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Preferred Sources of Information Used by Cassava Farmers in Delta State, Nigeria

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Author's contribution

This whole work was carried out by the author JUA.

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ABSTRACT

This study ascertained information sources that cassava farmers preferred to use in Delta State. Area and stratified sampling techniques were used to select villages and farmers. A total of 125 respondents were used for the study. Questionnaire and interview schedule were used to collect data. Data were analysed by use of percentages, mean scores, rankings, and factor analysis based on homophily and heterophily communication factors. This study found that the average age of cassava farmers was 45.6 years. Neighbour was the most preferred source of information by cassava farmers with a mean score of 2.32. The second and third preferred information sources were opinion leaders and farmers' cooperative society with mean scores of 2.16 and 2.00 respectively. The result of factor analysis revealed that heterophilous factors had higher factor loadings for neighbours (0.830), farmers' cooperative society(0.769), television(0.774) and friends(0.371). This result proved that nowadays, cassava farmers preferred heterophilous information sources, from those that belong to higher social strata due to search for improvement in farming practices.

Keywords: Information; sources; cassava; farmers.

1. INTRODUCTION

Cassava *(Manihot esculenta)* is a major food crop in Nigeria. Cassava tubers can be processed into different forms for human food and livestock feed [1]. Cassava is suitable to

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various farming systems and available all year round in Delta State of Nigeria [2]. Cassava has the potential of performing better than other crops under suboptimal environmental conditions. Research efforts of National Root Crops Research Institute, Umudike, Nigeria and that of International Institute of Tropical Agriculture, Ibadan, Nigeria have led to the release of high yielding and disease resistant cassava varieties. This has led to the expansion of cassava production in Nigeria. Some of the commonest improved varieties of cassava in Delta State are TMS 30572, TMS 30555, TME 419, NR 8082 and NR 8208. These improved varieties and local cassava cultivars are cultivated by majority of crop farmers in Delta State. [3] stated that cassava was rapidly adopted by farmers and integrated into the traditional farming and food systems of Africa because of its low input requirements and relative ease of cultivation and processing. Concerted efforts are being made by the Nigerian Government to harness the vast economic, nutritional, industrial and export potentials of cassava in order to ensure cassava's contribution to national food security and boost rural livelihoods.

For cassava-based technologies like improved varieties, new agronomic practices, soil management techniques, appropriate crop spacing, pest and disease control measures to be adopted by cassava farmers, they need good information sources which they can depend upon for knowledge and skill acquisition. The communication environment of a farmer influences his or her information acquisition and utilization of farm technologies. Some farmers use limited information sources, while others lend themselves to being more influenced by peculiar sources of information during different stages of innovation adoption. In general, mass media sources are preferable for creating awareness about technologies, group method of communication such as demonstrations and field trips are good for teaching farmers skill, while interpersonal or individual methods like farm and home visits could be used for persuasion during adoption/acceptance stage. Adequate information is one of the major prerequisites for widespread acceptance of agricultural innovations; such information usually abound through a variety of sources. A knowledge of farmers' choice of sources of information on improved farm practices should be of concern to agricultural extension officers so that they can identify the set of preferred information sources or communication channels for reaching their clientele [4].

This study will seek to answer the following questions: what are the preferred information sources which cassava farmers utilize in Delta State? What is the extent of use of the various information sources? How did cassava farmers exhibit preference when information sources are differentiated by homophily and heterophily in communication network? The specific objectives of this study were to: (1) describe the socio-economic characteristics of cassava farmers in Delta State; (2) identify information sources that cassava farmers commonly use in dealing with cassava-based technologies; (3) distinguish between preferred homophilous and heterophilous sources of information among cassava farmers in Delta State.

2. METHODOLOGY

Delta State has an estimated land area of 17,698sq.km and lies in the south-south geopolitical zone of Nigeria. It has a population of 4,112,445 [5]. It has an Atlantic Ocean coastline of 160km. the economy of Delta State is mainly based on agriculture, trading, crude oil and gas exploration. It consists of twenty five Local Government Areas (LGAs) which are classified into three agricultural zones. They are Delta North, Delta Central and Delta South Zones. The predominant crops grown in Delta State are cassava, yams,

cocoyam, garden egg, fluted pumpkin, tomatoes, pepper, *Ammaranthus spp.*, plantain, banana, orange, oil palm, pineapple and maize.

