INFLUENCE OF GROUP DISCUSSION TEACHING METHOD OF COMMON INTEREST GROUP APPROACH ON ADOPTION OF DAIRY COW PRODUCTION TECHNOLOGIES AMONG SMALLHOLDER FARMERS IN KISII COUNTY, KENYA

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Abstract

The government of Kenya has embraced participatory approaches to effectively tap farmer participation and also involve other stakeholders in providing extension services. This study intended to determine the influence of group discussion teaching method of the CIG approach on the adoption level of dairy cow production technologies among smallholder farmers of Gucha Sub-County in Kisii County, Kenya. The researcher used the ex-post facto research design. The target population comprised all dairy cow production technology CIG members, who had been picked and trained, in Gucha Sub County from 2006 under the Kenya Agricultural Productivity Programme (KAPP) extension process. A total of 807 farmers drawn from CIGs took part in training. Stratified random sampling technique was used to select a 100 respondents. Data was collected using a structured questionnaire. The data was subject to chi-square test using SPSS. A high proportion of the respondents sampled were males (56%) because of the high social value attached to dairy enterprise in the kisii community. The men have a higher tendency to join groups dealing with an enterprise that gives high returns. Through group discussions a high proportion of farmers adopted various dairy production technologies; spraying against ticks (87%), napier establishment through "tumbukiza" technology (79%), feeding cows with mineral supplements (73%) and feeding with dairy meal (73%). The study revealed that group discussion teaching method of CIG approach had significant influence on adoption level of dairy cow production technologies by smallholder farmers in Gucha Sub-County. It is recommended that extension service providers apply appropriate facilitation skills to encourage participation by all members during group discussions.

Keywords: Dairy products, common interest group approach, farming, technology adoption

INTRODUCTION

Agricultural extension plays an important role in stimulating the development of agricultural sector. This is because it is an educational service for advising, training, and informing the farmers concerning practical and scientific matters relating to their business (Government of Kenya [GOK], 2012). Extension therefore plays a critical role in the agricultural sector through the change agents who contribute in ensuring farmers transform from subsistence to modern and commercial agriculture. An effective extension system should be cost effective, responsive to farmers' needs, broad-based in service delivery, participatory and sustainable (Muyanga & Jayne, 2006).

Participatory extension approaches influence farmers to adopt agricultural technologies The development of these extension approaches was catalyzed by the increasing realization that effective and sustainable extension programmes could only be achieved with more active participation of the various end-users, especially farmers (Nambiro, Omiti & Mugunieri, 2005). Earlier approaches achieved minimal successes in creating impact in terms of agricultural production and improving the livelihood of small-scale farmers in Kenya (MOA, 2007). The Common Interest Group (CIG) approach is demand driven as well as being participatory. A CIG is formed through community mobilization by a service provider and flagging an opportunity which indicates the costs incurred and profits to be realized from a given enterprise. The farmers interested in taking up the enterprise enlist in a CIG.

The Ministries of Agriculture and Livestock Development have been using many agricultural extension approaches for dissemination and adoption of agricultural production technologies among them the CIG approach. However, with continued dissemination of technologies using such approaches in Kisii County, smallholder farmers still experience low yields and income levels leading to poverty and poor livelihoods among households. Little information is available on the success of the CIG approach on influencing the adoption level of dairy cow production technologies among smallholder farmers.

Research Objective

To determine the influence of group discussion teaching method of Common Interest Group approach on adoption of dairy cow production technologies among smallholder farmers in Kisii County, Kenya

RESEARCH METHOD

The study was carried out in Kenyenya, Sameta, Nyamarambe and Nyacheki divisions of Kisii County in March 2012 with the objective of determining the relationship between group

discussion teaching method of CIG approach and adoption level of dairy cow production technologies. A null hypothesis formulated for the study which stated that "there is no statistically significant influence of group discussion teaching method of CIG approach on the adoption level of dairy cow production technologies".

