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Information Needs and Seeking Behavior of Young Small-Scale Dairy Farmers in Murang'a County, Kenya

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Abstract: Access to agricultural information influences the farming practices adopted by farmers. Small scale dairy farmers need frequent access to agricultural information to cope with modern dairy farming practices. Inefficient access and dissemination of dairy agricultural information can negatively affect the production level of dairy products. The study sought to assess the information needs and seeking behavior of young small-scale dairy farmers in Murang'a County, Kenya. The area has experienced low dairy agricultural productions despite its high potential in dairy farming. The study established that all the young dairy farmers required dairy agricultural information however dairy agricultural information is not readily available to them. Also, factors such as lack of exposure, lack of confidence, illiteracy, inadequate time and lack of funds negatively affected their information seeking behavior. The study therefore recommended the government to; recruit more extension officers within Murang'a County to ensure improved extension services, set up agricultural resource centers with qualified information providers to assess, select, market and acquire useful agricultural resources, improve infrastructure and set up cyber cafes within the sub counties and also educate dairy farmers on the use of technologies in accessing agricultural information.

Keywords: Dairy agricultural information, Information, Information seeking behavior, Kenya, Small-scale farmers, Youth.

I. Introduction

Information is required by all groups of people in execution of their daily activities and this therefore defines the characteristics of the information according to user needs. Among the group of information users are farmers who need access to agricultural information. Subash, Gupta & Babu (2015) in his study defines information needs as "those needs that arise from the dairy farming activities of farmers on which they feel themselves incompetent and need the assistance from some other sources before taking a decision for action". It is important to satisfy farmers' information needs in countries where economy is mainly dependent on agriculture to enhance national growth (Meitei & Devi, 2009). Understanding farmers' information needs helps in designing appropriate policies, programs, and organizational innovations (Lalngaihawmi & Rahman, 2017). Dairy farmers are a group of farmers who also need access and use of dairy agricultural information which is specific to their dairy farming needs. Msoffe (2015) research on farmers information needs in selected rural areas of Tanzania concludes that there is very little understanding and concentration on farmers' information needs. De Silva and Ratnadiwakara, (2008) emphasizes that the "value of information needs assessment, by engaging directly with users of information, should not be overlooked.

Information seeking behavior is a function of the recognition of one's information needs as perceived by him, which propels him to make use of information services and resources to satisfy such perceived needs (Emmanuel, 2012). There are different subgroups of farmers. This is defined by the type of farming activities they are carrying out and therefore it's crucial to understand the specific factors that control their access, selection and utilization of information. This will ensure establishment of better information sharing programs. There are several factors that affect and determine the characteristics that the farmer portrays as they search for information. These includes individual characteristics such as farming experience, education and age; trading characteristics such as size of farm, market orientation, kind of farm enterprise, debt level, and farm ownership; and physical location characteristics such as accessibility to market points and distance to nearest technological infrastructure (Babu, Glendenning, Asenso and Govindarajan, 2012).

In rural areas information may be available but farmers are not able to access it because of low level of education or in poor

financial status to attain the resources. Information needs of small-scale farmers are personal and location specific as proved by a variety of studies such as (Meitei and Devi, 2009) in rural India and (Matovelo, Msuya and de Smet, 2006) in Tanzania. Soylu (2016) suggests that "professional efficiency and motivation of the farmers can be enabled with the satisfaction of their information needs. With the unique purpose of providing practical solutions for the farmers, their information need and information seeking behavior can be analyzed and addressed". This study therefore sought to understand the negative and positive factors that influence the information seeking behavior of young dairy farmers in accessing and using information.

In Murang'a County, Central Kenya, over half of the land is used by small - to medium-size farm holders for crop cultivation and dairy farming (KIG, 2015). Majority of the rural young people in the county are practicing dairy farming. It has become popular among the youth in this County following the introduction of "One Youth One Cow" initiative project that was launched by Governor Mwangi wa Iria on 23rd September, 2015. Youth in the age of 18-35 years bracket are eligible to benefit from the project. Two hundred and fifty (250) cows were given to beneficiaries drawn from various sub-counties. For improved dairy farming practices it was therefore important to study the information needs and seeking behavior of young farmers in this county.

