



SOURCES AND CHANNELS OF AGRICULTURAL INFORMATION USED BY SOYBEAN FARMERS IN NIGER STATE, NIGERIA

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ABSTRACT

The study was carried out on sources and channels of agricultural information used by soybean farmers in Niger State, Nigeria. A multi-stage sampling procedure was used to select 1,075 sample size out of 25,600 farmers' population from the study area. Findings indicated that non-governmental organizations (NGOs) had mean of 4.50 and standard deviation (SD) of 0.670, the Banks with mean of 4.20 and SD of 1.165, were the most consulted institutional sources of agricultural information for the farmers. The print media that had mean of 3.24 with SD of 0.78) did not fare too well as sources for this group of farmers probably due to low literacy level. However, findings showed that government circular with mean of 3.80 and SD 1.078, newspapers or magazines with mean of 3.40 and SD of 1.280 fared better against extension posters with mean of 3.20 and SD of 1.400 and extension manual mean of 2.90 with SD of 1.136 which are more technical in content. The interpersonal sources that had mean of 4.22 with SD of 0.60 appeared to be more popular for sourcing agricultural information among soybean farmers. Customers with mean of 4.50 and SD of 0.808, and Village heads with mean of 4.40 and SD of 0.490 ranked higher against other interpersonal sources. The on-farm demonstration with mean of 4.30 and SD of 0.782, and farmers training with mean of 4.20 and SD of 0.872 were the most preferred channels for agricultural information in the study area. The study, therefore recommended that soybean farmers should be encouraged to source for more information from corporate bodies and through electronic devices, in particular, the use of mobile phone to link with information providers. Soybean farmers should make optimal use of the various channels of agricultural information available in Niger State.

Keywords: Agricultural information, Channels, Sources, Soybean farmers, Niger State. Socio-economics.

INTRODUCTION

In agriculture, information is needed to bring Change in the way people do farming as well as in other dimensions of agricultural production. Agricultural information incorporates innovations, advice, techniques, skills, technologies and regulations on land use with environmentally safe practices that is shared between and among stakeholders in the agricultural sector through the instrument of extension services (Funom, 2020).

It is commonly believed that most technological innovations are aimed at making life better through the use of easier, safer and faster alternatives. Thus, improvements in agricultural practices through the provision of information could make significant impacts on



the lives of farmers. The continued use of crude implements and methods in production is what has relegated Africa's agriculture to the background. To make farming an enjoyable and profitable enterprise, farmers must be willing and able to seek and obtain relevant information on enhanced farming techniques, farm machineries and modern farm inputs for increased outputs. Such measures will go a long way to engender better life for farmers. Interestingly, sources of agricultural information are dynamic and diverse, aided by continuous advancement through research and development in Agro-based sectors (Funom & Soyemi, 2019; Odi, 2014; Soyemi, 2014; and Tantisantisom, 2011).

When farmers are seeking for information, it is expedient for them to know the right source of relevant information. These conditions necessitate the dissemination of agricultural information, through appropriate channels, to be regarded with the same importance as the information content itself. The sources from which farmers can obtain information can be classified into modern and traditional or formal and informal sources (Apata & Ogunrewo, 2010). Modern or formal sources include: agricultural extension agents, public libraries, farmers' cooperatives, private agro-allied dealers and companies and the mass media. On the other hand, the traditional sources are interpersonal in nature and include interactions between and within farmer's families, relatives, fellow farmers and friends. Village meetings, town criers, market places, worship centers and social functions are usually used as avenues to disseminate agriculture related information (Demiryurek, 2000). The effectiveness of these interpersonal interactions gave rise to the need for the more formal way of channelling information through agricultural extension services.

Extension services are educational devices that are meant to teach and provide information that will enable farmers to use and effectively manage new agricultural techniques and technologies that can boost their crop yield when properly adopted. The primary objective of the extension service is to help farmers to improve the economic value of their farming activities. These services have been used in developing countries since after the Second World War. However, the impact of extension services has been rather mixed with some projects having very high rate of success while others are quite negligible (Anderson & Feder, 2007).

