INFORMATION SOURCES AND NEEDS OF SMALL SCALE FARMERS IN KATSINA STATE, NIGERIA

By

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Abstract

There is a growing concerted effort in supporting agricultural development worldwide. At present, many governments and donor agencies are intervening by supporting farmers with information in order to scale up farming operations and bridge the low income generation. The purpose of this study is to examine information needs and information sources used by Small Scale Farmers (SSF) in Katsina State. Two research questions and one hypothesis were developed to guide the study. Cross sectional survey design was adopted in which a total of seven hundred (700) registered small scale farmers from three agricultural zones of the state formed the population. A total number of two hundred and eighty (280) respondents were randomly sampled using cluster sampling technique. Data were analyzed using descriptive and inferential statistics in which the null hypothesis was tested using Pearson Product Moment Correlation Coefficient (PPMCC). The findings of the study revealed that the information needs of the SSF include the prices of farm produce, weather condition, agricultural loan, new seeds, fertilizer, pest control, new technology, information on storage methods as well as other information that could enhance their farming activities. The finding also revealed that the information sources of SSF are friends, relatives, agricultural dealers, extension workers, radio, television, farmers' cooperative associations and local government agricultural units. Information needs and information sources of small scale farmers in Katsina State are many. At the present, the whole processes are not well coordinated. Government should have a common information hub, relevant agencies and small scale farmers should share information to improve farming activities.

Keywords: Information Needs, Information Sources, Small Scale Farmers

Introduction

It is understood that information has and will continue to play a fundamental role in supporting agricultural development. Farmers irrespective of their categories – the subsistence or small scale farmers, medium scale farmers and the large scale commercial farmers all need information about new developments in the agricultural business sector. A number of researchers have stressed the importance of information support for agricultural developments. For example, Mabuku (2015) stressed that, information is very vital in farming activities of any community and when it is poorly disseminated, farming activities as well as the community development becomes highly impeded. In the same vein, Kalusopa (2005) pointed out that, agricultural development activities are based on the utilization of information. Kalusopa further emphasized that the information must be up to date and easily accessible. The information must also serve certain functions including a means of acquiring knowledge, tool for decision making and a process of communication between stakeholders. To that

end, the information becomes a working tool for a change that could enhance productivity and assists farmers to solve their problems.

Despite the significant role being played by information in supporting agricultural development, less attention is given to its importance. Supporting this notion from Nigeria context, Ozowa (1995) pointed out that, small scale farming and farmers have not been given considerable attention in Nigeria and information dissemination which is an essential ingredient in the agricultural development program has not been accorded the priority it deserve either. Kalusopa (2005:1) aptly sums up the situation thus:

> Although it is widely acknowledged that information plays an important role in agricultural development, the conception has received less pragmatic attention and seems to have been less consolidated over time. The central role of information in this sector has thus been largely superficial.

In order to adequately support agricultural development of small scale farmers (SSF), there is the need to pay serious and adequate attention to information. Most key areas of agriculture where improvements would have an impact on productivity that include extension services, access to credit and loan facilities, marketing and local farmers' participation all need an element of information (Kalusopa, 2005). Therefore, understanding the information needs and information sources used by the SSF in Katsina State could help scale up productivity and economic growth of the state. The study recommended for clear identification of SSF information needs as well as the appropriate utilization of information sources suitable for SSF.

An Overview of Small Scale Farmers

The conception of the term "Small Scale Farmers" (SSF) varies from one community to another. To that end, scholars have not provided a generic definition for the term. Qiao et al., (2018) cited in International Food Agricultural Development (2013) described small scale farmers as "marginalised people who have difficulties to access resources, capital, information and technology". In South Africa, the term "small scale" is associated with backward, non-productive, non-commercial and subsistence agriculture (Kirsten and Zyl, 1998). Furthermore, Jacobs (2008) characterized small scale farmers in South Africa as poor, less educated and resides in rural communities with less developed infrastructure. An old conception of small scale farmers is that they are "isolated" and living in "closed, self-sufficient societies" (Kalusopa, 2005). This conception as argue by the author

is no longer tenable due to changes in the global Agric-business market. In general, as noted by Awazia and Tchamba (2018), these categories of farmers mainly live in the rural areas and farming is the mainstay of their livelihood.