II. Methodology

The study used descriptive survey research design. A sample size of 164 respondents was used. These included 152 farmers who were selected from a target population of 250 young dairy farmers and all 12 extension officers who were located in Kangema, Kiharu, Kigumo and Mathioya sub counties in Murang'a County. Simple random and purposive samplings were used to select 152 small scale dairy farmers and 12 extension officers respectively. Questionnaires and interview guides were used as instruments of data collection. Qualitative and quantitative data was collected to answer the research questions. Out of the 152 sampled dairy farmers, 140 were issued with the questionnaires, 12 were interviewed while all the extension officers were given the questionnaires and four interviewed. Data analysis for both quantitative and qualitative data was done. Description and thematic analysis were used for qualitative data analysis while descriptive and inferential numeric analysis was used for quantitative data. Frequency tables and bar graphs were used to present analyzed data.

III. Results and Discussions

The return rate of dairy farmers' questionnaires was 81% since 113 questionnaires out of 140 were returned, while 100% for all the 12 extension officers.

A. Demographic Data

Demographic data on respondents related to their gender, age, education level, source of income are presented in Table I and Table II.

Table I: Demographic Data of Dairy Farmers

Gender			Age			Education Level			Income		
Status	Freq	%	Years	Freq	%	Level	Freq	%	Source	Freq	%
Male	70	62%	18-21yrs	0	0%	Primary	19	17%	Salary	16	14%
Female	43	38%	22-25yrs	4	3%	Secondary	63	56%	Self employed	91	81%
30-35 yrs 55 36 yrs and above 36			26-29yrs	18	16%	Certificate	17	15%	Youth projects	1	1%
			49%	Diploma	4	3%	Others	5	4%		
			32%	Degree	2	2%	2	2%			
						Others					

According to Table I, majority of the respondents were male. This may be attributed to the fact that in rural traditional society men are believed to own family assets and also involved in farming and business while women take care of the family and involved with daily household activities. This shows that dairy farming is mainly practiced by men. Other studies on small-scale farmers by Ngongo (2016) and Benard, Dulle & Ngalapa (2014) have shown that majority of their respondents were female. The majority of dairy farmers who benefited from the one youth one cow initiative were men.

The findings also indicate that there were no respondents between the age of 18-21 years and also very few of them between the age of 22-25 years. This may be due to the fact that the completion age at school ranges between 18-20 years and young people at this age have joined college. At the age of 30 years and above, most of the young people are usually through with college and are either looking for jobs or starting a business. This could be the reason why majority of respondents fall within this age limit. They are also able to raise capital for dairy farming and most importantly suited for this study as they

had enough experience in dairy farming to provide relevant information.

On the level of education, less than half of dairy farmers had attained certificate in any course. Babu *et al.* (2012) states that individual characteristics such as education level can affect and determine the characteristics that the farmer portrays as they search for information. Educated farmers may be able to access and use various sources of information and thus improve their level of agricultural productivity. Majority of the respondents are self employed. This suggests that majority of farmers depend on dairy farming income that they get through milk production as one of their sources of income. These jobs do not provide a stable source of income to farmers to facilitate purchase of information resources and services. Inadequate income among farmers reduces their access to information. Benard, Dulle, and Ngalapa (2014) research on evaluation of information needs of rice farmers in Tanzania states that inadequate fund limits farmer accessibility to information services.

