

**NATURE AND SOURCES OF AGRICULTURAL INFORMATION
AND PREFERRED CHANNELS OF COMMUNICATION TO
SMALL HOLDER COMMERCIAL BROILER FARMERS: A CASE
OF RUIRU DISTRICT OF KENYA ^{1/}**

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DECLARATION

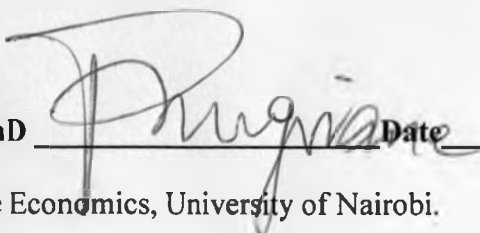
I hereby declare that this is my original work and has not been submitted for the award of a degree in any other university.

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DEDICATION

I am privileged to dedicate this work to my daughters Shalom Mukiri and Favour Mwendwa and my husband Gideon Mwiti.

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I would like to thank my husband for the financial and moral support during my study period. Mr. Simon Okillu a colleague student who helped me to get reference papers. Madam Mary Gitau the deputy District Agricultural Officer Ruiru District for provision of vital statistics of the district. Special thanks go to Mr. Brian Etiang' a colleague student who provided with data analysis software. Finally I thank my supervisors Dr Fred L. Mugivane and Prof Jasper K. Imungi for their continued academic support during my research period.

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ABSTRACT

The major objective of this research was to determine the nature and sources of agricultural information available to smallholder commercial broiler farmers and identify communication channels most preferred in improving income generation from broilers in Ruiru District of Kenya.

The theoretical framework for the study included insight from Roger's theory of diffusion of innovations which states that diffusion occurs when an innovation is communicated through certain channels over time among members of a social system. The research was qualitative in nature. Non probability sampling methods were used. These included purposive and snow ball sampling because the population of broiler farmers was not well known thus making it exhaustive. Research techniques included participant observation, semi structured interviews using a structured questionnaire which was administered to the respondent by both the researcher and her assistant. A total of 51 smallholder commercial broiler farmers were interviewed. Quantitative data was entered into Statistical Package for Social Scientists and analyzed using descriptive statistics and presented as frequencies showing percentages.

Out of the 51 farmers interviewed, 33 of them were women while 18 were men. This therefore indicated that majority of Smallholder commercial broiler farmers in Ruiru District are women forming 65 % while 35 % men. The farmers are aged between 25 and 61 years. Those between 36 and 50 years make a total of 68% .Those between 25

and 35 make up 12% while above 51 make up 20%.In respect to their marital status 73% were married,20% single,6% widows and 1% widowers. Most of them keep birds between 201 and 300 accounting for 33% of the total farmers. The type of general information on poultry production farmers have include source of day old chicks, source of feeds, appropriate housing, feeding, health care, marketing, slaughter and procedure for restocking.

The major sources of information for farmers include: friends, neighbours, agents, radio, distributors, agrovet shops, buyers and News papers in that order of importance. The farmers’ preferred channel of communication was farm visit.

It is therefore important that both private and public extension service providers use the best method to bring the best results.

CHAPTER ONE: INTRODUCTION

1.1 Background

Agriculture is the driver of Kenya's economy directly contributing 26 percent of the Gross Domestic Product (GDP) and 25 percent indirectly. It also serves as a means of livelihood for the majority of Kenyan people (GoK, 2010). Livestock production contributes about 40% of agricultural GDP with poultry contributing 30 %. (GOK/MLD, 2010).

Poultry production is an important income generating activity for Kenya's smallholder families and provides livelihood to 21 million people. In a study of smallholder farmers poultry keeping was ranked as the most important household occupation affecting their livelihood (Kimani, et al, 2006). The estimated poultry population is 30 million birds (Nyaga, 2007). Up to 76% of these are free ranging indigenous chicken, 8% commercial layers and 14% are broilers. Other poultry species including turkey, ducks, geese and quills make only 2% balance. Commercial poultry are concentrated in the urban centres of Nairobi, Mombasa, Nakuru, Kisumu and Nyeri where markets are readily available (MOLD, 2010). Broiler production has been on the increase in Kenya especially by smallholder farmers. Most of these farmers are women (Nyaga, 2007) keeping between 100 and 500 broilers. Others keep up to 2000 broilers per farm. These farmers are not integrated with any hatchery operations. They rely on sellers of inputs for technical information.

Despite the significant contribution of agriculture to the national economy the sector has performed poorly in the recent years. One of the main contributors of this downward trend is weak and ineffective research-extension-farmer linkages (Republic of Kenya, 2005). Key to mitigating the constraint is to provide farmers with efficient appropriate technology, training and information (FAO.2009) to enable them make sound and biased decision to meet their needs (Solomon 2002).

