

A Utilization of Agricultural Information by Small Holder Farmers in Kano North Senatorial Zone

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ABSTRACT

The paper investigated utilization of agricultural information among small holder farmers in kano north senatorial zone. The main objective of this study is to investigate utilization of agricultural information by smallholder farmers in Kano North senatorial Zone. However, the specific objectives of this study are to identify the agricultural information sources available to small holder farmers in the area under study, determine the utilization of agricultural information by smallholder farmers in the area under study. The research design employed to this study was descriptive survey research design which is one of the research designs in quantitative research method that was used to unveil in-depth knowledge on a phenomenon. The targeted population comprises of all the small holder farmers in Kano North central which is 1116 and stratified random sampling was used because it divides a population into subgroups. Random samples are taken in the same proportion to the population from each of the groups or strata. The Sample size was 306 participants based on Researcher advisor's (2006) theory of determining the sample size. The instrument for data collection is questionnaire and was validated using face and content validity. Pretest reliability was done and the result using Cronch's alpha was .73. The data collected was analyzed using descriptive statistics (i.e., simple frequency tables, percentages, mean and standard deviation). The study recommends that smallholder farmers should be more active in seeking relevant agricultural information from various information dissemination sources instead of simply waiting for the information from extension officers, family and friends, radio and leaders and other disseminators and there is also need for information literacy training for smallholder farmers on new technologies like smartphones and other information communication devices to utilize agricultural information. This would enhance farmer's literacy level in area studied

KEYWORDS: Agricultural Information. Information and Communion Technology. Literacy. Small- holder farmers and Utilisation.

INTRODUCTION

Information is valuable in every development process. According to Nkamigbo, Ugwumba and Okeke (2019), information is required because of its significant contribution to the daily activities of people. In the information era, utilization of agricultural information by information providers to farmers will play a considerable role in the improvement of farming methods and practices. However, lack of understanding the format of information sources by small holder farmer is the main factor hindering the utilization of agricultural information.

Small holder farming has been one of the major agricultural activities among the people in the rural communities. It is a major employer in the world and it is growing further for ensuring food security around the globe. According to Udemezue (2018); Gbughemobi, Meludu and Nkamigbo (2021), to improve in agricultural activities farmers, need to have access to information based on diversity of their needs and translate it in to practice. Several researchers agree that in order to improve agricultural production in Nigeria, farmers must make their own decision, understand agricultural issues clearly and answer questions related to agricultural production. To achieve this, farmers must be linked with appropriate information and in appropriate format that will help them resolve their information needs and thereby boost production (Mokotjo, 2009; Tshabalala, 2003). Odini (2005) asserts that identifying information needs is the first step towards satisfying information needs and that information seeking process involves a number of steps before identifying information sources and needed information.

In this regard, the issues concerning utilization of agricultural information based on the need of small holders' farmers had been discussed and debated by many scholars around the globe. For example, in Europe, research conducted by Bilgili, Tuluca and Dogan (2017); Demiryurek, Erdem, Ceyhan, Atasar and Uysal (2018) report that majority of the farmers in Turkey were faced with many challenges that consequently affected their ability to access and utilize information and translate it in to practice. The findings from the research indicated there were inappropriate system of agriculture information management, unworthy information provider, less interest of farmer, and un-consistent farming community development.

The institution in Asian countries like Iran and Pakistan showed that access to agricultural information based on information need to rural farmers is only limited to a small number of farmers in the rural areas (Mirani and Memon, 2016; Badrage, Dinpanah, Aboeye and Sinaki, 2019). In particular, Badrage, Dinpanah, Aboeye and Sinaki, (2019) further identified lack of supervision or field assistance, lack of ICTs centers, lack of agricultural library was among the issues hurdling the accessibility of information to farmers in Iran. Yaseen, Siddiqui, Ali and Ameen (2014) report that the role of information and communication technologies in agriculture is imperative, though, large numbers of farmers involve themselves inquiring information, but very small number of farmers utilizes mobile phones for accessing such information. Lack of appropriate knowledge is the major cause of this less exploitation of mobile phones for information exploration. Most of rural farmers never visited demonstration farm, and never took part in group discussions and lectures