The general approach is the use of specialists to provide a range of services to farmers, from technology transfers, to advisory work and human capacity development. In some cases, it has also sought to connect researchers directly to the farmers' field in order to develop new technologies targeted to the specific conditions of farming communities. Agricultural extension models can take several forms, and are typically supported by the government and non-governmental organizations. The most common approaches are training and visit (T&V), farmer field schools (FFS) and Fee for Service. In the T&V approach, specialists and field staff provide technical information and village visits to selected communities. In many cases the field agents train and work directly with "contact farmers" who are able to train others in their communities (Anderson and Feder, 2007 in Aker, 2010). Public extension officers ranked second to neighbors and friends as a source of agricultural information in the study by Lwoga, *et al.* (2011) and Soyemi and Haliso (2015) in their study, discovered that almost all rural women in agriculture acquire relevant agricultural information from extension services.



In similar vein, Agricultural Cooperatives plays an important dual role as a channel and source for information about modern agricultural practices around the globe. In Nigeria, cooperative associations provide farmers with the opportunity to organize themselves into groups in order to facilitate access to agricultural information on farm inputs and services that will boost the production output of each member. Nweze (2002) noted that, through their nation-wide structures, agricultural cooperatives have developed strong and reliable arrangements for sharing agricultural ideas and the distribution of information on farm inputs like fertilizers, agro-chemicals, credits, and improved seeds. It is in this regard that, Jamilu *et al.* (2014) recommended that extension workers should be able to persuade farmers to form cooperative associations where there are none, and where they are already set-up, efforts should be made to strengthen them for easy access to information.

The library is another essential organ in the provision of information for agricultural development. The role of libraries in channelling information to rural communities cannot be overstressed. The library acts as a store-house for the acquisition, processing, storage and distribution of recorded information for the purpose of reading, study and consultation. Today, the common knowledge for the establishment and operation of public libraries takes into consideration the nature of rural communities, its information needs and the appropriate information channel (Uzezi, 2015). Aina (1995) identified the library as a channel for agricultural information dissemination. He outlined the role of the library to include one that is expected to collect all relevant agricultural literature and make it available to its users, which include farmers, extension workers, educators, students, planners, as well as decision makers. Studies have reported that a larger number of agricultural information seekers in Nigeria rely much on documented sources stored in libraries which shows how important the role of the libraries is to agricultural development (Aina, 1995; Aguolu, 2000; Singh, 2012; and Ugah, 2008). Over the years, the governments of Nigeria have established several agricultural libraries across the country with the task to generate and propagate agricultural information to extension workers, teachers, farmers, as well as policy makers in government. Unfortunately, some of these libraries today are operating below capacity due to paucity of funds and of inadequate number of well-trained agricultural information specialist.

In this modern time, the sourcing for agricultural information has been prompted by the advent of information and communication technologies (ICTs). Agricultural information can be obtained via radio, television, the internet, and mobile telephone services. Information that ranges from specific technologies and practices to information that enables reaction to climate change, disaster management, early warning on possibility of drought, floods, and diseases outbreaks; to price information, production efficiency and market access are now readily available (World Bank, 2012).

The mass media as channels for communication can expose a larger number of people to a piece of information at the same time through radio and audio cassettes which convey information by sound; television, video, and film which uses motion pictures; and newspapers, posters, and leaflets, which carries information on print. The attractiveness of the mass media to agricultural extension is its high speed, relative low cost, and the wider coverage with which



information can reach so many people. However, the mass media alone cannot be effective in dispatching agricultural information. They cannot offer one-on-one advice and support; neither can they provide practical instructions or even answer instantaneous questions. Their low cost only suggests that they should be used for the purpose to which they are more suited, like spreading awareness, giving timely warnings, multiplying the impact of extension activities, sharing experiences and providing answers and advice on issues of common interest to farmers. Moreover, transferring information to farmers through the mass media requires special professional skills. Hardly will extension agents be required to produce radio programmes or to make a video film but they can (with the farmers) contribute significantly to the success of mass media channels by providing useful materials (like newspaper stories, photographs, recorded interviews with farmers, and information about extension activities or ideas for new extension films) to media producers (FAO, 2017).