Information affects individuals living activities. Mudukuti and Miller (2002) suggest that dissemination and application of this information to agricultural production plays an important role in development of farm families. Of importance to maximizing production is equipping farmers with training on latest technological skills (GOK 2010). To satisfy information needs of farming communities, it is important to consider them as self sustaining information system and interacting with other systems within their immediate environment (Ikoja and Ocholla 2003).

A study by Rezvanfer et.al (2007) describes the following sources of information used by most farmers in developing countries to seek information: colleagues, friends, neighbours, relatives, professional and modern media, personal networks and business contacts. However the channel of communication most useful to them is not established. Understanding about the type of information, its sources and communication channels preferred by farmers could be useful in helping extension service providers to develop relevant information dissemination plans for increased agricultural production.

1.2 Problem Statement

Poultry production is one of the most popular commercial ventures especially with smallholder farmers. Specifically broiler production is the most attractive. This is because the enterprise requires minimal space and relatively low capital investment. In addition broilers take a shorter period to grow thus raising income fast. Poultry production has been a domain for women and children (Nyaga, 2007). The production is concentrated in peri-urban and urban centres because of the proximity to the markets which are generally concentrated in the urban centers. These farmers are not integrated to any hatchery operation. There are knowledge disparities at different levels of poultry value chain between the service providers and the farmers. Public outreach by public and private extension service providers is available but uncoordinated and limited (MOLD, 2010). It is therefore left to the individual farmers to source technical information from various sources to determine which best helps them make beneficial decisions. The most useful sources of information and method of its dissemination by key service providers is therefore not yet established. It is also not well established how the technical information from different service providers and disseminated by different methods impact on the productivity by the farmers. The farmers get information of the same type from many sources. It is therefore difficult for the farmers to sort out this information to form informed decisions about their productivity.

1.3 Justification of the Study

Poultry production is an important income generating activity for Kenya's rural and urban smallholder families. Specifically broiler production is the most attractive. This is because the enterprise requires minimal space and relatively low capital investment. In addition broilers take a shorter period to grow thus raising income fast. Poultry production has been a domain for women and children (Nyaga, 2007). The production is concentrated in peri-urban and urban centres because of the proximity to the markets which are generally concentrated in the urban centers. Kiambu County is such a peri – urban region whose proximity to Nairobi, a ready market is attracting production. Therefore the study was done in Ruiru which has both rural and urban farmers.

These farmers require relevant information to make sound and biased decisions in the production and marketing of their poultry and products. For them to utilize the information, it must be passed to them through the most appropriate communication channels (Rogers, 2003). The results of the research will reveal opportunities and gaps that need to be filled by new information dissemination plans by various extension service providers along the poultry value chain.

In addition, the results will reveal the most useful pathways for information dissemination to poultry farmers. Further they will help extension service providers to design and use relevant communication channels to reach smallholder commercial poultry farmers to eventually enhance income generation.

The results will also be used by any poultry service provider who intends to start similar projects in other areas of the country.

1.4 Objectives

1.4.1 Overall Objective

To determine the nature and sources of agricultural information available to smallholder commercial poultry farmers and identify communication channels most effective in improving income generation from broilers in Ruiru District of Kenya.

1.4.2 Specific Objectives

1. To determine the nature of agricultural information to smallholder commercial broiler farmers in Ruiru District of Kenya
2. To determine the sources of agricultural information to smallholder commercial broiler farmers in Ruiru District of Kenya
3. To determine the communication channels most preferred in disseminating of information to smallholder commercial broiler farmers in the research area.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Agriculture is the driver of Kenya's economy directly contributing 26 percent of the Gross Domestic Product (GDP) and 25 percent indirectly. It also serves as a means of livelihood for the majority of Kenyan people (GoK, 2010, Republic of Kenya, 2008). Agriculture sector is dominated by smallholder farmers with Livestock production contributing about 40% of agricultural GDP and poultry contributing 30 %.(GOK/MOLD, 2010). Poultry production is an important income generating activity for Kenya's smallholder families and provides livelihood to 21 million people (Nyaga, 2007, MOLD 2010). In a study of smallholder farmers, poultry keeping was ranked as the most important household occupation affecting their livelihood (Kimani, et al, 2006). The estimated poultry population is 30 million birds (Nyaga, 2007). Up to 76% of these are free ranging indigenous chicken, 8% commercial layers and 14% are broilers. Other poultry species including turkey, ducks, geese and quills make only 2% balance. Commercial poultry are concentrated in the urban centres of Nairobi, Mombasa, Nakuru, Kisumu and Nyeri where markets are readily available (MOLD, 2010). Broiler production has been on the increase in Kenya especially by smallholder farmers keeping between 100 and 500 broilers. Others keep up to 2000 broilers per farm.