In Africa, research showed that, access to agricultural information to small holder farmers is fraught with number of issues. For example, in Tanzania, Benard, Dulle, and Ngalapa (2014) reports that information needs of rice farmers are associated with lack of information services, inadequate funds, lack of awareness of the available information

sources and inaccessibility to information. Similarly, Fisher, Thierfelder and Katengeza (2018) report that that poor/unreliable information infrastructure, high illiteracy levels, low income, lack of electricity, low adoption of ICT and high cost of ICTs have limited the accessibility of information services in rural areas.

In Nigeria, access and utilization of agricultural information to small holders is affected by a number of issues not dissimilar with other developing countries. For example, Ajibola and Onwu (2017) report that there is a problem of low-quality, outdated, inaccurate or incomplete information, lack the ability to distinguish between ‘good’ and ‘bad’ information due to low educational level of farmers. Aina (2007) reports that farmers in rural areas face gaps in access to information and thus are not able to compete in the global market. Diekmann, Loibl, and Batte (2019) reports that farmers in Nigeria have been affected with a number of issues which include low income per capital, low productivity, little commerce, high subsistence farming, high illiteracy rate, limited transportation, little industry, limited agricultural extension linkage and poor network connectivity in rural areas. Moreover, given this present situation, the current study the set to investigate the utilization of agricultural information based on the information sources available.

STATEMENT OF THE PROBLEM

Agricultural information is one of the basic resources that farmers need to boost their farming activities. It plays a pivotal role in enlightening farmers, raising their level of knowledge and eventually helping them in their decision-making process regarding farming activities (Sharker, 2008; Nkamigbo, Ugwumba & Okeke, 2019).

Also, in Nigeria, agriculture is the predominant economic activity. In other words, it is the main productive economic sector in the Northern part of the Country particularly in Kano state which has a rich diverse agro-ecological zone. About 55% of the district’s population relies on agriculture for their livelihood and most of those engaged in agricultural practice were smallholder farmers (Nkamigbo, Ugwumba & Okeke, 2019). However, it is observed that limited use to timely and accurate agricultural information is the major hindrance to the development of smallholder farmers in Kano state. This has impacted negatively on the socio-economic wellbeing of agricultural producers, resulting in high poverty levels and low agricultural productivity. Several attempts were made by many scholars on the issue of utilization of agricultural information among which includes Tadesse and Bahiigwa (2015); Udemezue (2018) who found that lack of awareness, low level of literacy and searching skills affect the effective utilization of information to rural dwellers.

Moreover, the present study seeks to investigate factors affecting access and utilization of agricultural information among smallholder farmers in Kano North Senatorial zone which has not been captured by previous studies.

RESEARCH OBJECTIVES

The general objective of this study is to investigate utilization of agricultural information by smallholder farmers in Kano North senatorial Zone. However, the specific objectives of this study are:

- ✓ To identify the agricultural information sources available to small holder farmers in the area under study.
- ✓ To determine the utilization of agricultural information by smallholder farmers in the area under study.

LITERATURE REVIEW

Information sources are tools or information carriers that meet the information needs of users. Agricultural information sources, according to Ofuoku (2008), is all published knowledge in all aspects of agriculture and that the quality of such information depends on three attributes which are accuracy, timeliness and relevance. Access to adequate information is very essential to increase agricultural productivity. While Daniel (2008) is of the view that agricultural information are operationally the various sets of information and messages that are relevant to agricultural production activities of farmers such as crop production and protection, animal production and management, and natural resource production and conservation.

Similarly, Samuel (2011); Gbughemobi, Meludu and Nkamigbo, (2021) were of the view that agricultural information sources as the information required for decision-making and as a resource that must be acquired and used in order to make an informed decision. They however, classified agricultural information into two broad groups: pure agricultural information and agricultural information inherently tied to new inventions. Pure agricultural information refers to any information which can be used without the acquisition of a specific physical technology. On the other hand, agricultural inventions or technologies are those that come in the form of agricultural inputs, management technologies facilitating farm management, and marketing and processing equipment. Many studies have been conducted to determine the type of information sources of agricultural extension workers (Naveed & Anwar, 2013). Chaolemen, Huiling, Bin and Guojun, (2016) identified various agricultural information sources of farmers to include organizations, individual associates, local, national and international seminars, extension workers, trainings, print and electronic media, telecommunication, and internet service.