The Data

A structured questionnaire was used to collect for data collection from proportionate random sample of 100 farmers picked from a population of 807. Secondary data was obtained from KAPP District Service Unit office Ogembo. The secondary data included: list of CIG members per CIG in the four divisions and training schedules for the CIGs. Primary data was collected from the randomly selected CIG farmers. The researcher, with the assistance of the Divisional Livestock Extension officers, arranged for the researcher to make initial visits to the target groups to brief them on the purpose and objectives of the study. The researcher then visited each respondent in the sample and made appointments, with the assistance of field extension staff, to conduct the proposed research. The researcher then administered the questionnaire to each respondent to obtain data on the relationship between group discussion teaching method of CIG approach and adoption level of dairy cow production technologies. Demographic data of respondents was also captured. The technologies were: napier grass establishment through "tumbukiza", weekly spraying against ticks, keeping dairy cows under zero grazing unit, cow feeding with dairy meal, cow feeding with concentrates, up-grading dairy herd through Artificial Insemination (A.I) and fodder conservation into silage or hay. Farmers rated the levels of adoption in a scale of 1 to 4; 1 = No adoption, 2 = Low adoption level, 3 = Moderate adoption level and 4 = high adoption level. Influence of group discussion to adoption was also captured through a score of 1-4, where =no influence, 2= low influence, 3= moderate influence and 4= high influence.

Data Analysis Approach

Data was analyzed using the computer based statistical package for Social Sciences (SPSS) for windows. Data were first subjected to descriptive statistics in order to describe the adoption level of dairy cow production technologies.

The variables in the questionnaire were analyzed using nominal, ordinal, interval and ratio scales, frequency tables, means, percentages, standard deviation for descriptive statistics and chi-square for inferential statistics. Inferential statistical test was used to test the hypothesis formulated for the study by use of the chi-square.

EMPIRICAL RESULTS AND DISCUSSION

General characteristics of farmers and groups

Distribution of respondents across CIGs

The 100 respondents for the study were drawn from the four groups as presented in Table 1. Kenyenya division gave the highest proportion of respondents (33.0%) and Nyamarambe division the lowest (19.0%).

Table 1: Distribution of Respondents by Common Interest Group per Division (N=100)

Division	Name of CIG	Frequency	Percent
Kenyenya	Machoge Borabu dairy cow	33	33.0
Nyacheki	Rigena dairy cow	25	25.0
Nyamarambe	South mugirango dairy cow	19	19.0
Sameta	Bassi-boitangare dairy cow	23	23.0
Total		**100**	**100.0**

Age of the Respondents

The respondents were asked to give their age in years. The data was analysed using percentages and frequencies. The results are presented in Table 2. Table reveals that the majority of the respondents were above 50 years of age (44.0%) while those within the age bracket of 21-30 years were the lowest (5.0%). This confirms that the proportion of the youth engaged in farming activities is quite low. In Gucha district majority of those involved in farming activities are the mature adults and this is the category that own land. Each successive age group had more respondents than the previous.

Table 2: Distribution of Respondents by Age (N=100)

Age in years	Frequency	Percent
21-30	5	5.0
31-40	24	24.0
41-50	27	27.0
Above 50	44	44.0
Total	**100**	**100.0**

Gender of Respondents

The respondents were asked to indicate their gender as either male or female. The data was analysed using percentages and frequencies. The results are presented in Table 3. Table 3 shows that the males were the majority with the respondents comprising 56% males and 44% females. Males have a greater tendency to join groups focusing on dairy cow because of high returns from the enterprise and social value attachment.

Table 3: Distribution of respondents by gender (N=100)

Gender	Frequency	Percent
Female	44	44.0
Male	56	56.0
Total	**100**	**100.0**

Results of a gender disaggregated baseline survey by Tegemeo Institute (2011) in the KAPP. Counties show that a higher percentage of men than women owned all types of livestock except chicken. The value of livestock was also higher for men except in the case of chicken where the value was similar for both men and women.