2.2 Poultry Production in Kenya

Poultry production in Kenya is classified into four distinct production systems as defined by the Food and Agriculture organization (Nyaga, 2007, MOLD 2010). In a study on

structure and importance of commercial and village poultry production of 2007, Nyaga found out that only one farm that can be classified into sector one while other chicken, turkey, duck and ostrich operations were classified in sector two. All commercial broiler and layer farmers fit into sector three and the indigenous farmers in the rural and urban areas fitted into sector four. There were a few large scale commercial layer farmers keeping flocks of 1000 to 4000 birds per farm while the majority was smallholder commercial layer and broiler farmers who keep between 100-400 birds. The study focuses on smallholder commercial broiler production of sector three.

2.3 Smallholder Commercial Broiler Production

Smallholder broiler farmers keep between 100 and 2000 birds per farm for commercial purposes (Nyaga, 2007). They are located near provincial urban centres and in the peri-urban areas of the city of Nairobi where access to markets is guaranteed (MOLD, 2010). Such farmers are not integrated with any hatchery operation. They source day old chicks from any hatchery of their choice. They buy feeds from the ordinary feed shop and drugs from the nearest shop selling veterinary drugs and other chemicals used in agriculture also known as agrovet shops.

The broiler houses have earth floor but half of the walls are wire netting while the bottom half is made of mud walls, wooden planks, iron sheets or stone walling depending on the financial ability of the farmer. Corrugated iron sheets are used for roofing. Wood shavings are used for the deep litter and water is supplied in commercial drinkers or

homemade drinkers both manually filled with water. Feeders are wooded troughs, plastic or metal commercial feeders placed conveniently in the poultry house.

When it comes to marketing of final products, the farmers are on their own with no cooperative of selling. Slaughtering of broilers is done at home and transported direct to the market. Houses may or may not be cleaned or disinfected before the next intake of birds depending on hygiene awareness of the farmer. Movement of personnel close to the flock is not restricted and neighbours usually visit one another even during disease outbreaks to enquire what to do when they experience disease problems.

2.4 Nature and Sources of Information to Poultry Farmers

Information in an enterprise like poultry production is important for the production process and marketing. Mudukuti and Miller (2002) suggested that in the information age, dissemination and application of information in agricultural production plays a significant role in development of farm families. Solomon (2002) further adds that information is important for making sound decisions on any related problems facing farmers.

2.4.1 Nature of Information for Commercial Broiler Farmers

Broiler farmers require information on the following: Source of broiler chicks and feeds, broiler houses, feeding, health care, slaughter, marketing, biosecurity risks in broiler houses and restocking procedure.

2.4.2 Sources of Information for Commercial Broiler Farmers

A study on sources of information used by most farmers, especially in developing countries, has described the following variety of sources used in seeking information: colleagues, friends, neighbours, relatives, professional and modern media, personal networks and business contacts (Kaniki 1994). Smallholder commercial broiler farmers get technical information from various sources which include local manufacturers of feeds and chicks, distributors, agents, agrovet and feed shops, buyers, consumers, veterinary offices, ministry of livestock extension service providers, friends, relatives and neighbours.

2.5 Channels of Information Communication

Communication is a process in which participants create and share information with one another in order to reach a mutual understanding while a channel is the means by which a message (agricultural information) get from the source to the receiver (Rogers 2003). In the context of this research the source is the various extension service providers while the message is the agricultural information or technology being disseminated to smallholder commercial broiler farmers.

Communication channels are classified as mass media or interpersonal. These channels play different roles in creating knowledge and persuading individuals to change their attitude toward an innovation. Examples of mass media channels include the radio, television, news papers, and the modern information communication technologies (ICT) such as internet, e mail and mobile phones. Mass media channels are more effective in

creating awareness of new technologies. Interpersonal communication channels are more important in forming and changing attitudes towards a new idea thus influencing the decision to adopt or reject the new idea. This is a type of face to face extension service provided by many extension service providers (Republic of Kenya, 2008). Examples of interpersonal communication channels available to farmers include: friends, neighbours, innovative farmers, public extension agents, private sector extension agents, field days, demonstrations, field trials, agricultural shows, farmer organizations, religious groups and social groups.

CHAPTER THREE: METHODOLOGY

3.1 Research Design

The survey design was used for the study. A survey is a method of collecting information by interviewing or administering a questionnaire to a sample of individuals (Orodho, 2009). This design was chosen because the information to be collected was about people's attitudes, opinions and social issues. A face to face interview using a questionnaire was used as a data collection method.

3.2 Conceptual Framework

The research was based on Roger's theory of diffusion of innovation which defines diffusion as the process by which an innovation is communicated through certain channels over time among members of a social system (Rogers, 2003). In this case the innovation is any agricultural information relevant to broiler farmers. A communication channel is the means by which messages get from one individual to another and determines the conditions under which the source will or will not transmit it to the receiver. When right communication channels are used it is likely that the information will be put into use.

