



AGRICULTURAL INFORMATION CHANNELS USED BY LIVESTOCK FARMERS IN WURNO LOCAL GOVERNMENT AREA OF SOKOTO STATE, NIGERIA

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ABSTRACT

This study assessed agricultural information channels used by livestock farmers in Wurno Local Government Area (LGA) of Sokoto State. A sample of 126 livestock farmers was selected purposively. Data were collected with the aid of an interview schedule. Findings revealed that majority of the farmers were males (87.3%), within 20-30 years of age (63.5%) and married (65.1%) with no formal education (67.5%). Their annual income were within ₦100,000 and ₦399,000 (46.0%) and ₦400,000 – ₦699,000 (31.0%). The major livestock produced were goats (73.0%), sheep (70.6%) and cattle (58.7%). The main channels of obtaining information by the livestock farmers were radio (85.7%), mobile phones (78.8%), extension agents (77.0%), posters and flyers (73.0%), friends and families (70.6%) and television (54.8%). Improving livestock health care was ranked 1st with a mean of 2.04 among the benefits of agricultural information. Result of the Chi-square analysis shows that information use of agricultural information channels was significantly related to age ($\chi^2=9.890$, $p<0.05$), family size ($\chi^2=9.32$, $p>0.05$) and income ($\chi^2=8.93$, $p<0.01$). Poor infrastructure and educational standard were among the most important constraints to agricultural information channels among the livestock farmers. It was concluded that the channels of information communication were affected by some socioeconomic factors such as age of the farmer, his family size and income.

Keywords: Agriculture, information, livestock, farmers and communication

INTRODUCTION

Information has been identified as an important and crucial variable in the development process. Adebayo (2006) posited that agricultural information is no doubt central in enhancing agricultural productivity and facilitating poverty alleviation among rural farmers. This makes it imperative to provide adequate, relevant and up-to-date information in order to transform agricultural production in many developing countries.

Munyua (2000) indicated that the total outcome of production by farmers is dependent on the up-take of information. According to Garforth (2001) agricultural information can be seen as an important factor which interacts with the other production factors such as land, labour, capital and managerial ability. Garforth (2001) added that productivity of these other factors can arguably be improved by the relevant, reliable and useful information and knowledge. Hence, the information supply from extension, research, education and others have become managed by agricultural organisation.

Information and communication technologies that facilitate its use, exchange, and reliability have been important aspect of agriculture and agriculture-related resources management for centuries (CTA, 2000). Agricultural development in Nigeria and other African countries has been hampered by low level of agricultural information exchange (Agwu and Chah, 2007). Arokoyo (2003) reported that in Nigeria, the national extension service is based on training and visit delivery system, traditionally, radio and telephone being the

only information channels used by the majority of extension workers. The essence of extension services is linking agricultural research centres with farmers, transmitting new techniques to the farmers and presenting farming problems to the researchers (Anonymous, 2009). New production possibilities have been disseminated to farmers. David (1977) argued that good research is a prerequisite for agricultural progress. Agricultural technologies are of no use if they are not adopted by farmers (Van de Ban and Hawkin, 1974).

A major reason for low yield and agricultural productivity could be poor and inefficient information services that convey useful agricultural information from research organisation to farmers (FAO, 2009). Livestock farmers lack adequate and efficient information on how and where to get improved health care, supply, demand, current price, transportation etc. (Pagot, 2003). In this circumstance farmers adhere to their simple techniques of farming (Kazeem, 2008).

Recently, the percentage of protein supply was estimated at about 15g/day which falls short of the estimated requirement of 35g/day and African average intake of 54g/day (Abdullahi, 2007). Therefore, there is the urgent need to increase production of livestock and its products in order to meet the protein needs of the rapidly growing population.

Livestock production in Nigeria has been in the traditional system. Pagot (2003) reported that livestock enterprises are usually distinguished as being nomadic or transhumance and modern or industrial type. Pagot (2003) further revealed that,



the classification of the production system, which allows the most coherent generalization, consists of taking account of the final objectives of the production which should be subsistence, rearing solely to build up capital and rearing for profit.