Table II: Demographic Data of Agricultural Extension Officers

Gender			Age			Education Level		
Status	Freq.	%	Years	Freq.	%	Level	Freq.	%
Male	7	58.3%	Below 5 yrs	1	8.3%	Diploma	8	66.7%
Female	4	41.7%	5-10 yrs	4	33.3%	Degree	3	25.0%
			10-19 yrs	5	41.7%	Masters	1	8.3%
			20 and above yrs	2	16.7%			

Majority of the extension officers seven out of 12 were male with a representation of 58.3% while females were four with a representation of 41.7%. A study by Ng'ang'a (2013) on evaluation of access and use of agricultural information by extension officers also showed that majority of the respondents were males. It is an indication that the occupation is mainly dominated by men. Out of 12 extension officers, seven had a working experience of more than 10 years. These suggest that they are well exposed to agricultural information services and therefore suited to provide relevant information for the study. The study revealed that eight out 12 agricultural extension officers had diplomas representing 66.7%, three had degrees at 25% and one at 8.3% had master's levels of education. These ascertain that they are fairly competent in access and dissemination of dairy agricultural information services.

B. Information Needs of Young Dairy Farmers

Farmers were presented with ten types of information needs for dairy farmers and were asked to tick the relevancy of each to them. A Likert scale 1-4 was used where 1- indicated not relevant; 2- sometimes relevant; 3- often relevant; and 4-frequently relevant.

Table III: Relevancy of Dairy Farmers Information Needs (N=113)

Statement	Not Relevant (1)		Sometimes Relevant (2)		Often Relevant (3)		Frequently Relevant (4)		Mean Score
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Modern farming technologies	3	2.7	7	6.2	38	33.6	65	57.5	3.46
Nutritional and reproductive management	2	1.8	4	3.5	36	31.9	71	62.8	2.68
Milking operations and systems	2	1.8	6	5.4	34	29.7	71	63.1	3.54
Animal waste management	8	7.1	7	6.3	38	33.9	60	52.7	3.33
Diseases and pest control	1	0.9	4	3.5	42	37.2	66	58.4	3.53
Weather conditions	9	8.2	24	20.9	57	50	24	20.9	2.87
Business information	6	5.4	27	24.3	63	55.9	16	14.4	2.77
Government policies and plans	11	9.8	43	38.4	39	34.8	19	17	2.57
Market trends	7	6.2	23	20.4	62	54.9	21	18.6	2.86
Credit facilities	8	7.1	41	36.3	45	39.8	19	16.8	2.66

Table III above shows that the relevancy of information needs of dairy farmers had attained an average means score of 2.5 and above with highest mean score at 3.46 and lowest at 2.66. Half of the farmers interviewed indicated that they needed information on dairy farming methods, breeding of dairy cows, diseases control, rearing of dairy cows, nutrition, dairy products processing, markets for dairy products, milk storage systems, dairy animal feeds, biogas production, calves mortality rates and finally mixed farming practices. Soylu (2016) suggest that "professional efficiency and motivation of farmers can be enabled with the satisfaction of their information needs."

The study also sought to establish whether the extension officers have ever provided dairy information services to farmers for the last two years. This was in consideration that the One Youth One Cow project was initiated three years ago since the year 2015. All agricultural extension officers agreed that they have provided dairy information to farmers for the last two years. In addition, the study sought to establish the kind of information given to dairy farmers by extension officers. The results are shown in Fig. 1.