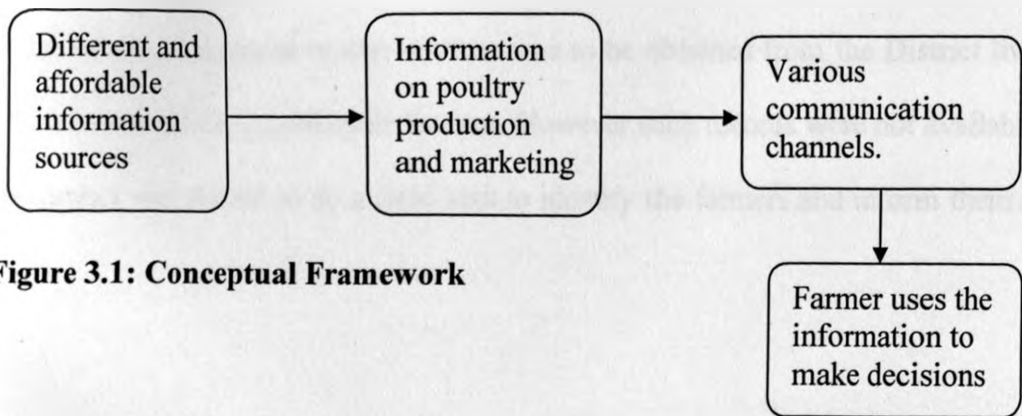


Figure 3.1: Conceptual Framework

3.3 Description of the Study Area

The study was carried out in Ruiru District of Kiambu County of Central region in Kenya. It has a total area of 289 square kilometers with 20,760 hectares of arable land. The district is sub humid with average annual rainfall of 600mm. It is approximately 25 km from Nairobi the capital city of Kenya. It is equally divided by Thika Nairobi highway making it favorable for commercial broiler farming. This is because Nairobi is a source of market. According to the 2009 population census report, Ruiru is the 7th largest producer of commercial poultry in central province with a population of 168,294. Marketing of poultry comprises farm gate sales.

3.4 Data Types

Both primary and secondary data was used to generate results. Secondary data was extracted from Ministry of livestock reports, district agriculture office and relevant books and research papers. Primary data was collected using a questionnaire designed for smallholder commercial broiler farmers. The questionnaire was administered by the researcher and her assistant to generate results. The questions were directed to the respondents through a face to face interview.

3.4.1 Sampling Frame

A list of all commercial broiler farmers was to be obtained from the District livestock office to extract the smallholder farmers. However such records were not available. The researcher was forced to do a field visit to identify the farmers and inform them on her

intention of a study. The sample was all smallholder commercial broiler farmers and it was exhaustive. A total of 51 farmers were interviewed.

3.4.2 Sampling Procedure

The locations were subjected to purposive sampling to identify commercial broiler farmers. The initial researcher's method of sampling was simple random sampling but due to limitations of unknown farmers, she used snowball method. Snowball is a strategy in which each successive participant is named by a preceding individual (Orodho, 2009). The farmers were asked to direct the researcher to other farmers they know. All the 51 farmers that were available were interviewed. The method of sampling used was exhaustive.

3.4.3 Data Collection Methods

Structured questionnaires were used for data collection. The questionnaires were administered through a face to face interview to the respondents by both the researcher and her assistant. Similar questions were answered by all respondents.

3.5 Data Analysis

Data analysis is the process of systematically searching and arranging data obtained from the field with the aim of increasing understanding of them and enabling presentation to others (Orodho, 2009). Data collected from the field was organized into manageable units by checking for accuracy and then coded. The coded data was then entered into statistical package for social sciences (SPSS). It was then analyzed into

frequencies, descriptives and then presented in tables, graphs and charts as given in Chapter four of this dissertation.

CHAPTER FOUR: RESULTS

4.0 Introduction

This chapter presents results of the study. Results for demographic characteristics, income source, and nature of information as well as communication channel preferences are presented. The objectives of the research were:

1. To determine the nature of agricultural information to smallholder commercial broiler farmers in Ruiru District of Kenya
2. To determine the sources of agricultural information to smallholder commercial broiler farmers in Ruiru District of Kenya
3. To determine the communication channels most useful in disseminating of information to smallholder commercial broiler farmers in the research area.

4.1 Nature of Agricultural information to smallholder commercial broiler farmers in Ruiru District of Kenya

The total number of farmers interviewed was 51 out of who 33 were women and 18 men as shown in Table 4.1.

4.1.1 Farmer's Characteristics

Farmers were asked to fill their details in questionnaire in terms of their gender, age, were tabulated.

4.1.1.1 Farmers' Gender

From the results it is clear that majority of broiler farmers in Ruiru District are women making 65% as shown in table 4.1.

Table 4.1: Respondent's Gender

Gender	Number of farmers	Percent	Cumulative Percent
Male	18	35	35
Female	33	65	100
Total	51	100	

4.1.1.2 Farmers' Age

The greatest age bracket for broiler farmers is 41 to 45 as indicated in table 4.2.

Table 4.2: Age of Farmers

Age	Number of Farmers	Percent
25-30	2	4
31-35	4	8
36-40	10	20
41-45	13	25
46-50	12	23
51-55	5	10
56-60	1	2
Above 61	4	8
Total	51	100

4.1.1.3 Farmers' Marital Status

Majority of e farmers were married making 72% followed by single ones at 20%. This is reflected in table 4.3.