Five (5) LGAs were randomly sampled from three agricultural zones. Two (2) LGAs that were selected from Delta North Zone are Aniocha North and Oshimili South. One (1) LGA that was selected by simple random sampling technique from Delta South which is largely riverine is Isoko South LGA. Two (2) LGAs that were selected by random sampling from Delta Central Zone are Ughelli North and Ethiope East LGAs. Each Local Government Area was demarcated into five sampling areas. Using simple random sampling technique, one village each was selected from the 5 sampling areas. This gave a sample size of 5 villages/towns per LGA or a total of 25 villages/towns. These villages/towns are similar in their socioeconomic setting and have no differences in their farming systems. In each of the 25 villages or towns, 5 farmers were selected by stratified random sampling to give 125 respondents. The stratified random sampling technique was used to ensure coverage of each stratum of farmers consisting of young, elderly, small-scale, large-scale farmers, and members of Farmers' Cooperatives.

Data were collected through the use of questionnaire and interview schedule. Data were obtained on farmers' gender, age, education level, farm size, income level, and frequency of contact with agricultural extension workers. A Likert-type scale was used to measure extent of use of information sources; never used, seldom, often and very often were categories that were scored 0, 1, 2 and 3 points respectively. In order to ascertain the homophily and heterophily communication networks of the farmers, the respondents were asked to indicate if the individuals in each information source used have similar socioeconomic status as the respondents. If the information source is heterophilous, the respondent indicated that he/she obtained information from those who are higher in socioeconomic status or who are dissimilar from them in certain attributes such as beliefs, education and income level.

Data were analysed through use of percentages, mean scores, rankings and factor analysis. Factor analysis was used to determine preferred sources of information on homophily and heterophily communication network basis through factor loadings or eigen-values that are 0.30 and above as applied by [6].

3. RESULTS AND DISCUSSION

3.1 Socioeconomic Characteristics of the Farmers

Cassava farmers in Delta State are predominantly women (60%). The average age of the respondents is 45.6 years. The farmers have an average farm size of 2.5ha and average annual income of N466, 559.5 per annum. It was found that 44% of the farmers in this study have no formal education, while 8% of them have higher education. As can be seen in Table 1, while 48.8% of the respondents seldom have contact with agricultural extension workers, only 9.6% of them often have such contact. This low level of contact between agricultural extension workers and farmers found in this study is in consonance with the finding of [7]. The disproportionate extension worker to farm family ratio is a critical problem facing agricultural extension in Delta State of Nigeria. There is insufficient number of agricultural extension workers that provide advisory services to the large population of farmers.

Table 1. Distribution of Cassava Farmers According to Socioeconomic Characteristics

	Characteristics	Frequency N = 125	%	Cumulative %	Mean
1.	**Gender**				
	Male	50	40.0	40.0	
	Female	75	60.0	100.0	
2.	**Age Distribution (years)**				
	21 – 30	6	4.8	4.8	45.6 years
	31 – 40	40	32.0	36.8	
	41 – 50	56	44.8	18.6	
	51 – 60	19	15.2	96.8	
	61 – 70	4	3.0	100.0	
3.	**Educational Status**				
	No Formal Education	55	44.0	44.0	
	Primary Education	36	28.8	72.8	
	Secondary Education	24	19.2	92.0	
	Higher Education	10	8.8	100.0	
4.	**Farm Size (hectares)**				2.5ha
	0.10 – 1.99 (Small Scale)	62	49.6	49.6	
	2.00 – 3.99 (medium scale)	34	27.2	76.8	
	4.00 – 5.99 (large scale)	29	23.2	100.0	
5.	**Income per annum (₦)**				₦466,559.5
	₦120,000 - 399,999	46	36.8	36.8	
	360,000 - 599,999	51	40.8	77.6	
	600,000 - 839,999	17	13.6	91.2	
	840,000 – 1,079,999	11	8.8	100.0	
6.	**Contact with Extension Agents**				
	Zero contact/year (No Contact)	42	33.6	33.6	
	1 – 6 contacts/yr (Rarely)	61	48.8	82.4	
	7 – 12 contacts/yr (Often)	12	9.6	92.0	
	13 – 24 contacts/yr (Very Often)	10	8.0	100.0	

3.2 Preferred Sources of Information

The results in Table 2 show that neighbour ($\overline{X}$=2.32) is the most preferred source of information by cassava farmers in Delta State. The cassava farmers largely depend on their neighbours for getting information on cassava technologies. This finding is in agreement with that of [8] who found that neighbours/fellow farmers ranked 1st in use as information source among farmers in South-Western Nigeria. The high preference for neighbours could be attributed to the interpersonal communication and immediate feedback cassava farmers enjoy.