Interestingly, radio and television when used effectively has the potential to bring about rural transformation through agriculture. These channels have been used extensively in most developing countries because it is believed that radio and television works well for people with lower literacy level. They are attractive, easy to understand (especially with visual and animated material), in addition to needing only modest reading and fluency skills. Radio channels have been described as most appropriate in reaching rural areas where bad road network persist. Information on radio channels can reach every nook and cranny of rural communities where direct physical contact is almost impossible (Lucky & Achebe, 2013; and Odini, 2014). Lwoga *et al.* (2011) noted that most farmers use the radio as a more reliable source of agricultural information. The choice of radio by a large number of farmers in rural areas is probably due to its oral nature, low cost and it's independent of electricity.

An increasing number of farmers now have access to a powerful tool in their hands as a result of expansion in cell phone connectivity. Farmers now use cell phones to communicate with buyers and with one another to acquire information on price of farm produce. Jensen (2007) finds that mobile phones allowed fishermen and buyers to communicate price information and negotiate supply, resulting in higher profits, lower consumer prices, and less waste in Kerala state of India. In a study of grain traders in Niger, Aker (2010) finds that the introduction of cell phone coverage in two markets reduced price variation between the two markets, eventually increasing trade profits, decreasing consumer price, and increasing total welfare.

Interestingly, the use of mobile telephones among farmers to source and share information on market location, prices of products and supply of products among others is on the increase. For instance, the use of global system of mobile communication (GSM) by farmers in many rural communities has drastically reduced the risks of travelling to places to look for buyers; it has also improved livelihood by boosting agricultural production (Adejoh, *et al.*, 2017).

In traditional African settings where most dwellers are non-literates, the traditional channels, which are oral in nature are easily deployed in passing-on information. Such channels are found to be effective, cheap, simple and reliable. The oral exchange of information indicates



that rural dwellers may be able to relate to agricultural information in ways they are familiar with (Meyer, 2005). Other channels of agricultural information to rural communities include: films slides, pictures, drama, dance, folk tales and group discussions. Agricultural exhibitions and demonstrations have also been used to accelerate the flow of information (Soyemi, 2014). Every society has its own ways of spreading information and sharing ideas. The extension worker can learn from what the people in the community are saying and thinking. An understanding of local proverbs, for example, will give one the insight into people's existing knowledge of their environment and their attitudes toward farming. Songs and dances often express deeply held feelings which an extension agent will do well to take into account when planning agricultural programmes (Food and Agriculture Organization [FAO], 2017).

Other government officers and sales agents were also mentioned as sources of information among some villagers. Adio *et al.* (2016) concluded that majority of the farmers rely on interpersonal sources of information like neighbors, friends and colleagues rather than the extension workers. The purpose for which farmers use these information sources were to know how to preserve and process raw agricultural produce using modern post-harvest technologies and to increase productivity, labour force, and acquisition of capital. Other purposes for the use of information sources were directly associated with marketing of agricultural produce. Information on pests and diseases control, improved seedlings and new technology advancement from extension workers and non-governmental organization (NGOs) were however not adequately utilized by the farmers. For Nkechi and Oyemike (2015), the sources of agricultural information used by most literate women in Ihiagwa autonomous community are predominantly through word-of-mouth from friends and the radio. The literate women hardly source for information through extension agents.

MATERIALS AND METHODS

The Study Area

This study was conducted in Niger States, located in the Southern Guinea Savanna zone of Nigeria also called the “Middle Belt”. The State covers a land area of 76,469,903 square km which is 10% of the total land area of Nigeria, out of which 85% is arable. The State has a population of over 3,950,249 based on the 2006 population census, the majority of which are farmers (National Bureau of Statistics [NBS], 2011).