According to Dyck and Silvestre (2019), there are about 500 million small scale farms in developing countries. In this low income nations, the small scale farmers are believed to be more efficient than large scale farmers when compare from the perspective of farm size and productivity (Kirsten and Zyl, 1998). In Nigeria, small scale farmers made up of about 80 percent of the country's farming population (Afolabi, 2010). The contribution of the small scale farmers to food security in the low income countries of the world cannot be overemphasized. However, these small scale farmers remain the most vulnerable to food insecurity, poverty and low net income. In order to address this issue, this study argues that information must play a central role in supporting agricultural productivity of the small scale farmers. Hence, determining the information needs and information sources used by the small scale farmers is therefore appropriate to this task.

Statement of the Problem

Katsina State is one of the thirty-six (36) states of the Federal Republic of Nigeria with a total population of about eight (8) million. The state has an average annual rainfall of 300-700mm. More than seventy-five (75) percent of the population of Katsina State are farmers and largely small scale farmers. There are many government agencies in the state that are providing agricultural development support services to farmers including information dissemination. Farming activities in Katsina State has thus, contributed immensely in food security, employment generation, and raw materials for industries (Ladan, 2017).

Despite the high percentage of small scale farmers in Katsina State, farmers in the state could not produce sufficient food to meet domestic demands. Poor agricultural productions are acknowledged to be linked to lack of clear understanding of farmers' information needs as well as poor utilization of sources of information by farmers. Studies that looked at the information needs of small scale farmers have established that the information needs are multidimensional in nature (Harande, 2009). Furthermore, Odini (2014) summarizes the farmers' information needs to include information on marketing of produce, pest control and fertilizer application.

At present, to the best of the researchers' knowledge, there are no studies that have examined the information needs and information sources used by small scale farmers in Katsina State. Many

researchers (Kalusopa, 2005; Kirsten and Zyl, 1998; Ozowa, 1995) have attempted to discuss information support for small scale farmers and agricultural productivity. For instance, Kalusopa (2005) established that the supply of information in the agricultural sector is poorly developed and unfocused. However, this study contends that the findings from studies in different countries or other geographical parts of Nigeria are not comprehensive and may not be applicable to small scale farmers in Katsina State because of varying social, political and economic factors. The present study is, therefore, intended to contribute to bridging this knowledge gap by examining the information needs and the various types of sources of information used by small scale farmers to boost agricultural activities in Katsina State. Knowledge from this study will enable governments and donor agencies to leverage the power of information to provide better and more relevant agricultural support services to small scale farmers.

Objectives of the study

The objectives of this study are to answer the following research questions:

1. What are the information needs of small scale farmers in Katsina state?
2. What are the information sources used by small scale farmers to satisfy their information needs?

Research Hypothesis

Ho 1: There is no significant relationship between the information needs and information sources used by small scale farmers in Katsina State.

Literature Review

Information Needs of Small Scale Farmers

Information needs could be seen as a demand, requirement, want or desire. Yusuf (2012) cited in Taylor (2008) defines information need as the extent to which information is required to solve problems. It is also a degree used to express satisfaction and dissatisfaction with the information. Arora (2014) explains that, information need is a state or process when one perceived that there is a gap between the information and knowledge available to solve a problem and the actual solution of the problem.

Information needs are many and multi-dimensional and this is could be linked to the diverse nature of communities (Harande, 2009). On a daily basis, small scale farmers need information to help develop and strengthen the agricultural business. Farmers seek to acquire accurate, timely and

high quality information to take decisions on crop production, reducing losses and maximizing productivity. Odini (2014) stated that, farmers need relevant and adequate information on agricultural inputs, marketing and selection of varieties of seeds, high yield crops, and pest control and fertilizer application.

Similarly, Bernard, Dulle and Ngalapa (2014) assessed information needs of rice farmers in Tanzania. The study shows that rice farmers have a wide variety of information needs that include information on weather condition, agricultural credit/loan, new seeds, storage methods, planting methods, diseases and pest control and pesticide availability and its application.
Mabuku (2015) investigated information needs of small scale farmers of Namibia. The study reveals the farmers' information needs to include animal health information, information on animal husbandry, information on new technologies and information on agriculture policies. Furthermore, Adio, Abu, Yusuf, Sharif and Shehu (2016) pointed out that the information needs of rural farmers may be grouped into five classes, namely agricultural inputs, extension education, agricultural technology, agricultural credit and marketing.