Table 4.3: Marital Status

Status	Frequency	Percent
Married	37	72
Single	10	20
Widow	3	6
Widower	1	2
Total	51	100

4.1.1.4 Farmers' Level of Education

Nearly all the farmers interviewed had completed secondary education. However 6% had attained primary education. This is shown in table 4.4.

Table 4.4: Education Level

Level of Education	Frequency	Percent
Primary	3	6
Secondary form 4	34	67
Secondary form 6	5	10
Tertiary/College	9	17
Total	51	100

4.1.1.5 Farmers' Occupation

Of the farmers interviewed 63% of them practiced farming as their main occupation.35 % was self-employed while 2% was a civil servant. The results are shown in table 4.5.

Table 4.5: Occupation

Occupation	Number of farmers	Percent (%)
Farming	32	63
Self-Employment	18	35
Civil Servant	1	2
Total	51	100

4.1.1.6 Farmers' Income source

It is clear that the farmers combined at least more than one source of income. But 5% had poultry as the only source of income. Of the farmers, 29 % combined poultry and family business. The distribution of income source combination is shown in table 4.6.

Table 4.6: Income Source

Income source Combination	Number of farmers	Percent (%)
Poultry	3	5
Poultry, spouse salary and family business	4	9
Poultry and family business	15	29
Poultry and landlordship	1	2
Poultry, Spouse salary and green grocery shop	1	2
Poultry, Spouse salary ,dairy Farming and Rabbit rearing	1	2
Poultry, Dairy and rabbit rearing	1	2
Poultry and pig rearing	1	2
Poultry ,Own salary and Family business	1	2
poultry, Family business, Dairy and rabbit rearing	1	2
Poultry, Family Business and Dairy	1	2
Poultry, Family Business, Spouse Salary and Dairy farming	1	2
Poultry and Dairy	10	20
Poultry, Rabbit and Pig rearing	1	2
Poultry and Spouse salary	5	10
Poultry and rabbit rearing	3	5
poultry and Vegetable farming	1	2

4.1.1.7 Number of Broilers Kept

About 33 % of farmers kept broilers between 201 and 300. There was an extreme case of 6% farmers who kept between 901 and 1000 broilers. The distribution of number of broilers kept is shown in table 4.7.

Table 4.7: Showing Percent Frequencies of Number of Broilers Kept

Number of broilers Kept	Frequency	Percent (%)
100-200	11	21.6
201-300	17	33.3
301-400	10	19.6
401-500	8	15.7
601-700	1	2.0
801-900	1	2.0
901-1000	3	5.9
Total	51	100.0

4.1.2 Type of Information by Broiler Farmers

4.1.2.1 Motivation to Broiler Keeping

With regards to the type of information farmers were asked to indicate who first introduced them to broiler keeping. 45 % of the farmers were introduced to broiler keeping by their friends, 18% from relatives and 15% from self-help group. Others were introduced by neighbours and agents. However 14 % kept broilers out of their own initiative. The results are shown in table 4.8.

Table 4.8 Motivator to Broiler Keeping

Motivator to broiler Keeping	Number of farmers	Percent (%)
Friend	23	45
Self Help Group	8	15
Agents	2	4
Relative	9	18
Personal Initiative	7	14
Neighbour	2	4
Total	51	100

4.1.2.2 Type of Information Farmers Possess

Farmers were asked to indicate with a yes or no with regard to type of information they have. Farmers had all the general information regarding broiler production except 13.7 % who did not have information on slaughter. The results are as given in table 4.9.

Table 4.9: Type of information by Broiler farmers

Type of Information	Yes	%Yes	No	%No
Source of day old chicks	51	100	0	0
Source of feeds	51	100	0	0
Appropriate housing	51	100	0	0
Feeding	51	100	0	0
Health care	51	100	0	0
Slaughter	44	86.3	7	13.7
Marketing information	51	100	0	0
Restocking procedure	51	100	0	0

4.2 Sources of Agricultural Information to Smallholder Commercial Broiler Farmers

4.2.1 Sources of information

The sources of information for individual farmers were very diverse. The most important was friends followed by neighbours, agents, distributors and radio. Others were news papers and buyers as shown in table 4.10

Table 4.10: Information Source

Information source	Frequency	Percent
Radio	6	11.8
News Papers	1	2.0
Distributors	6	11.8
Agents	7	13.7
Agro vet shops	5	9.8
Buyers of mature chicken	3	5.9
Friends	16	31.4
Neighbours	7	13.7
Total	51	100.0

4.2.2 Farmers' Training

In some cases farmers attend out of home refresher trainings. When asked the number of times they attended such trainings, 45% had not attended any, 29% had attended once, 23% twice and 2% thrice. This is shown in table 4.11.