Utilization of agricultural information sources deals with the ability of smallholders' farmers to access and use the available information resources regardless of its formats or structure (Hoffman, Lubell, and Hillis, 2015). Information use is a behaviour that leads an individual to the use of information in order to meet his or her information needs. Information use is an indicator of information needs, but they are not identical. As Line (1973) pointed out, individuals do not use all the information they seek partly because of inaccessibility, irrelevance and inability to decipher the information. In addition, sometimes, individuals do not seek all the information they intend to use.

Knowledge about the information needs and information use of extension officers and other actors in the extension systems is crucial for effectively meeting their agricultural information needs. Chaolemen, Huiling, Bin and Guojun, (2016) utilization of different sources of agricultural information is vital for small holder farmers as they are able to gain knowledge and create awareness on modern dairy innovations. Dairy farming is becoming more intensive in developing countries and farmers need information resources to acquire knowledge.

Nkamigbo, Ugwumba and Okeke (2019) remarks that as agriculture systems become more complex, farmers' access to a reliable, timely and relevant information source is critical to farmers' competitiveness. Information must be relevant and meaningful to farmers in addition to being packaged and delivered in a way preferred by them

Oladele (2010) points out that the relevance of use of improved agricultural practices depends on the quality of information sources available to small holder farmers. However, there is no universal source that can adequately provide access to all the available information to all audiences of agricultural information (Claudine and Liza, 2013). This means that agricultural extension officers rely on complementary sources of information to effectively serve their clientele. These sources include mass media, Internet, farmer's meetings, libraries among others Daniel (2008) in his study found that farmers got information from interpersonal source and sometimes from extension workers. Though, the study described the researchers' scenario as that of being informational deprived, which implies a situation where researchers have too much information and are unable to pick out the right sources. The policy implication of the findings showed that to improve the performance of agricultural researchers and extension workers, the provision of information sources as well as the facilities to enhance their use is very important in the research institutes and information dissemination systems. In an era of knowledge economy, information plays an increasingly important role in every sphere of the developmental process. Aina (1991) stated that farmers need agricultural information sources but majority of the information sources are not being utilized by farmers because majority of them are illiterate that they cannot read and write even in their native language

RESEARCH METHOD

The research design employed to this study was descriptive survey research design which is one of the research designs in quantitative research method that was used to unveil in-depth knowledge on a phenomenon. The targeted population comprises of all the small holder farmers in Kano North central which is 1116 and stratified random sampling was used because it divides a population into subgroups. Random samples are taken in the same proportion to the population from each of the groups or strata. The Sample size was 306 participants based on Researcher advisor's (2006) theory of determining the sample size. The instrument for data collection is questionnaire and was validated using face and content validity. Pretest reliability was done and the result using Cronch's alpha was .73. The data collected was analyzed using descriptive statistics (i.e., simple frequency tables, percentages, mean and standard deviation).

DATA ANALYSIS AND DISCUSSION

Response rates from the questionnaires administered

The level of response rate in social research is an important factor of assessing the value of the research findings (Baruch and Holton 2008). According to Fincham (2008) recommended that attainment of 60% of response rate is enough for making analysis in the research study. In line with this assertion by Fincham, the response rate for this study obtained from the questionnaires distributed and collected was acceptable. The response rates from small holder farmers were 81.4% (249). This was achieved as a result of the subsequent follow ups as well as the employment of the research assistants in the administration of the research instruments.