Use of opinion leaders ($\overline{X}$=2.16), farmers' cooperative society ($\overline{X}$=2.00) and friends ($\overline{X}$=1.92) as information sources ranked 2nd, 3rd and 4th respectively. It was also found that agricultural extension workers ranked 5th in usage, while extension bulletins and newspapers ranked 9th and 10th respectively. The less preference shown for extension bulletin and newspaper could be due to the few cassava farmers that use them due to illiteracy and low education level associated with 72.8% of the farmers in this study. This study found there is a dwindling dependence on agricultural extension workers as a source of information. The relative low dependence on extension workers for information by cassava farmers is not in agreement with the findings of [9] and that of [10] who reported that extension workers were the most dominant information sources for farmers. The low ranking of agricultural extension workers as information source in this study is however in agreement with work of [11] who

found that agricultural extension agents had a low mean score on extent of use and ranked 7th as a source of information.

Table 2. Extent of Use of Information Sources by Cassava Farmers, n = 125

Information Sources	Extent of Use				Total Score	Mean Score	Rank
	Never Used (0)	Seldom Used (1)	Often Used (2)	Very Often (3)			
Neighbours	0(0)	20(20)	45(90)	60(180)	290	2.32	1st
Opinion Leaders	5 (0)	5(52)	80(160)	35(105)	270	2.16	2nd
Farmers' Coop. Society	15 (0)	10(10)	60(120)	40(120)	250	2.00	3rd
Friends	0(0)	45(45)	45(90)	35(105)	240	1.92	4th
Agric. Ext. Workers	20(0)	60(60)	20(40)	25(75)	175	1.40	5th
Research Officers	20(0)	80(80)	5(10)	0(60)	150	1.20	6th
Television	20(0)	80(80)	10(20)	15(45)	145	0.16	7th
Radio	56(0)	30(30)	15(30)	20(60)	110	0.88	8th
Extension Bulletins	4(0)	51(51)	10(20)	8(24)	95	0.76	9th
Newspapers	3(0)	30(30)	10(20)	5(15)	65	0.52	10th

Note: Values in parentheses are scores from Likert-type scale

3.3 Homophily and Heterophily in Communication Networks

Homophily is the degree to which pairs of individuals who interact are similar in certain socioeconomic attributes such as beliefs, education, income, social status and occupation or career [12]. Generally communication is deemed to be more effective when source of message and receiver are homophilous. Homophilous communication pattern cause new farming ideas to spread horizontally within a social system. Therefore, homophily acts to slow down the rate of diffusion of agricultural messages.

On the other hand, heterophilous network often connect two cliques, spanning two sets of socially dissimilar individuals. Differences in technical competence, education level, income, social status and beliefs among farmers who interact contribute to heterophily. In most cases, new ideas enter a farming community through higher status and more innovative members. A high degree of heterophily means that the elite individuals interact mainly with those from low social strata, and innovations trickle down vertically to non-elites.

The results in Table 3 show that homophilous and heterophilous communication networks were the two factors that influence the scale of preference associated with the utilization of information sources by cassava farmers in Delta State. Factor loading of 0.30 and above was used in naming the factors and stating the dominant information source used by farmers on the basis of homophily and heterophily. Heterophilous factors that have high factor loadings in this study are neighbours (0.830), friends (0.381), farmers' cooperative society (0.769) and television (0.774). The only homophilous factor that loaded high is opinion leaders (0.593). This study has shown that cassava farmers prefer heterophilous sources of information. In other words, the farmers prefer to obtain farm information from individuals that have higher socioeconomic status than themselves; the farmers interacted with those individuals that were not similar with them in certain attributes.

Table 3. Varimax Rotated Factor Loadings for Information Sources Preferred by Cassava Farmers

Information Sources/Variables	Factor 1 Homophily	Factor 2 Heterophily	Communality Value
Neighbours	0.286	0.830	0.770
Friends	0.758	0.371	0.712
Farmers' Cooperative Society	0.204	0.769	0.633
Extension Workers	0.105	0.261	0.079
Opinion Leaders	0.593	0.158	0.377
Newspapers	0.221	0.030	0.049
Television	0.196	0.774	0.637
Radio	0.067	0.034	0.005
Extension Bulletin	0.183	0.029	0.034
Research Officers	0.215	0.206	0.089

Note: Communality Value for neighbours is $(0.286)^2 + (0.830)^2 = 0.770$. This value means that the two factors in the analysis jointly explain 77% of the variation in preferred use of neighbours as information source

In years past, farmers depended more on homophilous sources of information because of similarity in personal attributes which the farmers have with those sources [6,13]. This study found that nowadays cassava farmers in Delta State of Nigeria depend more on heterophilous information sources, from those in higher social strata. This may be due to a search for improvement in farming practices and the quest to boost cassava yield.