Baba (2000), reported that, Nigeria has estimated 13 million cattle, 13 million sheep, 26 million goats, 18 thousand camels and 1 million pigs. Furthermore, Aminu (2002) stated that, in 2001 Sokoto state had 2,472,250 goats, 3,570,991 sheep, and 18,448 camels. A tsetse fly free zone, which favours the production of livestock, makes Sokoto State one of the highest livestock producing states in Nigeria.

To achieve the desired increase in food production in Nigeria, it is essential that the productivity of farmers who produce the bulk of agricultural products be increased (Ogunbameru, 2005). It is generally believed that the objective of massive food production cannot be attained unless farmers adopt improved practices by uptake of information they get anywhere (Aycordo, 2000). Despite the number of research institutes and universities in the country, it has always been surprising that the technologies of Nigerian farmers remain largely unimproved (Romain, 2001). However, The Punch (2007) attributed possible reason for this as; researchers findings not properly used through information uptake by farmers there by resulting to low productivity.

Knowledge of farmers' information sources could be valuable to identify the role played by different information sources in disseminating agricultural information among the farmers (Muhammad and Garforth, 2001). This research will attempt to assess the agricultural information uptake by livestock farmers in Wurno LGA of Sokoto State, Nigeria.

The main objective of the study was to assess the agricultural information channels used by livestock farmers in Wurno LGA of Sokoto state, Nigeria. The specific objectives were to identify the channels through which the farmers obtain agricultural information, determine the perceived benefits of the agricultural information obtained on livestock production, determine the effect of socioeconomic characteristics of farmers on their information uptake and identify the constraints to the use of agricultural information channels by the farmers.

METHODOLOGY

Sokoto state is located between latitude 11°30' and 13°50' North and longitude 4°00' and 6°04' East (SOSG, 2009) with annual rainfall of between 500 and 800mm, which begins in May/June and ends in September/October. Wurno is one of the 23 local government areas of Sokoto state it was created in 1976 with its headquarters located at Wurno. It has a population of about

114,770 people (NPC, 2006). It shares borders with Kware and Raba LGAs in the East and Gwadabawa and Tangaza local government areas in the West and North respectively.

The predominant occupations of the people are livestock rearing, arable crop farming and fishing. The main livestock raised are cattle, sheep, goats, donkeys, camels, horses and poultry [National Research Institute for Animal Production, (NRIAP) 2008].

Multistage sampling procedure was used to select the respondents for this study. Three out of 11 wards were selected purposively (based on the highest population of livestock producers). Three villages were selected from Wurno ward, 1 village from Achida ward and 2 villages from Kwargaba ward using purposive sampling (based on the highest level of cattle production). One hundred and twenty six farmers were randomly sampled from the villages.

Data was obtained from the livestock farmers using interview schedule. Mean, frequencies and percentages were used to identify the channels through which the farmers obtain agricultural information; to determine the perceived benefits of the agricultural information obtained on livestock production and identify the constraints to the use of agricultural information channels by the farmers, opinion ranking was used. Chi-square test of association was used to determine the effect of socioeconomic characteristics of farmers on their information uptake.

The dependent variable Y is the use of information channels by the farmers. A farmer was scored by the number of channels he/she used in obtaining information with respect to his livestock production. The channels are radio, television, mobile phone, The Internet, newspapers, posters and fliers, friends and families, extension agents and computer.

The independent variables are age: measured in years; gender: dichotomised into male or female; educational level: measured in the highest educational attainment; marital status: dichotomised into married or single; family size: measured in number of individuals under the farmer's care; farming experience: measured in years and annual income: measured in Naira (₦).

RESULTS AND DISCUSSION

Socioeconomic characteristics

This section gives the information on personal characteristics of the farmers which include age, gender, marital status, educational attainment, family size, farming experience and annual income.