Therefore, understanding the information needs of small scale farmers in Nigeria and Katsina State in particular is crucial for increasing quality, quantity, market access and diversification of the country's agric business sector, in line with commitment to broaden the economic sector. However, the information needs of small scale farmers in Katsina State have not been widely recognized in the literature which examines agricultural development. Therefore, this study aims to fill this knowledge gap.

Information Sources Used by Small Scale Farmers

Farmers' information sources are the central elements of advanced farming activities as well as the fundamental and essential promoter of farming activities. Sani, Boadi, Kalusopa and Oladokun (2014) stated that information sources can be distinguished by form of representation - textual (books, journals, manuscripts), graphic (graphs, diagrams, plans, charts), and audio visual (sound recordings, motion pictures, slides). Several scholars have conducted research on the information sources used by small scale farmers to meet their information needs.

For example, Opara (2008) highlights that the most significant sources of information used by farmers include farm demonstrations/ agricultural shows, television, fellow farmer, contact

farmers and extension agents. Opera further stated that the later are the most preferred sources. Similarly, scholars (Buba, 2003; Ogboma, 2010; Meitei and Devi, 2009; Mtega and Benard, 2013) have acknowledged that farmers used different information sources to meet their information needs, which include newspapers, journals, bulletins, community leaders, farmer's group among others.

Furthermore, Daudu, Chado and Igbashal (2009) investigate the agricultural information sources utilize by farmers in Benue State, Nigeria. The study reveals that farmers source their information from radio, libraries, friends and extension workers. Similarly, Lwogo, Stilwel and Ngulube (2014) examine the information needs of small-holder farmers in Tanzania. The study shows that the farmers largely source their information from friends/neighbors, follow by extension workers, agricultural input suppliers, and then family/parents. Other information sources are farmer groups, personal experience, village leaders, Non-Governmental Organizations, district officials, village meetings, middlemen, and farmer cooperatives. Lwogo et al. (2014) further pointed out that the farmers made little use of other knowledgeable farmers, printed materials (that is, books, newsletters, leaflets, posters), and television.

Yaseen, Shiwei, Wen and Hassan (2016) assessed farmer's information sources in rural Pakistan. The study demonstrates that the majority of the farmers ranked neighbor-friends-relatives as the first source of information; while few ranked extension workers as first information source. In addition, Bachhav (2012) reported that newspaper, government offices and television are the main sources of information used by farmers.

Therefore, information sources such as radio, television, newspapers, mobile phones, printed materials, farmers' groups, libraries, extension workers and social media among others are widely used by farmers to get relevant information on agricultural activities. Therefore, small scale farmers in Katsina State should try using these information resources to leverage in the agric business.

Methodology

The study adopted the survey research design with emphasis on cross sectional design. Bailey (2008) states that, if the survey is well conducted, using a representative sample, valid inferences can be drawn from the sample to make generalizations on the opinion attitudes and beliefs of the whole population on a specific topic. The rationale for employing the survey in this study is to have a bigger perspective through a bigger sample than what is usually obtainable through interviews. Furthermore, Sedgwick (2014) emphasizes that, the cross sectional survey is generally quick, easy, and cheap to

perform. The cross-sectional design was used to assess the hypothesized relationships between the information needs and information sources used among the small scale farmers.

The study population comprises all the seven hundred (700) small scale farmers that are registered with a farmer's cooperative association in Katsina state. The cluster sampling technique was used to select sample for the study. Cohen, Manion and Morrison, (2007) stated that, when a population is too large a minimum of thirty per cent (30 %) can be employed as sample size. In this study, forty percent (40%) of the population was used as sample size. Two clusters were randomly selected out of three clusters from three selected local government areas in the state. The respondents for the study were the small scale farmers in three Local Government Areas of Katsina State.