4. CONCLUSION AND RECOMMENDATIONS

The cassava farmers in Delta State of Nigeria are predominantly women, with average age of 45.6 years, poorly educated, poor income earners, with average farm size of 2.5ha and seldom had contact with agricultural extension agents. This study revealed that the most preferred information sources by the cassava farmers in rank order are neighbours, opinion leaders and farmers' cooperative society.

The results of this study found that cassava farmers in Delta State preferred heterophilous sources of information, and would therefore use information sources that have higher socioeconomic status than themselves. The result of the factor analysis revealed that heterophilous factors had higher factor loadings for neighbours, farmers' cooperative society, friends and television. Unlike previous studies which showed that small scale farmers preferred to use homophilous information sources where individuals that interacted are similar in personal attributes, this study found that farmers depended more on heterophilous information sources. The neighbours that the farmers use as information source are those that do not belong to their socioeconomic status. In a similar manner, television information are passed on to a farmer in low social stratum by a farmer from a higher social stratum. It can also be concluded that the cassava farmers in Delta State prefer interpersonal information sources than mediated sources.

Given that the cassava farmers preferred heterophilous sources of information, it is recommended that agricultural extension agents and rural development workers should encourage farmers to communicate across social statuses and share agricultural knowledge rather than dwell more on homophilous communication network. It is also recommended that development workers promoting cassava–based technologies in Delta State should largely

depend on neighbours, opinion leaders and farmers' cooperative society in reaching their clientele. This will ensure less rigour in driving agro-information flow, reduced cost of information delivery, ready acceptance and adoption of cassava-based innovations. Since heterophily factor dominated preferred source of information utilization by cassava farmers in this study, development workers should work with different cadre of opinion leaders from different social strata throughout the social structure of a farming community. Such heterogeneity in approach in reaching out to an audience will help to spread information vertically in a social system and hasten the rate of agricultural innovation diffusion.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Ironkwe AG, Olojede JC. Socioeconomic Factors Influencing the Output of Cassava Farmers in Abia State, Nigeria. Proceedings of the 26th Annual Conference of Farm Management Association of Nigeria, held at Michael Okpara University of Agriculture, Umudike, Nigeria; 2012.
2. Agbamu JU, Esegbue S. Farmers' Perception of Improved and Local Cassava Cultivars in Isoko North Local Government Area of Delta State, Nigeria. Global Approaches to Extension: A Journal of Agricultural Extension. 2007;2(2):1–8.
3. Hahn SK, Terry ER, Leuschner K, Akobundu IO, Okoli CO, Lai R. Cassava Improvement in Africa. Field Crops Research. 1979;2:193–226.
4. Agbamu JU. Essentials Communication in Nigeria. Lagos: Malthouse Press; 2006.
5. National Population Commission. Report on Nigeria's Census. Abuja: National Population Commission; 2006.
6. Obinne CP, Oche EO. Preferential Information Source Utilization of Small Scale Farmers in the Central Zone of Benue State Agricultural and Rural Development Authority. Paper Presented at the 6th Annual Conference of Agricultural Extension Society of Nigeria, held at University of Ibadan, Ibadan; 2000.
7. Agbamu JU. Problems and Prospects of Agricultural Extension Service in Developing Countries. In: Adedoyin SF. editor, Agricultural Extension in Nigeria. Ilorin: Agricultural Extension Society of Nigeria of Agricultural Publication; 2005.
8. Issa FO, Auta SJ, Adedokun IK. Evaluation of Farmers' Perception on the Effectiveness of Extension Delivery Channels used in Communicating Improved Technologies to Farmers in South Western Zone of Nigeria. Nigerian Journal of Agricultural Economics. 2011;2(1):109–118.
9. Agbamu JU, Fujita Y, Idowu I, Lawal A. Effects of Socioeconomic Factors on Adoption of New Varieties of Maize and Cassava: A Case Study of Ogun State in Nigeria. Journal of Agricultural Development Studies. 1996;6(2):8–16.
10. Floyd CN, Harding AH, Paddle KC, Rasal DP, Subedi KD, Subedi PP. The Adoption and Associated Impact of Technologies in the Western Hills of Nepal. Agricultural Research and Extension Network Paper. 1999;90:1–7.
11. Ofuoku AU, Ajieh PC. Sources of Information on Animal Health Management among Poultry Farmers in Delta State, Nigeria Proceedings of the 10th Annual Conference of Animal Science Association of Nigeria, held at University of Ado Ekiti, Ado Ekiti; 2005.
12. Rogers EM. Diffusion of Innovations, Third Edition. New York: The Free Press; 1983.

13. Voh JP. A Study of Factors Associated with Adoption of Recommended Farm Practices in Nigerian Villages. Agricultural Administration. 1982;9(1)85–90.

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