very serious coded 4, serious coded 3, not serious coded 2, and not a problem coded 1. A mean score of 2.50 (4+3+2+1 = 10/4 = 2.50) and above was taken that a particular constraint was serious. Data were analyzed using both descriptive and inferential statistical techniques.

The objectives were analysed using frequency tables, percentages and means. Chi Square was conducted to test hypothesis at 0.05 level of significance. A null hypothesis formulated for the study is that there is no significant relationship between socio-economic characteristics of respondents and constraints faced in information sources utilization.

3. RESULTS

Result in Table 1 showed that a higher proportion (31.3%) of respondents were between the range of 41 and 50 years with a mean age of 48. This is an indication that farming in the study area is dominated by young people who are active and within the productive age group, and are likely to utilize different information sources in farming. This finding is similar to that of [11] who reported that people from this age constitute the major work force that can be productive. This is an indication that respondents may have the right perception of the role of communication for technologies in long term sustainability of arable crop farming. Age affects perception, attitude, and adoption of innovation, as [12] affirmed that age of a farmer dictates and affects the type of farming he/she could possibly engage in although other factors may play a very important role.

Majority (53.3%) of the respondents were males indicating that male were more involved in maize farming in the study area.

Majority (59.3%) of the respondents in Edo State and (73.9%) of respondents in Delta State were married. This finding similar to that of [13] that most crop farmers are married and [14] that agriculture is very much practiced by married people to make ends meet and cater for their children. [15] in their study report that married people, being responsible, their views are likely to be respected within the farming communities as they take decisions on the use of farm inputs. Majority (84.0%) were educated at different standards. However, a higher proportion (18.0%) of respondents in Edo State and (26.1%) of respondents in Delta State completed their university education, this suggests that maize farming is in the hands of enlightened people in the area. This result finds relevance with that of [16]. In their research, they found out that education facilitates the adoption of modern technologies and farm practices. There is a positive correlation between level of education and the acceptance of ideas by farmers [17].

Literate individuals are keen to get information and use it. This finding is also tally with [18] finding that majority of arable crop farmers are literate with different educational background and it is expected to have a positive and significant impact on their production.

Majority (66.0%) of the respondents in Edo State had less than 1hectare, thus, most of them are small-scale farmers. This finding agrees with that of [19] that small farm holdings constitute most of the farming activities in Nigeria.

Table 1. Socio-economic characteristics of respondents (N = 150)

Socio-economic characteristics		Frequency	Percentage	Mean
Age	Below 20 – 30 years	13	8.7	48
	41 – 50 years	23	15.3	
	51 – 60 years	39	26.0	
	Above 60 years	28	18.7	
Sex	Male	80	53.3	
	Female	70	46.7	
Marital status	Single	17	11.3	
	Married	89	59.3	
	Widow	24	16.0	
	Widower	20	13.3	
Settlement orientation	I don't want to stay here	11	7.3	
	I am not sure how long I will stay	74	49.3	
	I will stay permanently as a famer	62	43.3	
Educational status	No formal education	24	16.0	
	Adult literacy	23	15.3	
	Primary education	27	18.0	
	OND	26	17.3	
	B.Sc.	27	18.0	
	M.Sc.	20	13.3	
	PhD	3	2.0	
Average farm size	Less than 1 hectare	99	66.0	2
	1 – 5 hectares	43	28.7	
	6 – 8 hectares	6	4.0	
	8 – 9 hectares	1	.7	
	Above 9 hectares	1	.7	
Access to credit	Governmental organization	37	24.7	
	Nongovernmental organization	47	31.3	
	Self	66	44.0	
Household head	Yes	74	49.3	
	No	76	50.7	
Farming experience	Less than 10 years	44	29.3	18
	10 – 20 years	44	29.3	
	20 – 30 years	37	24.7	
	30 – 40 years	18	12.0	
	40 and above	7	4.7	
Farm ownership	Sole male	28	18.7	
	Sole female	14	9.3	
	Partnership between husband and wife	62	41.3	
	Family land	24	16.0	
	Community	22	14.7	

Source: Field survey data

Majority (50.7%) of the respondents were household head. The findings showed that a large number of the respondents (29.3%) had farming experience of less than 10 years. This research finding is in line with [20] findings that the higher the farming experience, the more the farmer would have gained more knowledge and technological ideas on how to tackle farm production problems and to increase his output and income.