The Guinea Savanna agro-ecological zone of Nigeria has great potential for the commercial production of soybean beyond the present level due to its bimodal rainfall pattern, (a short early growing season followed by fairly long late season), high solar radiation and favorable temperature during the growing season. Soybean is largely produced in the middle belt, with Benue State as the production hub. Other major producing states include Niger, Adamawa, Kaduna, Kano, Katsina, Kwara, and Taraba. The soil type in these region are also mainly alfisol that are low in organic matter, especially nitrogen which is one of the most essential nutrient that soybean also help to fix in the soil (Fakorede *et al.*, 2001). The region therefore offers great potential for soybean commercialization with a view to bringing about the much required growth in the Nigerian economy. To achieve these objectives, this study



presumed that agricultural information sources and channels of dissemination could play a very crucial role.

Sampling Techniques

A survey research design is adopted. A survey research design was adopted for this study. The population consists of 25,600 farmers in Niger State, which include all soybean farmers in the study area. The sample size of the population was 1075. A multi-stage sampling procedure was used to select appropriate sample size for the study. In the first stage, purposive sampling technique was used to select three Local Government Areas under the Niger State Agricultural and Mechanization Development Authority (NAMDA). In the second stage, stratification of the three Local Government Areas into four blocks (extension blocks) was carried following NAMDA's table. In the third stage, a random selection of respondents from the four blocks was carried out in proportionate to the sample size.

Method of Data Collection

A structured questionnaire titled "sources and channels of agricultural information questionnaire (SCAIQ)" was used as instrument to collect data from the respondents. The questionnaire has two sections A-B. The questions were tested for validity and reliability using the cronbach's alpha test. The distribution and retrieval of questionnaire was carried out by the researcher with assistance from two extension workers and some traditional lead farmers who played a key role in selecting a number of farmers for the survey. This is appropriate because it helps to achieve the set objectives of the research.

Analytical Techniques

The questionnaire was analysed using descriptive analysis such as frequency count, percentage distribution, mean and standard deviation.

RESULTS AND DISCUSSION

Sources Used for Disseminating Agricultural Information to Soybean Farmers

Table 1 reveals that information from Interpersonal sources (mean = 4.22) was the most utilized, this was closely followed by institutional sources (mean = 4.01) while information from print sources were the least utilized (mean = 3.24). The table shows that top among the highly utilized institutional sources in terms of mean scores were non-governmental organization (mean = 4.50); the Banks (mean = 4.20), and schools (mean = 4.20) while information gotten from the library/librarians (mean = 3.30); agricultural institute (mean = 3.60) and information from extension agents (mean = 3.70) were the least utilized in this category in terms of mean scores.

These shows that in spite of major changes in the way people generally source for information in the advent of modern Information and Communication Technologies (ICTs) like computers and the internet; most soybean farmers still locate agricultural information through interpersonal sources (characterized by oral communication). Supporting these, Meyer (2005) concurred that oral exchange of information was an indication that rural dwellers were able to relate to agricultural information in ways they are more conversant with. These outcomes are partly in contrast to the findings in Dulle and Aina, (1999) in which extension



agents are seen as the most common sources of agricultural information in any dissemination approach to farmers in Africa. They also contradict the findings in Soyemi and Haliso (2015) and Lwoga *et al.* (2011) where extension workers ranked higher as sources of agricultural information to farmers; but agrees with Idiegbeyanosa and Akpoghome (2009); Kiplang'at and Ocholla (2005) that inadequate number of extension workers and the weak linkage between them and famers makes it difficult for farmers to obtain new information.

The fact that library scored the least may be due to its absence than to it non-use within rural communities in the study area. Raman (2006) pointed that, regardless of the constraints to information dissemination in rural areas, village libraries contained substantial quantity of agricultural information materials and script in local languages for the use of farmers.

Similarly, the institutional sources like agricultural institute, library, as well as print sources were marginally consulted for agricultural information. The library being the least consulted with 2.90 mean score is in contrast with its major role as the custodian of research outcomes and knowledge preservation and as a dissemination source. Studies have reported that a larger number of agricultural information seekers in Nigeria rely on documented sources stored in libraries (Aina, 1995; Aguolu, 2000; Singh, 2012; and Ugah, 2008) which shows how important the role of the libraries is to agricultural development. Unfortunately, some of these libraries today are operating below capacity due to paucity of funds and of inadequate number of well-trained agricultural information specialist (Aina, 1995).