In this study, the instrument used for data collection was survey questionnaire. The initial draft of the questionnaire was given to some senior academic colleagues for scrutiny to ensure the validity of the contents of the questionnaire. The questionnaires were pre-tested to ensure the reliability of the instrument. The reliability was tested in terms of the Cronbach Alpha reliability coefficient which was 0.642. According to Al Barki & Kisswani (2014), a Cronbach alpha coefficient of 0.70 or more is more accepted, however, approximately 0.60 percent is argued as the most widely supported. The questionnaire was designed and structure with three sections. The first section of the questionnaire contains questions on the demographic characterics of the respondents. The second section has questions on the types of information needs of small scale farmers. The last section has questions on the types of information sources used by small scale farmers and were measure using agreed, undecided and disagreed.

Two hundred and eighty (280) copies of the questionnaires were distributed to the sample respondents and two hundred and fifty five (255) copies representing (91.1%) were returned and found useful. The data were analyzed using descriptive and inferential statistics. The descriptive statistic was used to answer the research questions and to show some demographic information about the respondents, while the inferential statistics was used to test the hypothesized relationships between information needs and information sources of small scale farmers using Pearson Product Moment Correlation Coefficient (PPMCC).

Results

Demographic Data

The demographic data of small holder farmers in Katsina state included the gender of the respondents, the age, the educational level and farming experiences. Concerning the gender of the small scale farmers, the survey data revealed most (85.1%) of the respondents are male compared to (14.9%) female. In terms of the respondent's age group, the result demonstrated wide differences with few (5.10%) of the respondents below 20 years of age, (22.8%) are between twenty one to thirty years, (19.2%) thirty one to forty years, most (32.6%) forty one to fifty years and (20.8%) are between fifty one years and above. With respect to the respondents' educational level, the study demonstrated that most (37.7%) of the respondents possessed the National Certificate of Education (NCE) and the Ordinary National Diploma (OND) and only a few (25.5%) are holders of the Secondary School Certificate. The least (12.9%) possessed the Primary School Leaving Certificate, (4.31%) are holders of Adult Mass Literacy Certificate and (19.6%) other certificates. With regards to farming experience, the result revealed wide differences whereby (10.9%) of the respondents indicated that they have between one to five years' experience, (23.1%) six to ten years, (22.8%) eleven to twenty years, most (25.5%) twenty-one to thirty years and (17.7%) have thirty one years and above.

Research Question 1: What are the information needs of small scale farmers in Katsina state?

Table 1: Information needs of small holder farmer in Katsina state

SN	Information needs for farming activities	Yes (%)	No (%)
1	Agricultural credit/loan/subsidy	247 (96.86)	8 (3.14)
2	Weather and climate conditions	250 (98.04)	5 (1.96)
3	Marketing and price of farm produce	252 (98.82)	3 (1.18)
4	New seeds and fertilizer	247 (96.86)	8 (3.14)
5	Storage methods	222 (87.06)	33 (12.94)
6	New agricultural technology	246 (96.47)	9 (3.53)
7	Diseases and pest control	246 (96.47)	9 (3.53)
8	Any other information	237 (92.94)	18 (7.06)

(Source: Field data, 2018 by using SPSS version 16.0)

Table 1 shows the information needs of small scale farmers in Katsina state. The result indicated majority (96.9%) of the respondents need information on agricultural credits/loans/subsidy while a few (3.14%, n = 8) do not. Pertaining to information on weather and climate condition, most (98.0%) indicated yes and (1.96%) indicated no. Similarly, almost all (98.8%) of the respondents indicated that they need information on marketing and price of farm produce while a very few (1.18%)

do not. Likewise, the greater part (96.9%) of the respondents indicated that they need information on new seeds and fertilized while a few (3.18%) answered in the negative. The result further shows that more than half (87.1%) of the respondents need information on storage methods while a small number (12.9%) do not, almost all (96.5%) need information on new agricultural technology and (3.53%) do not and nearly all (96.5%) need information on diseases and pest control while a few (3.53%) indicated that they do not. Regarding whether the small scale farmers need any other information, majority (92.9%) of the respondents indicated yes and not many (7.06%) indicated no.

Research Question 2: What are the information sources used by small scale farmers in Katsina state?