Age - The result shows that majority (63.5%) of the livestock farmers were within the age range of 20 - 39 years; only 20.4% and 16.4% were within the ranges of 40 - 59 and 60 - 79 years, respectively



(Table 1). The mean age was 37.7years. This by implication shows that livestock farming in the study area is in the hands of young people. In a study to determine the perceived causes of livestock involvement in road accident and threat to livestock production among women in Oyo State, Nigeria, Adefalu *et al.* (2013) also reported that majority of livestock farmers were still in their active age and possessed enough strength to undertake strenuous tasks associated with livestock production on free-range scale.

Gender - Table 1 also shows that majority (87.3%) of the livestock farmers were males. This is in line with the finding of FAO (2009) that males participated fully in farming activities whereas females engaged mostly in processing of the farm products in most parts of North-West Nigeria. Furthermore, it is also well known that males are mostly the owners of the factors of production and livestock farming is an activity that could be handled more effectively by males.

Marital status - Result in Table 1 shows that 65.1% of the farmers were married while only 22.2% were single. This indicates that majority of livestock farmers in the area were married. Marriage is highly valued among the farmers in the area because it ensures increase in the size of family which in turn provides more hands in the farming activities. Therefore the more the farmers, the better the chances of receiving information, especially from family and friends. Married people are more involved in community development programmes (Barker, 2003).

Family size - The result also shows that 44.4% of the farmers had less than 5 persons in their households and 28.6% had between 10 and 14 persons; with a mean of 13.9 members (Table 1). The reason behind large family size among the livestock farmers could be attributed to the

polygamous nature of the farmers and their dependence on the family as source of labour for their enterprises.

Educational attainment - Result in Table 1 shows that majority (67.5%) of the farmers had non-formal education, 12.7% acquired primary education and only 10.3% had tertiary education. This indicates that the farmers, being predominantly Muslims, acquired mainly Islamic education. Farmers in the area therefore acquired little or no western education. This could negatively affect the ability of the farmers to access information through channels like newspapers, computer and the Internet which require high skills. They were likely to depend on channels such as the radio, television, extension workers, posters, and so on, which require low skills.

Farming experience - Majority of (57.1%) of the farmers had 15 or more years of farming experience while 28.1% had between 5 and 14 years (Table 1). Mean years of experience was 20.2. This indicates that most of the farmers had been in farming for quite a long time, mostly since childhood. They were therefore likely to be capable of managing most production challenges due to the experience they acquired in the past.

Annual income from livestock enterprises - The result shows that 46.0% of the farmers generated between ₦100,000 and ₦399,000 annually, 31.0% generated between ₦400,000, and ₦699,000 and 21.4% generated between ₦700,000 and ₦999,000 (Table 1). The average annual income generated was ₦542,613. This indicates that each livestock farmer obtained about ₦1,486.60 per day (about 7.47 USD). This is above the moderate poverty level of less than \$2 per day (World Bank, 2007). Livestock rearing in the area provides not only a means of livelihood to the farmers but a means of eliminating poverty.

Table 1: Distribution of the livestock farmers based on their personal characteristics (n= 126)

Variables	Percentage
Age (Year)	
20 – 39	63.5
40 – 59	20.6
60 – 79	16.4
80 and above	1.6
	Mean Age = 37.7 years
Gender	
Male	87.3
Female	12.7
Marital status	
Married	65.1
Divorced	1.6
Widow/widower	11.1
Single	22.2
Educational attainment	
Non formal	67.5
Primary	12.7
Secondary	9.5



Variables	Percentage
Tertiary	10.3
Family size	
< 5	44.4
5 – 9	11.1
10 – 14	28.6
15 and above	15.9
	Mean Family Size = 13.9
Farming experience (years)	
< 5	14.3
5 – 14	28.6
15 and above	57.1
	Mean Experience = 20.2 years
Annual Income Generated from Livestock Rearing (₦)	
100,000 – 399,000	46.0
400,000 – 699,000	31.0
700,000 – 999,000	21.4
1000,000 and above	1.6
	Mean Income = ₦542,613.50

Livestock raised and husbandry system

The major livestock raised by the farmers were sheep (73.0%), goats (70.6%) and cattle (58.7%). Others include camels (42.9%), donkeys (23.8%) and poultry (19.0%) (Table 2). The result indicates that the livestock raised were mainly ruminants. They are usually raised mainly for meat, milk and skin. The animals are generally important sources of food and income to the farmer. Cattle, camels and donkeys are used as work animals for transportation and tillage. Poultry are sources of meat, egg and income. They are mainly raised by the female farmers.