Table 1: Sources for Disseminating Agricultural Information to Soybean Farmers

Sources	HU F(%)	U F(%)	MU F(%)	RU F(%)	NU F(%)	\bar{X}	SD
Institutional or organized bodies							
NGOs	645(60)	323(30)	0(0)	0(0)	107(10)	4.50	.670
Banks	538(50)	430(40)	0(0)	0 (0)	107(10)	4.20	1.165
Schools	430(40)	431(40.1)	0 (0)	0 (0)	214(19.9)	4.20	.748
Farmers' cooperative societies	323(30)	536(49.9)	216(20.1)	0(0)	0(0)	4.10	.701
Extension agents/services (NAMDA)	430(40)	215(20)	214(19.9)	108(10)	108(10)	3.70	1.348
Agric. Institute/University	429(39.9)	108(10)	322(30)	108(10)	108(10)	3.60	1.358
Library/ Librarians	322(30)	215(20)	215(20)	108(10)	215(20)	3.30	1.487
Mean and SD						4.01	0.72
Electronic sources							
Radio	646(60.1)	215(20)	107(10)	0 (0)	107(10)	4.20	1.248
Television	538(50)	322(30)	108(10)	0 (0)	107(10)	4.10	1.220
Mobile phone	431(40.1)	214(19.9)	322(30)	108(10)	0 (0)	3.90	1.046
Film shows	215(20)	216(20.1)	430(40)	107(10)	107(10)	3.30	1.187
Billboard	431(40.1)	107(10)	215(20)	0 (0)	322(30)	3.30	1.677
Mean and SD						3.96	0.84
Print sources							
Government Circulars	323(30)	430(40)	107(10)	0 (0)	215(20)	3.80	1.078
Newspapers or magazines	322(30)	108(10)	430(40)	108(10)	107(10)	3.40	1.280
Bulletins/ Newsletters	108(10)	430(40)	429(39.9)	0 (0)	108(10)	3.40	1.022
Extension posters	322(30)	0 (0)	538(50)	0 (0)	215(20)	3.20	1.400
Extension Manuals	107(10)	216(20.1)	322(30)	322(30)	108(10)	2.90	1.136
Mean and SD						3.24	0.78
Interpersonal sources							
Customers	752(70)	107(10)	0 (0)	0 (0)	216(20.1)	4.50	.808
Village heads/Chiefs	431(40.1)	644(59.9)	0 (0)	0 (0)	0 (0)	4.40	.490
Friends	537(50)	430(40)	0 (0)	0 (0)	108(10)	4.40	.664
Family members	431(40.1)	644(59.9)	0 (0)	0 (0)	0 (0)	4.40	.490
Other farmers	646(60.1)	214(19.9)	108(10)	107(10)	0 (0)	4.30	1.005
Mean and SD						4.22	0.60

Noted: F(%) = Figures in parenthesis percentage of the total frequency. Highly utilized (HU) = 5, Utilized (U) = 4, Moderately Utilized (MU) = 3, Rarely Utilized (RU) = 2, Not Utilized (NU) = 1

Also, in Table 1 results, top among the highly utilized electronic sources were radio (mean = 4.20), television (mean = 4.10) and mobile phones (mean = 3.90) are highly utilized sources for agricultural information. Film shows (mean = 3.30) and bill board (mean = 3.30)



do not seem to be common sources among soybean farmers. The use of mobile phone as a source for agricultural information appears to have gained more acceptance of recent, considering the long period that radio and television have existed. It has fared better and scored reasonably well (3.90) against other well known “modern information technologies”. Therefore, its use among Nigerian farmers in rural communities proves convenient (Soyemi, 2012), which also corroborate Aker and Fafchamps (2010); Tantisantisom (2011); and Adejoh *et al.* (2017). These findings are consistent with several other studies (Odini, 2014; Ifuko, 2013; Lucky & Achebe, 2013; Lwoga *et al.*, 2011; and Ekoja, 2004) where radio and television served as major sources of information to farmers, particularly radio in remote areas.