SOURCES OF AGRICULTURAL INFORMATION AVAILABLE TO SMALLHOLDER FARMERS IN KANO STATE

Table 1: Responses of the small holder farmers on sources of agricultural information to small holder farmers (N=249)

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Sources of Agricultural Information	Yes		No		Mean	STD
	F	%	F	%		
Through radio stations	129	51.8	120	48.2	1.48	0.50
Local and International print media such as newspapers, newsletters	121	48.6	128	51.4	1.51	0.50
Through Training and workshop	87	34.9	162	65.1	1.62	0.48
Through Extension workers	133	53.4	116	46.6	1.46	0.49
Through Exhibition	87	34.9	162	65.1	1.63	0.48
Through Seminars	111	44.6	138	55.4	1.55	0.47
Through family friends	172	69.1	77	30.9	1.30	0.46
Through community leaders	127	51.0	122	49.0	1.49	0.50

Responses from Table 1 has shown that ((129; 51.8%) of the respondents agreed that radio stations are the main sources of agricultural information while (120; 48.2) of the respondents were not considering radio stations as the source of agricultural information, thereby reflecting a mean score of scored 1.48 and a standard deviation of .50. Local and International print media such as newspapers, newsletters are the second listed items that was presented to the respondents of which majority of the respondents (128; 51.4%) revealed that local and international print media such as newspapers are not the sources of agricultural information while (121; 48.6%) responded that local and international print media are the sources of agricultural information. This is reflected in a mean score of scored 1.51 and a standard deviation of .50. For training and workshop, (87; 34.9%) of the respondents revealed as the source of agricultural information while (162; 65.1%) indicated that training and workshop are not the source of agricultural information. This is reflected in a mean score of scored 1.62 and a standard deviation of .48. For extension workers, majority of the respondents (133; 53.4) indicated that the extension workers are the sources of agricultural information while (116; 46.6%) of the respondents revealed that the extension workers are not the source of agricultural information, reflecting a mean score of scored 1.46 and a standard deviation of .49.

Regarding items of exhibition as the source of agricultural information, data from the above table revealed that the exhibition is not the source of agricultural information with a frequency of (87; 34.9), reflecting a mean score of scored 1.63 and a standard deviation of .48. For Seminars, data also revealed them as not the source of agricultural information with (138; 55.4%) while (111; 44.6%) indicated seminars as source of agricultural information, thereby reflecting a mean score of scored 1.55 and a standard deviation of .47. Through family friends showed (172; 69.1%) of the respondents indicated as the main sources' agricultural information while (77; 30.9%) did not agreed that the source of agricultural information is through family and friends. It is reflected in a mean score of scored 1.30 and a standard deviation of .46. Data from community leaders as the source of agricultural information revealed that (127; 51.0%) of the respondents agree on the source of agricultural information is through community leaders while (122; 49.0%) of the respondents answered that such community leaders are not the source of agricultural information; thereby reflecting a mean score of 1.49 and a standard deviation of .50.

From the above data, it can be said that the main sources of agricultural information to small holder farmers in Kano state are mainly through family and friends, community leaders, extension workers and radio stations.

UTILIZATION OF AGRICULTURAL INFORMATION BY SMALLHOLDER FARMERS

Table 2: Responses of the small holder farmers on utilization of agricultural information (N=249) F=Frequency

	Never		Sometimes		Frequent		Mean	STD
	F	%	F	%	F	%		
PRINTED AGRICULTURAL INFORMATION								
Drawing/ diagram, leaflet/pamphlets	159	63.9	46	18.5	44	17.7	1.54	0.78
Letter/posters chart	150	60.2	50	20.1	49	19.7	1.59	0.80
Photography / illustration	165	66.3	69	27.7	15	6.0	1.40	0.60
Newspaper/magazine/newsletter	83	32.2	144	57.5	22	8.8	1.70	0.62
Journals/conference proceeding, agricultural textbooks	87	34.9	140	56.2	22	8.8	1.74	0.61
Research reports	174	69.9	59	23.7	15	6.4	1.54	0.85
Technical report	163	65.5	43	17.3	43	17.3	1.52	0.77
Facts sheets	177	71.1	51	20.5	21	8.4	1.37	0.64
ELECTRONIC AGRICULTURAL INFORMATION								
Telephone/GSM	89	35.7	91	36.5	69	27.7	1.94	0.79
Internet/e-mail website	115	46.2	63	25.3	71	28.5	1.82	0.85
Agricultural data base	150	60.2	73	29.3	26	10.4	1.50	0.68
Public announcement gadget/van	69	27.7	131	52.6	49	19.7	1.92	0.69
Motion pictures/film strip with commentary	196	78.7	41	16.5	12	4.8	1.26	0.54
Television program	81	32.5	131	52.6	37	14.9	1.82	0.67
Radio program	43	17.3	187	75.1	19	7.6	1.90	0.49