Animal husbandry is an agricultural practice of breeding and raising livestock such as cattle, sheep, goats, camels, donkeys, and poultry. Majority of the farmers practice extensive (81.8%) and semi-intensive (74.6%) husbandry systems (Table 2). The animals, under extensive system, are largely left to roam outdoors in search of pasture. In semi-intensive, they are partially housed and fed. The major reason for the practice of the 2 systems in the area could be economic, since it is easier to raise the animals with minimal cost of feeding and housing.

Table 2: Distribution of the farmers based on livestock raised and husbandry system (n=126)

Variables	Percentage
Livestock raised	
Cattle	58.7
Sheep	73.0
Goats	70.6
Camels	42.9
Donkeys	23.8
Poultry	19.0
Husbandry system	
Intensive	41.3
Semi-intensive	74.6
Extensive	81.8

* Multiple responses

Channels of obtaining agricultural information

Result in Table 3 shows that the main channels of obtaining information by the livestock farmers include radio (85.7%), mobile phones (78.8%), extension agents (77.0%), posters and flyers (73.0%), friends and families (70.6%) and television (54.8%). Radio is the most used channel due to its low cost of maintenance and usage. Mobile phone is one of the fastest means of conversation and due to low cost of purchase, has an upper hand in acceptance. It enables the farmer

to have a feedback which is an essential element in communication. Extension agents play a significant role in updating the farmers' knowledge and keeping them informed of new production practices. Farmers tend to have more confidence and believe that the extension agents are trained to share ideas and bring innovations to them. Posters and flyers, mostly contain pictures, making the message attractive and clear, thereby catching the attention and attracting the farmers including the non-literates. They are mostly used by agro input



suppliers, such as suppliers of seeds, fertilisers and chemicals.

The use of computer and the Internet was very low, perhaps due to the low level of formal education of the farmers.

Table 3: Distribution of the farmers based on channels of obtaining agricultural information (n=126)

Variable	Percentage
Radio	85.7
Television	54.8
Mobile phone	78.6
Internet	9.5
Newspaper	46.0
Posters and Fliers	73.0
Friends and families	70.6
Extension Agents	77.0
Computer	11.1

Perceived benefits of agricultural information on livestock production

The result in Table 4 shows that improving livestock healthcare was ranked 1st with a mean of 2.04 among the effects of agricultural information as perceived by the livestock farmers. This was followed by the relative ease of obtaining good breeding stock with a mean score of 2.00 and provision of better market for livestock and other products with 1.98. The perception is a reflection of the relevance of information on healthcare, breeding stock and marketing of livestock among others. Livestock farmers often encounter problems associated with pests and diseases affecting their animals. These can lead to loss of animal products and in some cases the animals. To prevent these losses, the farmers spend a lot of money to either

prevent these diseases from affecting their animals or curing the already infected ones. Therefore any information for prevention or cure of livestock diseases is vital for the farmers.

Good breeding stock can make management of the livestock easier. Besides a faster growth rate, they are also less susceptible to attack by pests and diseases. They also perform better in terms of productivity. Where and how to acquire these breeds are important information to the farmers.

Market information enables the farmers to maximise their profits. They take their livestock or livestock products to the market when the stakes are high. Such information is commonly obtained with the use of mobile phone.

Table 4: Perceived benefits of agricultural information on livestock production

Perceived effects	Score	Mean score
Relative ease of obtaining good breeding stock	252	2.00
Improved livestock healthcare	257	2.04
Enable the use of better quality feed	231	1.83
Ensure good sanitary condition of livestock house	218	1.73
Reflects relevance of housing in livestock production	244	1.94
Provides better market for livestock and other products	249	1.98
Improves knowledge and efficiency in carrying out other husbandry practices	246	1.95

Chi-square analysis of farmers’ socioeconomic characteristics and use of agricultural information channels

Table 5 shows the Chi-square test of relationship between socioeconomic characteristics of the farmers and their information uptake. Information uptake was significantly related to age ($\chi^2=9.890$, $P < 0.05$), family size ($\chi^2=9.32$ $P < 0.05$) and income ($\chi^2=8.93$ $P < 0.01$). This implies that age, family size and income of the farmers have influence in their information uptake. Farmers of a particular age group, family size and income can have more access to agricultural information.