Meanwhile, the print sources tend to have lower rating among soybean farmers in terms of mean score. Nevertheless, among the highly utilized sources, government circular (mean = 3.80), newspapers and magazines (mean = 3.40) and bulletins/newsletters (mean = 3.40) are the most utilized sources in this category. While extension posters (mean = 3.20) and extension manuals (2.90) are the least utilized sources by soybean farmers. On the contrary, the study by Rehman *et al.* (2013) showed that the print media is the leading and prime source for farmers to get information related to agriculture. Different forms of print media such as: magazines were ranked as first, newspapers as second, books/booklets as third, and pamphlets as fourth source with regards to their usefulness (Rehman *et al.*, 2013).

Channels for disseminating agricultural information to soybean farmers

Table 2 reveals that on-farm demonstration by extension workers (mean = 4.30) was the most utilized channel in terms of mean score, while agricultural exhibitions are used to make farmers understand what is happening around them (mean = 3.40) was the least utilized channel of disseminating agricultural information to soybean farmers in Niger State.



Table 2: Channels for Disseminating Agricultural Information to Soybean Farmers

Channels	SA F(%)	A F(%)	U F(%)	D F(%)	SD F(%)	\bar{X}	SD
On - farm demonstration is done by extension workers	536(49.9)	323(30)	216(20.1)	0 (0)	0(0)	4.30	.782
There is always organized trainings for farmers	537(50)	216(20.1)	322(30)	0(0)	0(0)	4.20	.872
Drama and dance are used to pass information to farmers	322(30)	323(30)	322(30)	108(10)	0 (0)	3.80	.981
Group discussion are always organized to share information and also proffer solutions	215(20)	537(50)	108(10)	215(20)	0(0)	3.70	1.006
Text and voice messages are used to pass information on mobile cell phones	215(20)	323(30)	429(39.9)	108(10)	0(0)	3.60	.917
Agricultural exhibitions are used to make farmers understand what is happening around them	323(30)	323(30)	107(10)	107(10)	215(20)	3.40	1.497

Noted: F(%) =Figures in parenthesis percentage of the total frequency. Strongly agreed (SA) = 5, Agreed (A) = 4, Undecided (U) = 3, Disagreed (D) = 2, strongly disagreed (SD) = 1.

The findings of Table 2 validates the on-farm demonstration as typified in the village committee approach (VCA) in western Kenya (Kiptot *et al.*, 2006) where representative farmers go through a learning process with researchers and government extension workers with the aim of transferring knowledge of the principles behind an intended innovation or practice before its actual implementation. Similarly, Kornawa *et al.* (2004) observed that when farmers themselves are involved in the testing, watching and circulation of information on a particular innovation, there is a greater chance of adoption for that innovation or practice.

The findings of Alliance for a Green Revolution in Africa (AGRA, 2016) in Kenya, Malawi and Zambia where training was provided for farmers on how to minimize post-harvest loses and to work as a group to meet market requirements and participate in efficient market is also consistent with the findings of this study.

CONCLUSION AND RECOMMENDATION

The most commonly used channels for agricultural information dissemination in Africa and Nigeria in particular, are mainly oral in nature due to the high level of illiteracy in most rural communities where farming is predominant. Although, the use of ICTs is gradually gaining grounds, a lot is still lacking in infrastructures for effective coverage of many remote areas. Based on the findings of the study, the following recommendations were made:

1. The outcome of the study revealed that information from interpersonal sources was the most utilized. Therefore, soybean farmers in the study areas should be encouraged to source for information from other sources such as those from NGOs, corporate bodies and



electronic sources and in particular, the use of mobile phone to link with information disseminators.

2. On-farm demonstration, training, drama and dance were the major channels use for obtaining agricultural information in Niger State; therefore soybean farmers should maximize the various channels of disseminating agricultural information in Niger State.

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