Table 4.11: Number of Trainings attended between December 2010 and April 2011

No. of times of training	Frequency	Percent
Zero	23	45.1
One	15	29.4
Two	12	23.5
Three or More	1	2.0
Total	51	100.0

4.3 Communication Channels Preferred by Smallholder Commercial Broiler Farmers

Farmers were asked to indicate the sources of information and the method they would prefer most for information dissemination. Farm visit was the most selected method of information dissemination with a 62.7 % score. Table 4.12 shows farmers' communication channel preference.

Table 4.12 Information communication Channel Preference

Communication Channel preference	Number of farmers	Percent
Radio	3	5.9
Television	1	2.0
News Paper	1	2.0
Internet/email	2	3.9
Cell phone	11	21.6
Farm Visit	32	62.7
Field Days/Exhibitions	1	2.0
Total	51	100.0

CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

In the previous chapter the various results of the research on the nature, sources of information and communication channel preference of smallholder commercial broiler farmers were described. This chapter discusses those results, dividing the discussion by the following study objectives:

1. Determine the nature of agricultural information to smallholder commercial broiler farmers in Ruiru District of Kenya.
2. Determine the sources of agricultural information to smallholder commercial broiler farmers in Ruiru District of Kenya.
3. Determine the communication channels most preferred by smallholder commercial broiler farmers in Ruiru District of Kenya.

5.1.1 Nature of Agricultural Information to Smallholder Commercial Broiler Farmers

5.1.1.1 Farmers' Characteristics

51 farmers were interviewed. Out of these 65% were female and 35% were males. The results indicated that 53% of the farmers were heads of the family while 47% had other people heading the family. In terms of age the majority of farmers were between the age bracket of 41 to 45, followed by 46-50, 36-40, 51-55, 31-35, above 61, 25-30 and 56-60. Their respective percentages were 26, 24, 20, 10, 8, 8, 4 and 2%. The two farmers between the age of 25-30 were employees of broiler business owners. 37% of the farmers were

married, 20% single, 6% widows and 2% widowers. In terms of education 67% were form four graduates, 18% had attained tertiary education, 10% secondary form 6 level and 5 % primary level. This clearly shows that farmers could easily read instructions on their own and put them into practice without the guidance of another person. Most of the farmers quoted farming (63%) as their main occupation followed by self employment (35%) and one was a civil servant (2%). The 2% widowers kept the largest number of broilers. This could have been attributed to the sole decision making. This probably indicates that as a business person one is not disrupted by the views of another person.

In terms of sources of income the farmers did not rely on one source of income but a combination of two or more. Poultry production was the major source of income combined with dairy, spouse salary, family business, rabbit rearing, landlordship, pig rearing or vegetable farming. A combination of poultry and family business had the highest percentage of 29% followed by poultry and dairy with 20 %.

5.1.1.2 Farmers' Information/Knowledge on Poultry Production

Farmers were asked to indicate the number of broilers they keep per six week period. The highest number of them kept between 200 and 300 followed by 100 and 200 then 301 and 400. However there were extreme cases who kept between 901 and 1000 birds. This was probably because he combined three sources of income dairy poultry and rabbit rearing. In addition he was a widower who solely made all decisions. The results confirmed literature by Nyaga 2007 that most of smallholder poultry farmers kept 100 and 500 birds.

5.1.1.3 Motivation to Broiler Production

Friends were important sources of motivation to broiler production accounting to 45% of the total farmers interviewed. Relatives and self help groups too were of some importance with 17.6% and 15.7 % respectively. Neighbours too played some role though not significant. Some farmers cited personal initiative as a motivation to broiler production. The above results indicate that information should be passed during groups and it then diffuses to their friends.

5.1.1.4 Nature / Type of Information for Broiler Farmers

Farmers were asked to give the type of information they have regarding broiler production. All the 51 farmers (100 %) interviewed had general knowledge on poultry production except for 14 % of farmers who did not have knowledge on slaughter. The general information on practices included; source of day old chicks, source of feeds, health care slaughter marketing and procedure for restocking. Most farmers though they have knowledge on slaughter they opted to hire others to slaughter for them or the buyers themselves did the slaughter.

5.1.2 Sources of Agricultural Information to Smallholder Commercial Broiler Farmers

5.1.2.1 Sources of Information

Regarding the source of information farmers were asked to give various sources of information. Friends were rated the best accounting for 31%. This probably could be attributed to the informal personal networks. Agents of chick companies and neighbours

too were important sources of information with 14 % each. Distributors and radio were rated third with 12%. Other sources included newspapers, distributors of feeds and chicks, agrovet shops and buyers of mature birds. Although the ministry of livestock and veterinary services are known to provide extension services to farmers they were not recognized as sources of information to them. This could have been because livestock rearing is not allowed in municipalities. It could also be attributed to privatization of veterinary services by the government. Farmers therefore tend to get nearly free information from friends. The information acquired from such sources may be incorrect leading to wrong decision making. It is also clear that there is urban farming that requires government intervention as well.