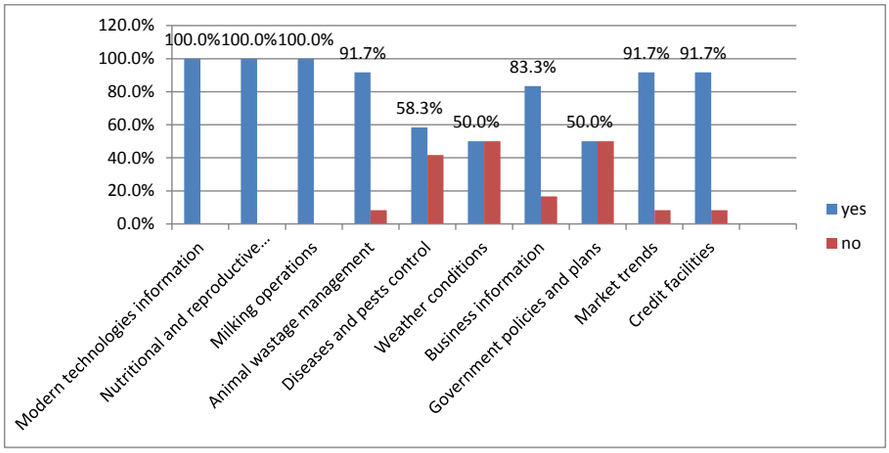

Fig. 1: Information Offered by Extension Officers

Extension officers' interview also revealed that farmer's information needs can be initiated by either the farmer or the extension officer. The latter needs to conduct dairy farmer needs assessments so as to be informed of farmer information needs. This practice is in line with De Silva and Ratnadiwakara (2008) who emphasizes on the "value of information needs assessment of users" and Babu, *et al.* (2012) who emphasized that identifying farmers' information needs assists in coming up with suitable guiding principles and managerial innovations.

C. Information Seeking Behavior of Young Dairy Farmers

The study sought to establish the information seeking behavior of young dairy farmers. A list of statement on information seeking behaviors that could possibly be portrayed as they search for information was provided. Farmers were asked to indicate their level of agreement with each statement as it affects them. A Likert scale of 1-5 was used, where 1= Strongly disagree, 2= Disagree, 3= Fairly agree, 4=Agree, 5= Strongly agree. The results are shown in Table IV.

Table IV: Dairy Farmers Information Seeking Behaviors (N=113)

	Strongly Disagree (1)		Disagree (2)		Fairly Agree (3)		Agree (4)		Strongly Agree (5)		Mean Score
Statement	Freq.	%	Freq	%	Freq	%	Freq.	%	Freq.	%	
It is important to search for infor.	0	0	1	0.9	1	0.9	19	16.5	92	81.7	4.79
I need assistance in searching for infor.	3	2.7	7	6.4	15	13.6	36	31.3	51	45.5	4.08
It takes time to search for infor.	2	1.8	11	10.1	24	21.1	38	33.9	37	33	3.83
Much effort is needed to search for information.	2	1.9	30	26.2	46	41.1	18	15.9	17	15	3.16
I get confused by the infor. available	8	7.3	7	6.4	17	14.7	18	15.6	63	56	4.07

	Strongly Disagree (1)		Disagree (2)		Fairly Agree (3)		Agree (4)		Strongly Agree (5)		Mean Score
I don't know which infor. to rely on	13	11.2	7	6.5	17	15	24	21.5	52	45.8	3.84
I use different sources of infor. for comparison	11	9.3	23	20.4	41	36.1	24	21.3	15	13	3.11
I don't know infor. required	25	22	38	33.9	36	32.1	6	5.5	7	6.4	2.21

Nearly all farmers perceived the importance of searching information at the highest mean score of 4.79. Very few farmers (22 %) strongly agreed that they don't know information required. However, another with a mean score of 4.08 strongly agreed that they need assistance in searching for information and with a mean score of 4.07 strongly admitted that they get confused by the information available. Others, with a mean score of 3.83 and 3.84 strongly agreed that it takes time to search for information and they don't know which information to rely on respectively. This indicates that nearly half of the respondents have a negative attitude towards access and use of dairy agricultural information which could be negatively affected by factors that hinder access to information. The above findings indicates that farmers have different information seeking habits which might have resulted from individual characteristics such as farming experience, education and age; trading characteristics such as size of farm, market orientation, kind of farm enterprise, debt level, and farm ownership; and physical location characteristics such as accessibility to market points and distance to nearest technological infrastructure just like observed by (Babu *et al.* 2012).