Table 2: Information sources used by small holder farmer in Katsina state

SN	Information sources used and obtained from	Agree (%)	Undecided (%)	Disagree (%)
1	Relatives and Friends	231 (90.59)	-	24 (9.41)
2	Extension workers	225 (88.24)	8 (3.14)	22 (8.63)
3	Farmers' cooperative associations	219 (85.88)	7 (2.75)	29 (11.37)
4	Radio and television	226 (88.63)	-	29 (11.37)
5	Local government agricultural units	202 (79.22)	2 (0.78)	51 (20.00)
6	Workshops and conferences	206 (80.78)	7 (2.75)	42 (16.47)
7	Agricultural dealers	242 (94.90)	-	13 (5.10)

(Source: Field data, 2018 by using SPSS version 16.0)

In terms of the information sources used by small scale farmers in Katsina State, the results presented in the Table 2 revealed that the majority (90.6%) of the respondents agreed that relatives and friends are used as a source of information while few (9.41%) disagreed. Similarly, more than half (88.2%) agreed that extension workers are used as a source of information. However, a few (8.63%) of the respondents disagreed while (3.14%) were undecided. In the same vein, more than half (86.9%) of the respondents agreed that farmers' cooperative associations are used as source information, few (11.4%) disagreed while the least (2.75%) were undecided. In terms of radio and television, the result shows most (88.6%) of the respondents agreed and a few (11.4%) disagreed. Similarly, more than half (79.2%) of the respondents agreed that local government agriculture units are used as a source of information, 20.0% (51) disagreed while few (2.80%) were undecided. With regards to workshops and conferences, most (80.8%) agreed, (16.5%) disagreed and the least (2.80%) were undecided. Furthermore, almost all (94.9%) agreed that agricultural dealers are used as a source of information while few (5.10%) disagreed.

Null Hypothesis of the Study

$H0_1$ There is no significant relationship between the information needs and information sources used by small scale farmers in Katsina state.

Table 3: Summaries of Relationship between Information Needs and Information Sources

Descriptive Statistics			
	Mean	Std Deviation	N
Information Need	15.694	.8832	255
Information Source	29.569	4.4094	255

The results in table 3 present the summaries of the descriptive statistics of the relationship between the information needs and information sources used by small scale farmers. The results reveal a mean score of the farmers' information needs as 15.69 while the mean score of farmers' information source is 29.57. This analysis, therefore, shows that there is a significant difference of the means of the variables.

Table 4: Correlation between Information Needs and Sources

		Information Need	Information Source
Information Need	Pearson Correlation	1	.020
	P Value Sig. (2-tailed)		.756
	N	255	255
Information Source	Pearson Correlation	.020	1
	P Value Sig. (2-tailed)	.756	
	N	255	255

Table 4 presents the Pearson's Product Moment Correlation (PPMC) of the hypothesis on the relationship between level of information needs and information sources used by the farmers. The analysis revealed that the correlation coefficient is significant at the 0.01 level (2-tailed) and the relationship is positive r = .020, n=255, p=.756, i.e. greater than 0.05). Based on this value, the null hypothesis is retained. This shows a very weak correlation that is only 20% of the variation of the level of Information Needs of farmers as explained by the variation in the information sources of the farmers in Katsina State. While about 80% of the variations are being influenced by other factors in enhancing farming activities of farmers in Katsina State.

Discussion

This cross-sectional survey design study investigated small scale farmers' information needs and information sources used. Specifically, the study examined which elements of the agricultural business do small scale farmers need information on and what information source were being used.

Information needs of small scale farmers

The study findings suggest that small scale farmers were more interested in information about marketing and prices of farm produce as well as weather and climate conditions. They also have strong information needs of new seeds and fertilizer, agricultural credits/loan/subsidy, new technology, storage methods and diseases and pest control. These findings concur with other studies (Mabuku, 2015; Bernard et al. 2014; Kalusopa, 2005) which reported that small scale farmers have significant information needs of marketing, agro-technology technology and agricultural policies. This result suggests that small scale farmers' productivity is largely dependent on the prices of farm produce and weather condition. In most developing countries, small scale farmers are producing at lost because of poor information on marketing strategies.