5.1.2.2 Farmers Training

Farmers were asked to state the number of times they had attended training on poultry production within a specified period of between November 2010 and April 2011. They were to either state zero, once, twice or three times or more. With 45 % of farmers having not attended any refresher training it means that they rely on friends who may not necessarily give the correct information. In case of a disease outbreak and situation of malice occurs they may use the wrong measures leading to losses. 29 % of the farmers had attended a training once while 24 % had attended twice. Only 2% had attended thrice. This is an indication that farmers do not have new information. When asked about information sharing farmers agreed having received information from other farmers while others did not. They admitted that the information shared had some usefulness to their

daily poultry production business. During purchase of chicks, veterinary drugs or feeds farmer receive accompanying information regarding use of the materials.

As for information on best source of day old chicks the farmers gave the following:

From the results it is clear that farmers in Ruiru District use diverse sources of day old chicks. Kenchic was rated the best with 31% followed by Kims Nakuru 28% and golden chic with 18 %.Other farmers got their chicks from Muguku, Franku, Ideal chics, Uganda Chic and Kenbest Chics. Imported chicks from Uganda are kept too. However farmers do not get their chicks directly from these companies but from their agents.

5.1.2.3 Knowledge on Housing

Nearly all the farmers had information on the type of poultry house.This is clear that each of them built houses according to their financial ability.29 % had knowledge on iron sheet roofed and stone walled house, 29% iron sheet roof and timber walls and 41 % had iron sheet roof and iron sheet walls. The above results concur with Nyaga (2007) that smallholder broiler houses are usually semi permanent. However in this case 41 % of farmers kept their poultry in iron sheet walled houses. This could be attributed to high cost of timber compared to iron sheets.

5.1.2.4 Challenges Faced by Farmers

When farmers were asked to state the major challenges facing them they gave the following: high cost of feeds , premature deaths of chicks, inadequate market, high cost of drugs and low selling price of mature broilers. As a coping mechanism some opted to

quit broiler production for layers production. This could have been due to the information farmers get from their friends which may not necessarily be correct.

5.1.3 Farmers' Communication Channels Preference.

Farmers were asked to indicate the sources of information and the method they would prefer most for information dissemination. The Most preferred communication channel/Method was farm visit accounting to 63% followed by cell phone with 22 % and radio with 6%.Internet /email too was a method of preference to some farmers having 3.9 %. Television, News paper and field days / exhibitions carried equal weight of 2%.There is an indication that farmers prefer farm visit probably because broilers require close attention making farmers remain at home most of the times. This too could be attributed to the nature of information source. Having farmers get information from friends and relatives farm visits and cellphones are of importance. It is clear that ever since the privatization of livestock veterinary services, smallholder farmers tend to get information from nearly free sources such as friends who visit them, unlike when these services were provided by the government.

5.2 Conclusion

The type of information required by smallholder commercial broiler farmers include, Source of day old chicks, Source of feeds, Appropriate housing, Feeding, Health care, Slaughter, Marketing and Restocking procedure. The sources of information for individual farmers were very diverse. The most important was friends followed by neighbours, agents, distributors and radio. Others were news papers and buyers.

It is clear that there is urban farming that requires government intervention as well.

With 45 % of farmers having not attended any refresher training it means that they rely on friends who may not necessarily give the correct information. The Most preferred communication channel/Method was farm visit accounting to 63%. There is an indication that farmers prefer farm visit probably because broilers require close attention making farmers remain at home most of the times. Despite the fact that government ministries of livestock and veterinary services are meant to offer extension services, they were not cited as a source of information. This means farmers rely on the almost free information sources which may not necessarily be true.

5.3 Recommendations

There is need for the government through the ministry of livestock and veterinary services to reinstate subsidized extension services to small holder farmers. This is because these farmers strive to get near free but sometimes inexact information leading to poor productivity.

Further research should be done on the best communication channels that produce best results for greatest productivity.

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APPENDICES

Appendix I: Questionnaire

UNIVERSITY OF NAIROBI.

DEPARTMENT OF AGRICULTURAL ECONOMICS.

MSC AGRICULTURAL INFORMATION AND COMMUNICATION
MANAGEMENT.

A SURVEY OF INFORMATION SOURCES AND COMMUNICATION CHANNELS
AMONG SMALLHOLDER BROILER FARMERS IN RUIRU DISTRICT OF KENYA.