The influence of group discussion teaching method

The respondents were asked to rate their level of adoption of dairy cow technologies by indicating none in case of no adoption or low, moderate or high. Data was summarized using frequencies and percentages. The results are presented in Table 4.

Table 4: Level of influence of Group Discussions

Group discussion teaching method	Level of influence of Group Discussions							
	None		Low		Moderate		High	
	Fr	%	Fr	%	Fr	%	Fr	%
1.Napier establishment through tumbukiza	1	1	1	1	19	19	79	79
2.Spraying against ticks	0	0	1	1	12	12	87	87
3.Keeping cow in zero grazing unit	26	26	1	1	11	11	62	62
4.Feeding cow using dairy meal	4	4	5	5	18	18	73	73
5.Use of minerals to feed dairy cow	1	1	3	3	23	23	73	73
6.Upgrading herd through A.I.	41	41	7	7	20	20	32	32
7.Fodder conservation, hay or silage	9	9	11	11	40	40	40	40

It was noted that the level of influence of the group discussions in the various methods was positive for most of the methods. In five out of seven methods, the reported level of influence was rated by the majority as high. These were napier establishment through tumbukiza (79%), spraying against ticks (87%), keeping cow in zero grazing unit (62%), feeding cow using dairy meal (73%) and use of minerals to feed dairy cow (73%). For three methods a substantial percentage of the respondents reported their level of influence as none and low. These were Keeping cow in zero grazing unit (27%), Upgrading herd through A.I. (48%) and Fodder conservation, hay or silage (20%). Fodder conservation is associated with low influence

probably because of highly technical knowledge associated with making silage and the farmers could be producing inadequate amounts of fodder. Up-grading dairy herd through artificial insemination has the lowest adoption level probably because of the high costs involved in accessing the technology coupled with poor heat detection. Groups form forums for farmers to share information on good production practices and networking (Nambiro, Omiti & Mugunieri, 2005.

A chi-square test was used to test hypothesis formulated for the study and results are shown in Table 5.

Table 5: Chi-square test for influence of group discussion on adoption

Adoption level	Level of influence of Group Discussions			
	Low	Moderate	High	Total
Low	3	10	0	13
Moderate	0	63	21	84
High	0	0	3	3
Total	3	73	24	100

χ^2 =32.715   d.f.=4   p=.000

It was found that there was a significant relationship between level of influence of group discussions and the adoption level as $p<0.05$ (χ^2 =32.715, d.f.=4, $p<.001$). Therefore the null hypothesis is rejected and the alternative accepted. The relationship between adoption and level of group discussion can be represented by the statement that there is a statistically significant difference in the relationship between group discussion teaching method of the CIG approach and the adoption level of dairy cow production technologies. During group discussions issues became clear to participants and farmers were able to implement as they were convinced of the benefits associated with various dairy production technologies. In group discussions the farmer share their experiences and this helps farmer to learn from each other hence enhancing adoption of technologies.

This shows the level of influence of group discussion can influence adoption and the converse that adoption can also influence the level of group discussions. By exchanging ideas, sharing experiences, and discussing best practices, success stories and challenges, individuals and organizations from across the agricultural landscape gain important knowledge on issues that impact their lives and livelihoods (AGRA, 2012)

CONCLUSION AND RECOMMENDATIONS

This study intended to determine the influence of group discussion teaching method of the CIG approach on the adoption level of dairy cow production technologies among smallholder farmers of Gucha Sub-County in Kisii County, Kenya. Based on the findings of the study, the following conclusions are derived:

i) Farmer participation in group discussion of the CIG approach influences adoption of dairy cow management technologies.

ii) The relationship between group discussion teaching method of the CIG approach and the adoption level of dairy cow production technologies was statistically significant

A significant relationship between group discussion teaching method of the CIG approach and the adoption level of dairy cow production technologies indicate that there was variance in level of participation in group discussion which affected the adoption level. It is recommended that participation in group discussion, facilitators should encourage active participation by all members   to enhance level of adoption for all members.

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