In terms of information needs on weather condition, global warming is adversely affecting agricultural production in so many ways. The impact of climate variability and change on small scale farmers in developing countries include productivity decline, increased poverty, food insecurity, shortage of water, death of animals and increase in bush fire (Awazi and Tchamba, 2018). To this end, farmers need a lot of information on weather related issues such as Seasonal Rainfall Prediction Report- a report which will indicate the amount, pattern and cessation of rain. Farmers equally need information on short and early maturing varieties, drought tolerant crops and flood occurrence to mention a few. Information on these elements can significantly help small scale farmers avoid losing their investments in the farm as well as follow good agronomy practices that will be give them good yield. Hence, climate-smart agriculture should be the watchword of farmers.

Information sources used by small scale farmers

The study findings demonstrated that almost all small scale farmers in Katsina State sourced information from agricultural dealers, extension workers, farmers' cooperative associations, radio and television, local government agricultural units and workshops and conferences. In particular, the finding suggests that agricultural dealers seem to be a key reliable information source among the farmers. No doubt, agricultural dealers have always served as information intermediaries between

farmers and agro-allied industries. They provide information from agro-allied industries to farmers and vice versa. The study also revealed that most small scale farmers still depend on relatives and friends for information. These findings are consistent with previous studies by Qiao et al. (2018), Brhane, Mammo and Negusse (2017), Sharma (2015), Lwogo, Stilwel and Ngulube (2014), Bachhav, (2012), Daudu, Chado and Igbashal (2009) and Kalusopa (2005).

Kalusopa (2005) argues that small scale farmers have continued to rely on indigenous farming knowledge because they could not access reliable information source, hence, they opt to rely on local groups, relatives and personal experiences. In this situation, friends and relatives provide several advantages over other information sources in supporting agricultural development. Their supportive features, such as quick and timely access to information as well as proximity, may attract more farmers' attention and help to drive their agricultural productivity.

Cooperative association as a source of information brings a lot of benefits with it. The literature demonstrates that formations of cooperative associations will help improve the livelihood of small scale farmers in terms of easing market access, improving capacity building and increasing bargaining power (Qiao et al., 2018).

Conclusions

In line with the commitment of Nigeria government to diversify and broaden the economy sector through agricultural development, it is imperative that we understand the information needs and information sources used among small scale farmers. The potentialities of utilizing information to help support agricultural activities cannot be overemphasized. Even though, both the government and small scale farmers in Katsina State have recognized the key role being played by information in the Agric-business sector, at the moment the process is scattered, not cleared and lack focused.

The results of this cross-sectional survey indicate that of the small scale farmers examined, nearly all need information on marketing and price of farm produce. The small scale farmers also mentioned that they need information on weather and climatic condition, new seeds and fertilizer, storage methods, agricultural credits/loans/subsidy and diseases and pest control.

From this research it can also now be concluded that small scale farmers are most inclined to engage agricultural dealers for information on agricultural practices than any other source. Nevertheless, other sources of information such as relatives and friends, radio and television,

extension workers, farmers' cooperative associations, workshops and conferences as well as local government agricultural units still remain relevant to the farmers.

The researchers further concluded that there is no sufficient evidence that shows any significant correlation between the information needs and sources used by the small scale farmers to support agricultural productivity.

Recommendations

Based on the research outcomes, many recommendations could be put forward to decision makers in the Agric-business sector, relevant agencies and government officials in Katsina state, which include the following:

1. With regards to information needs, Katsina State government should have a well organized and functional integrated agricultural information platform. The platform should serve as a communication hub that will link all farmers, agricultural dealers, cooperative associations, extension works and relevant agencies (such as Nigeria Meteorological Agency (NiMet)) together through a dedicated telephone line. Similarly, the State government should set up an agricultural marketing board. The board should be responsible for providing farmers with timely and relevant information on the prices of agricultural commodities. Doing this will help mitigate some of the marketing and pricing risks associated with the agricultural business. It will also help the farmers compete with other farmers in the global market. Furthermore, agro-allied industries should continue to recognize agricultural dealer's supportive role in providing farmers with needed information. This can be achieved through the creation of a strong synergy between them in one hand and the farmers on the other.
2. Regarding information sources, government should focus on increasing small scale farmers' level of awareness towards technology tools as a key success source for information. The government should also continue to increase the use of community radios and television stations to disseminate information to the rural small scale farmers. In addition, the state government needs to recruit more extension experts to help explain government agricultural policies/programs as well as provide the small scale farmers with any relevant information that will enhance the productivity.

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