A higher proportion of farm ownership (41.3%) of respondents' partnership between husband and wife. Ownership of land between husband and wife tends to consolidate cooperation and unity in communicating and utilizing relevant technologies and check challenges information sources utilization for better and sustainable production.

A higher proportion (49.3%) of the respondents are not sure how long they will stay permanently while 43.3% will stay permanently. The decision to stay or uncertainty would have been informed by determination to continually grow maize with the ideal to improve production. When a settler farmer plans to live in the new settlement permanently or for a prolonged time, he/she will more likely devote to get and utilize agricultural information to enhance production and income, than farmers planning to stay for a short period of time to earn and save money to maintain their native area/highland living. So it is hypothesized that farmers having an objective to live for a longer period of time in the settlement area would have more access to and utilize agricultural information. This finding is in line with those of [21].

A higher proportion (40.0%) of the respondents had access to credit through their personal funding. It is expected that those who have better access to credit will be more inclined to seek agricultural information and utilize agricultural technology packages. According to [22], acquisition and utilization of credit for agricultural purposes promote productivity and consequently improved food security status of a community.

3.1 Preferred Information Source

The results in Table 2 showed that radio (Mean = 2.6) was most highly preferred as agricultural information source, followed by fellow farmers,

and poster and bill boards (M = 2.60) and (M = 2.59), respectively. The popular use of radio by the farmers is probably due to the fact that many farmers can afford to purchase a transistor radio as it is cheap. This result agrees with that of [23] that the use of the radio was the most popular among farmers in South West of Nigeria. The use of fellow farmers as a source of information was because the access of fellow farmers with numerous sources of information is useful in bringing various information back to their communities. [24] However stated that the rise in farmers preferring fellow farmers as a source of information may be due to the apparent ineffectiveness in the public extension services in developing countries. The preference for posters and bill boards is a reflection of high education qualification (Table 1) of the respondents. This is also a likely reason of preference for all listed information sources.

Table 2. Preferred information sources

Information sources	Mean	SD
Radio	2.67*	0.50
Fellow farmer	2.60*	0.49
ADP	2.56*	0.62
Cooperative society	2.54*	0.57
Farm/home visit	2.55*	0.51
Conferences	2.51*	0.59
Books/leaflets	2.58*	0.65
Electronic mail	2.51*	0.83
Exhibition	2.57*	0.56
Magazines	2.51*	0.65
Posters and bill board	2.59*	0.63
Film/slide presentation	2.53*	0.76
Community leaders	2.45*	0.70
Public campaign	2.49*	0.62
Local government department of agriculture	2.53*	0.59
Talking drum	2.51*	0.73
Research institutions	2.37*	0.77
Trade fair	2.37*	0.60
NGOs	2.34*	0.70
Text messages	2.48*	0.50
Extension agents	2.39*	0.73
Internet	2.21*	0.89
Extension bulletin	2.28*	0.71
Talk shows	2.35*	0.60
Family members	2.19*	0.74
State ministry of agric	2.29*	0.66
Telephone calls	2.33*	0.63
News paper	2.05*	0.93

Source: field survey data *Preferred (mean ≥ 2.00)

3.2 Constraints Faced in Use of Information Sources

Results in Table 3 showed that poor radio and television signal (M = 3.42) was the most serious constraint faced by maize farmers in their desire to utilize agriculture information sources, followed by inadequate rural electrification/constant power interruption in communities that have electricity supply. This result agrees with [25] that constraints with dissemination of agricultural information in Africa:

- inadequate financial power of farmers in Africa;
- African farmers are illiterate; majority of them cannot read or write in any language;
- Farmers in Africa live in areas, where there is a lack of basic infrastructure, such as telephone, electricity, good road network, pipe borne water etc.
- few number of extension workers (the ratio of agricultural extension workers to farmers is low); and
- poor radio and television reception signals in most village communities in Africa.

3.3 Hypothesis

Relationship between Socio-economic Characteristics of Respondents and Constraints Faced in Information Sources Utilization.

Table 4 showed the relationship between some socio-economic variables and respondent's constraints to information sources utilization. It was found that access to credit (X^2 = 7.416), farm ownership (X^2 = 16.174), farming experience (X^2 = 9.721), settlement orientation (X^2 = 12.497), and sex (X^2 = 13.759) were significantly related to constraints in information sources utilization at 0.05 level.