Responses from Table2 indicated that (159; 63.9%) of the respondents revealed that drawing/ diagram, leaflet/pamphlets were not used by the respondents, (46; 18.5%) were used for sometimes while (44; 17.7%) indicate the frequent used of drawing/ diagram, leaflet/pamphlets for agricultural information, thereby reflecting a mean score of scored 1.54 and a standard deviation of .78. Letter/posters chart are the second listed items that was presented to the respondents of which majority of the respondents (150; 60.2%) revealed that letter/posters chartare were not use, (10; 20.1%) of the respondents were using such agricultural information for sometimes while (49; 19.7%) responded that letter/posters chartwere used frequently. This is reflected in a mean score of scored 1.53 and a standard deviation of .50. For photography/illustration, (165; 66.3%) of the respondents revealed the photography were not used, (69; 27.7%) of the respondents were used for sometimes while (15; 6.0%) indicated that frequent used. This is reflected in a mean score of scored 1.40 and a standard deviation of .60. For newspaper/magazine/newsletter, majority of the respondents (144; 57.5%) indicated that they used for sometimes followed by (83; 32.2%) who had never use while (22; 8.8%) of the respondents revealed their frequent use of

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newspaper/magazine/newsletter, reflecting a mean score of scored 1.70 and a standard deviation of .62. For Journals/conference proceeding/agricultural textbooks, majority of the respondents (140; 56.2%) indicated that they used for sometimes while (87; 34.9%) of the respondents had never use. Only (22; 8.8%) of the respondents used frequently, reflecting a mean score of scored 1.74 and a standard deviation of .61

Regarding items of research reports, data from the Table 2 revealed that (174; 69.99%) of the respondents revealed that research reports were not used by the respondents, (59; 23.7%) were used for sometimes while (15; 6.4%) indicate the frequent used of research reports for agricultural information, thereby reflecting a mean score of scored 1.54 and a standard deviation of .85 Technical reports are the second listed items that was presented to the respondents of which majority of the respondents (163; 65.5%) revealed that letter/posters chartare were not use, (43; 17.3%) of the respondents were using such agricultural information for sometimes while (49; 19.7%) responded that technical reports were used frequently. This is reflected in a mean score of scored 1.53 and a standard deviation of .50. For photography/illustration, (165; 66.3%) of the respondents revealed the photography were not used, (69; 27.7%) of the respondents were used for sometimes while (15; 6.0%) indicated that frequent used. This is reflected in a mean score of scored 1.40 and a standard deviation of .60. For newspaper/magazine/newsletter, majority of the respondents (144; 57.5%) indicated that they used for sometimes followed by (83; 32.2%) who had never use while (22; 8.8%) of the respondents revealed their frequent use of newspaper/magazine/newsletter, reflecting a mean score of scored 1.70 and a standard deviation of .62. For Journals/conference proceeding/agricultural textbooks, majority of the respondents (140; 56.2%) indicated that they used for sometimes while (87; 34.9%) of the respondents had never use. Only (22; 8.8%) of the respondents used frequently, reflecting a mean score of scored 1.74 and a standard deviation of .61

Next on the list of items are public announcement gadget/van, which revealed that (129; 51.8%) of the respondents indicated their accessibility while (120; 48.2%) of the respondents are in accessible. Their responses reflect a mean score of scored 1.48 and a standard deviation of .50. For motion pictures/film strip with commentary the data as revealed in accessibility by the majority of the respondents with (173; 69.5%) while (76; 30.5%) of the respondents indicate accessibility; thereby reflecting a mean score of scored 1.69 and a standard deviation of .46. For television program, the data showed that (94; 37.8%) of the respondents' access agricultural information from television programs while (155; 62.2%) were in accessible. This reflected in a mean score of scored 1.63 and a standard deviation of .49. For radio program, the data showed that (148; 59.4%) of the respondents' access agricultural information from radio programs while (101; 40.6%) were in accessible. This reflected in a mean score of scored 1.40 and a standard deviation of .43