Age can be a barrier to information uptake in the sense that younger farmers are generally

more inquisitive than the elder ones. They (younger farmers) are more likely to explore a variety of channels such as mobile phones, computers and internet, seeking for information than the elderly.

Large family size can be an advantage to the farmer in accessing information on livestock production since each member of the family has a chance of obtaining one information or the other for the family. The pressure from large family, especially for more food, shelter and clothing can make the family head to look for more alternative means of improving the livestock production among which is seeking for valuable information on livestock production.



Income level of the farmer can determine his/her ability to use the information channels available, particularly the mass media. The higher the income level, the more the channels available for the farmer. Farmers with low level of income usually rely on the common channels of obtaining

information such as the extension agent, family and friends as well as radio. Farmers with high income levels will have access to the more sophisticated channels such as mobile phone, television, computer and the internet.

Table 5: Chi-square analysis of farmers' information uptake and personal characteristics

Variable	χ^2	df
Age	9.89**	4
Gender	4.09	2
Family size	9.32***	4
Education	6.88	6
Marital status	7.41	6
Farming experience	2.91	4
Income	89.3*	4

* p<0.01; **p<0.05; ***p<0.10

Constraints to use of agricultural information channels

The most important constraints to information uptake by the livestock farmers include poor infrastructure with a mean score of 2.27, poor educational standard with 2.17 and inadequate extension services with 2.03 (Table 6). Infrastructural facilities such as electricity supply,

good roads, good drinking water, etc. are essential in providing a better access to information. Poor educational standard can hinder information uptake since some channels of communication such as newspapers, mobile phones, computers and Internet require some level of literacy, besides some pictures alone cannot always explain everything in detail.

Table 6: Distribution of the farmers based on constraints to use of agricultural information channels (n = 126)

Variable	Score	Mean score
Inadequate extension service	256	2.03
High cost of purchasing and maintenance	249	1.98
Poor health care facility	255	2.02
Poor infrastructure	286	2.27
Poor educational standard	273	2.17

Possible solutions to the constraints

The most important solutions perceived by the farmers include: making education affordable to rural people (2.33), improvement of extension service delivery (2.15) and provision of good health care facilities (1.98) (Table 7). It is

important to know and recognize that availability and affordability of communication channels, infrastructure, health care and researchers and extension organisation is generally declining in Nigeria (Williams, 2004).

Table 7: Distribution of the farmers based on possible solutions to the constraints (n = 126)

Variables	Score	Mean score
Improving the extension service delivery	271	2.15
Subsidizing the prices of purchasing and maintaining ICTs	196	1.55
Provision of good health care facilities	249	1.98
Provision of infrastructure	212	1.68
Education should be made affordable to all rural people	294	2.33

CONCLUSION AND RECOMMENDATIONS

Through radio, mobile phones, extension agents, posters and fliers, friends and families, the livestock farmers in Wurno LGA of Sokoto State were able to improve the healthcare system of their livestock, obtain a good breeding stock, better market for livestock and other products and generally improve their knowledge and efficiency

in carrying out livestock husbandry practices. However, due to their low level of formal education, they could not utilise the benefits of computer and the Internet. The channels of agricultural information communication were controlled by some socioeconomic factors. These are the age of the farmer, the size of his family and his income level.



Based on the findings, the following recommendations were made:

1. Information channels such as the radio, mobile phone and posters should be identified by all stakeholders in agriculture, particularly livestock development, as the major channels of reaching the farmers in the process of dissemination of innovations.
2. Infrastructural facilities should be made available or improved for easy access to information by the farmers.
3. The standard of education should be improved by the governments especially at the State and local levels, for the utilization of information channels that require high level of literacy.

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