QUESTIONNAIRE

Part I Questionnaire Identification

- 1.1 Questionnaire No _____
- 1.2 Date of interview _____ Time : From _____ to _____
- 1.3 Name of Interviewer _____
- 1.4 District _____
- 1.5 Division _____
- 1.6 Location _____
- 1.7 Sub location _____
- 1.8 Estate/Village _____

Part II Farmer Characteristics

- 2.1 Name of respondent _____
- 2.2 Name of Household Head if different _____
- 2.3 Gender of respondent(circle)

2.3.1. Male

2.3.2. Female

2.4 Age of respondent _____

2.5 Marital status:

2.5.1 Married _____

2.5.2 Single _____

2.5.3 Separated _____

2.5.4 Divorced _____

2.5.5 Widow _____

2.5.6 Widower _____

2.6 Education of Respondent:

2.6.1 Not attended school _____

2.6.2 Primary _____

2.6.3 Secondary Form 4 _____

2.6.4 Secondary form 6 _____

2.6.5 Tertiary/College _____

2.7 Main occupation:

2.7.1 Farming _____

2.7.2 Casual labour _____

2.7.3 Self employment _____

2.7.4 Formal employment _____

2.7.5 Other _____

2.8 Sources of income:

2.8.1 Poultry

2.8.2 Salary

2.8.3 Family business

2.8.4 Spouse salary

2.8.5 Other (specify)

Part III Farmers Information/Knowledge on poultry production

3.1 Circle the number of broilers you keep per 6 weeks period

3.1 100-200

3.2 201-300

3.3 301-400

3.4 401-500

3.5 Other (give number) _____

3.2 Who introduced you to broiler production? _____

3.3 What information/knowledge do you have regarding poultry production?(list all)

3.3.1. Source of day old chicks _____

3.3.2. Source of feeds _____

3.3.3 Appropriate housing _____

3.3.4. Feeding _____

3.3.5. Health care _____

3.3.6. Slaughter _____

3.3.7. Marketing _____

3.3.8. Procedure for restocking _____

3.3.9. Other Specify _____

3.4 Regarding the information/knowledge you have listed above, indicate various sources from which you get it.

3.4.1. Local manufacturers of feeds and chicks

3.4.2. Distributors of chicks and feeds

3.4.3. Agents

3.4.4. Agroveter and feed shops

3.4.5. Buyers of mature broilers

3.4.6. Veterinary offices

3.4.7. Ministry of livestock extension services

3.4.8. Friends

3.4.9. Neighbours

3.4.10. Relatives

3.4.11. Radio

3.4.12. Television

3.4.13. News paper

3.4.14. Other (Specify)

3.5 In the period between November 2010 and April 2011 how many times if any did you attend meetings where poultry production information is available?(circle the best answer)

1. Zero 2. once 3. Twice 4. Three or more

3.6 a) Have you received any new information on poultry production from other farmers in the period between November 2010 and April 2011? (Circle one) Yes/No

3.6 b).If yes, what was it about? _____

3.6 c) If yes, from whom?

- 1) Friend
- 2) Neighbour
- 3) Relative
- 4) Farmer from other location
- 5) Other (Specify)

3.6 d) If yes, how useful was it?

- | | |
|--------------------|-----------------|
| 1. Not very useful | 3. Quite useful |
| 2. Somewhat useful | 4. Very useful |

3.7a) when you buy day old chicks, feeds or drugs, do you also receive information on use with it? (Circle one) Yes/No

3.7b) If yes, from whom? (List all)

- 1) Agro vet shop
- 2) Veterinary offices
- 3) Ministry of livestock extension
- 4) Friend
- 5) Poultry farmer
- 6) Other (Specify)

3.8a) Do you have information on the best source of day old chicks? Yes/No (Circle one)

If yes which one? _____

3.8b) where do you get such information from?

3.8 c) Do you buy from them? Yes/No

3.8 d) If no, why? _____

3.9) which type of feed do you use for your chicks? (Circle all used)

1. Unga

4. Treasure feeds

2. Sigma

5. Champion feeds

3. Chania

6. Other Specify _____

3.9b) Do you have a preference over the feeds to use? (Circle one) Yes/No

3.9c) If yes, which one? _____

3.9d) If yes why? _____

3.10a) Do you have knowledge about procedure for restocking? (Circle one) Yes/No

3.10b) If yes, do you practice all the procedures? (Circle one) Yes/No

3.10c) If no, why? _____

3.11a) Do you have knowledge on where to sell your broilers? (Circle one) Yes/No

3.11b) If yes where do you get it from? _____

3.12 Where do you sell your broilers? (tick all)

1) Farm gate (buyers come for them)

2) City Market

3) Supermarkets

4) Restaurants

5) Willing buyers/neighbours

6) Other (Specify)

3.13 If information concerning poultry production was to be given to you, which methods would you prefer to be used? List all.

1. Radio
2. Television
3. news paper
4. Internet/email
5. Cellphone
6. Pamphlets/leaflets/brochures
7. Visit to offices
8. Farm visit
9. Field day/exhibitions
10. Demonstrations
11. Shows
12. Farmer residential course
13. Other (specify)

3.14 From the methods you have indicated above which one do you prefer most?

3.15 What knowledge of poultry house do you have?

- 1) Permanent roof and stone walls
- 2) Semi permanent(permanent roof and timber walls)
- 3) permanent roof and iron sheet walls
- 4) permanent roof and earthen walls
- 5) Other (specify)



3.16List any challenges you encounter in poultry business.