The data in Table 2 indicated that small holder farmers utilize agricultural information from printed agricultural resources such as newspaper/magazine/newsletter and journal articles, and textbooks. Other printed agricultural information resources like drawing/diagram, leaflet/pamphlets, letter/posters chart, photographs/illustrations, technical reports and research reports were inaccessible by the majority of the respondents. For electronic agricultural information; telephone/GSM, radio programs and public announcement gadget/van were only found accessible to small holder farmers while internet/e-mail website, agricultural database, motion pictures/film strip with commentary and television program were also found inaccessible by the majority of the respondents.

1. Source of agricultural information to farmers:

The study revealed that there is availability of agricultural information sources including family and friends, community leaders, extension workers and radio stations. This finding opposed the finding from the study by Pamphily, Harrison and Emily (2017) which indicated that the majority of the farmers' access agricultural information through radio (68.3%) followed by traditional sources (47.7%). Others studies are those of Ogunsola, Ogunsola, Alarape, Oloba & Osalusi (2019), Olaniyi and Ogunkunle (2018), which found that the mass media and the extension agents (Olaniyi and Ogunkunle, 2018); the radio (61.6%), extension agents (35.8%), were the main sources of agricultural information to farmers. Kelil, Girma and Hiruy (2020) found newspaper with (87.5%) (Uwandu, Thomas & Okoro, 2018); television (91.9%) and Radio (89.9%) by (Ogunsola, Ogunsola, Alarape, Oloba and Osalusi, 2019) were the major sources of agricultural information for the farmers. Although some studies still aligned with this finding that the main source of getting agricultural information for farmers were friends and family members with 95% of the respondents attesting to that.

2. Utilization of agricultural information by small holder farmers:

With a view of identifying the different type of agricultural information utilized by farmers. The finding of the study revealed that small holder farmers utilize agricultural information from printed agricultural resources such as newspaper/magazine/newsletter and journal articles, and textbooks. Online agricultural information utilize by respondents includes telephone/GSM, radio programs and public announcement gadget/van. These findings agree with Abdul-Aziz and Baba (2017); Omekwe, Omiekuma and Obayori (2020) who observed that majority of the farmers in developing countries utilize agricultural information through radio programmes, elders and family or relatives. However, it is contrary to Schmidhuber, Pound and Qiao (2020) who reported that information and communication technologies are main sources of agricultural information in developed countries like USA. Though, Ogunniyi and Ojebuyi (2020) reported that GSM is the most preferred information sources for Agribusiness by farmers in Southwest Nigeria.

CONCLUSION AND RECOMMENDATIONS

It can be concluded the main sources of agricultural information to small holder farmers in Kano state are mainly through family and friends, community leaders, extension workers and radio stations and the utilization of agricultural information revolve around printed agricultural resources such as newspaper/magazine/newsletter and journal articles, and textbooks. Other printed agricultural information resources like drawing/diagram, leaflet/pamphlets, letter/posters chart, photographs/illustrations, technical reports and research reports were inaccessible by the majority of the respondents. For electronic agricultural information; telephone/GSM, radio programs and public announcement gadget/van were only found accessible to small holder farmers while internet/e-mail website, agricultural database, motion pictures/film strip with commentary and television program were also found not utilized by the majority of the respondents

Recommendations

The following recommendations are made based on the findings and conclusion reached in this study:

1. The study recommends that smallholder farmers should be more active in seeking relevant agricultural information from various information dissemination sources instead of simply waiting for the information from extension officers, family and friends, radio and leaders and other disseminators
2. There is also need for information literacy training for smallholder farmers on new technologies like smartphones and other information communication devices to utilize agricultural information. This would enhance farmer's literacy level in area studied.

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