In relation to this, the extension officers were also presented with a list of information seeking habits statements that could be portrayed by farmers and were asked to indicate their level of agreement with each as it relevant to farmers. A Likert scale of 1-5 was used where 1= Strongly disagree, 2= Disagree, 3= Fairly agree, 4= Agree, 5= Strongly agree.

Ratings from the agricultural extension officers are presented in Table V below:

Table V: Dairy Farmers Information Seeking Habits as Revealed by Extension Officers

	Strongly Disagree (1)		Disagree (2)		Fairly Agree (3)		Agree (4)		Strongly Agree (5)		
Statement	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Mean score
Farmers know the importance of dairy information	0	0	1	8.3	1	8.3	4	33.3	6	50	4.25
Farmers need assistance in searching for information	0	0	1	8.3	10	83.3	1	8.3	0	0	3.00
Farmers avail time to search for information	0	0	3	25	6	50	3	25	0	0	3.00
Information is readily available for farmers	0	0	2	16.7	8	66.7	2	16.7	0	0	3.00
Farmers get confused by the information available	0	0	1	8.3	9	75	2	16.7	0	0	3.08
Farmers don't know which information to rely on	1	8.3	6	50	1	8.3	4	33.3	0	0	2.67
Farmers use different sources of information for comparison	0	0	2	16.7	8	66.7	2	16.7	0	0	3.00
Farmers don't know information required	0	0	9	75	3	25	0	0	0	0	2.25
Farmers have adequate funds to acquire information resources	1	8.3	9	75	2	16.7	0	0	0	0	2.08
Farmers know how to use modern technologies to acquire information	2	16.7	7	58.3	4	33.3	0	0	0	0	2.33

As observed from Table V above, extension officers strongly agreed that farmers know the importance of dairy information with the highest mean score of 4.25. This was followed by a mean score of 3.08 stating that farmers get confused by the information available. Farmers avail time to search for information, information is readily available for farmers and that farmers use different sources of information for comparison had all a mean score of 3.00. It's fair to agree with the above statement since they had all attained a mean score of 3 which is the neutral score. Farmers don't know which information to rely on, farmers don't know information required, farmers know how to use modern technologies to acquire information, and farmers have adequate funds to acquire information resources were rated lowly attaining a mean score of 2.67, 2.33, 2.25 and 2.08 respectively.

As portrayed by dairy farmers, the extension officers findings also connotes that farmers have different information seeking habits which might have resulted from individual characteristics. Diekmann *et al.* (2009) study also pointed out that farmer attitude toward information search, farm sale, farming experience, access to technology and type of farming were good indicators of their information search approaches. Further, in rural areas information may be available but farmers are not able to access it because of low level of education or in poor financial status to attain the resources. Literate farmers may have high confidence in searching and using the available agricultural information by various sources.

IV. Conclusions

First, it can be deduced that there is high demand for dairy agricultural information among young dairy farmers in the areas under study. Farmers know the types of information they need, however this information is not readily available in their regions. They also seek specific information that is relevant to their day to day dairy farming practices but rarely go further to seek information on weather conditions, government policies and credit facilities. Finally, young dairy farmers have a positive attitude towards searching for agricultural information however there are individual factors that hinder information access. These are lack of exposure, lack of confidence, illiteracy, lack of funds and technical difficulties in information access.

V. Recommendations

The study recommends that the government should recruit more extension officers within Murang'a County to ensure improved extension services. Murang'a County government should set up agricultural resource centers within the rural areas with qualified information providers. They should assess the information needs of dairy farmers and select and acquire useful agricultural resources. The Kenya National Library in Murang'a County in collaboration with the Department of Livestock Production in Murang'a County government can set up annual exhibitions and information literacy programs for dairy farmers. This should be done in the sub counties for a period of one week so as to reach farmers in the rural areas. Murang'a County Government should set up cyber cafes within the sub counties and educate dairy farmers on the use of technologies such ICTs. It should also improve infrastructure in the rural areas of Murang'a County to promote the use of ICT technologies.

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