This result could be attributed to the fact that these factors are important enough to cause constraints in information sources. Utilization among respondents limited access to credit is usually a limiting factor in small scale farming. Unlimited access to credit can improve respondents' involvement in maize farming in terms of production cost, as [26] asserts that credit is needed by farmers to expand their farm size, lure more labour to supplement the limited and fixed supply of family labour and for transporting inputs to the farm and evaluation of farm production among others. Credit helps farmers to maximize communication systems, thus, the significant relationship of access to credit and constraints to information sources utilization is a paramount issue. Settlement orientation is a perception issue as those who are not sure of their long stay or use of the farm plot may not put into consideration factors like soil fertility for an enhancement of future production. The result agreed with the finding of [27] that length of stay of non-natives in communities positively affected the perception of fish farmers in Fadama II project in Oyo state, Nigeria.

Table 3. Constraints faced in use of information sources

Constraints	Mean	SD
Poor radio and television signal	3.42*	0.73
Inadequate to lack of rural electrification/constant power interruption in communities that have electricity supply	3.23*	0.80
Agricultural information on radio and television is always aired at odd hours	3.15*	0.87
Lack of time to listen to agricultural information	3.10*	0.83
Language used in presentation of information	3.03*	0.84
Agricultural information is not broadcast on radio and television in your area	2.99*	0.85
Problem of reliability of information source	2.91*	0.78
Insufficiency content with extension agents	2.87*	0.77
Lack of interest	2.85*	0.89
Problems of organization leader withholding relevant information	2.77*	0.78
Lack of money to purchase newsletters, leaflets on agricultural information	2.77*	0.96
Safekeeping and retrieval of already disseminated information	2.68*	0.85
Unavailability of the information source	2.48	0.79
Inability to ask question and get quick few back	2.43	0.82
Inability to read and write (illiteracy)	2.38	0.92
Poor public relation of the extension workers	2.38	0.89

*Source: field survey data *Serious (Mean ≥ 2.50)*

Table 4. Relationship between socio-economic characteristics of respondents and the constraints faced in information sources utilization

Independent variables	Chi-square	Df	Critical Chi-square (5%)	Decision
Access to farm credit	7.4	2	5.99	Significant
Age	5.53	4	9.49	Not Significant
Average farm size	7.4	4	9.49	Not Significant
Educational status	10.6	6	12.59	Not Significant
Farm ownership	16.17	4	9.49	Significant
Farming experience	9.72	4	9.49	Significant
Household head	0.39	3	7.82	Not Significant
Marital status	5.49	3	7.82	Not Significant
Settlement orientation	12.49	2	5.99	Significant
Sex	13.7	1	3.84	Significant

Source: Computed from field survey data

A long period of farming experience can expose respondents to knowledge of constraints in information sources utilization. Sex being significant, could be attributed to the fact that women are less important in input distribution and access to extension services in Edo State as [27] have note women marginalization in sustainable development in Africa. This result could be attributed to the fact that proven maize information disseminated by information sources needs to be determined by factors constraining the information sources utilization.

4. CONCLUSION

Major constraints to agricultural information sources utilization by maize farmers in Edo state, Nigeria include poor radio and television signals, electric power interruption, agricultural information on radio and television aired at odd hours and language of information presentation. Constraints to information sources utilization were caused by prevailing situation of maize farmers with respect to access to farm credit, farm ownership, farming experience, settlement orientation and sex.

5. RECOMMENDATIONS

The Nigerian government and other stakeholders interested in agricultural development in Nigeria should provide:

a. functional radio and television signals
b. uninterrupted, viable electricity power and rural farming communities
c. calendar for agricultural programmes aired on radio and television to sint and encourage listening and viewing habit of farmers with respect to their time availability.

d. Agricultural programmes aired in the local dialect of farmers, in order to improve scope of understanding of proven technologies and practices message in actualizing a better communication system;
e. Improved access to farm credit through cooperatives formation by farmers to access institutional credit to higher utilization of information for better output.
f. Land tenure system to encourage farmers invest their knowledge in farming will make them utilize information sources
g. Good extension calendar and package to argument for farmers with low farming experience by one consideration of socio-economic characteristics of maize farming.
h. Seminars and workshops in settlement, orientation for farmers with emphasis on the need for continuous agricultural information sources with respect to conservative use of farming resources.
i. Gender responsibility alertness to encourage both male, female and younger farmers to check constraints to agricultural information sources utilization in performance of specific roles.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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