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Opunga, Jenipher N.; Kibett, Joash K.; Kere, George M.

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The effect of Common Interest Groups (CIGs) training on adoption of Indigenous Chicken Production Technologies in Ainamoi Sub County, Kericho County, Kenya

^{1*}Jenipher N. Opunga, ²Joash K. Kibett, ³George M. Kere

¹Department of Horticulure, University of Kabianga, Kenya

²Department of Horticulure, University of Kabianga, Kenya

³Department of Agricultural Biosystems and Economics, University of Kabianga

*University of Kabianga, P.O Box 2030-20200, Kericho, Kenya

Email: opungajenipher@yahoo.com

Abstract: Adoption of improved indigenous chicken technologies is key to ensuring increased productivity and supply of live birds and products to the market. The purpose of this study was to determine the effect of common interest group training on adoption of indigenous chicken production technologies in Ainamoi Sub County, Kericho County, Kenya. The focus was on demographic characteristics, organizational development trainings, indigenous chicken production technologies trainings as well as the extent to which CIG training affect adoption of chicken production technologies. The study applied descriptive research design. The target population was 291 indigenous chicken farmers from 16 CIGs. Primary data was collected from 117 indigenous chicken selected using stratified simple random sampling and 3 groups selected using purposive sampling. Interview schedules was used to collect data from indigenous chicken farmers while focused group guide used to collect data from the groups. Secondary data was collected from published and unpublished past studies, government reports, research publications and journals. Descriptive statistics was used to analyse data while Chi Square statistics used to test the null hypothesis that there is no significant effect of training on adoption of indigenous chicken production technologies. Results show that indigenous chicken farmers in CIGs were trained on organizational development aspects and indigenous chicken production technologies. The Chi square test revealed statistically significant ($\chi^2 = 15.858$, $df = 4$, $p = 0.003$) since the alpha value was set at 0.05. We therefore reject the null hypothesis and conclude that CIG training has significant effect on adoption of the indigenous chicken technologies. The study therefore recommends frequent organized training on the various aspects of indigenous chicken production technologies especially feeding, housing and disease control for increased adoption and sustainable productivity hence increased income and food security.

Keywords: Adoption, common interest groups, indigenous chicken, production technologies training.

1. INTRODUCTION

Indigenous chicken plays a significant role in the improvement of food security and income for the small holder farmers in both rural and peri-urban areas.(Thornton et al., 2012). Globally, indigenous chicken produce 30% of all the white meat consumed (FAO, 2012). In Africa, Indigenous Chicken constitutes over 70% of the total chicken population (FAO, 2011). In Kenya Indigenous Chicken constitute 80% of the national poultry production and is an important livelihood activity particularly among small-scale farmers (Government of Kenya, 2009). In Kericho County indigenous chicken is a reliable source of food and income to over 80% of the household who rear the chicken mainly on free range rearing

system. Because of the increasing demand for indigenous chicken meat and products due to the current trends in nutrition management, where people mostly in the middle and high classes are reverting to organic and traditional foods (Kingori, Wachira & Tuitoek, 2010), adoption of improved indigenous is therefore necessary to ensure increased productivity to meet the increasing this demand.

Adoption of agricultural innovations and improved agricultural technologies is one of the ways to increase agricultural productivity, income, household food security and nutrition (Kinyangi, 2014). Herbert et al., (2015) showed that farmer groups are appropriate channels to enhance adoption of agricultural technologies and improve farm level productivity. Degu, (2012) reported that access to agricultural knowledge influences a farmer's decision to adopt a new innovation or technology. This argument agrees with Mochama, (2015) who stated that when farmers are trained as a group, they share knowledge, get first hand evidence from fellow farmers, share challenges, come up with opportunities and are more likely to put to action what they learn such as adoption of the desired technologies. Moreover, frequent training increases the levels of technology adoption through creating awareness on the relative advantages of the technology (Dehinenet et al., 2014; Mengesha 2013).

Common Interest Group approach which entails training farmers on organizational development, technology aspects of enterprise developments as well as social aspects after group formation and registration has been used in Ainamoi Sub County by Livestock production officers to introduce farmers to improved indigenous chicken production technologies so as to improve productivity, income and food security. No study has been done on the effect of effect of CIG approach on adoption indigenous chicken technologies in Ainamoi Sub County. This study therefore sought to determine the effect of the training component of the CIG approach on adoption of indigenous chicken technologies.

2. LITERATURE REVIEW

The theory of diffusion which examines the process by which innovation is adopted over time (Gregor and Jones, 1999) was adopted in this study. Rogers (2003) defines diffusion as the process by which an innovation is communicated thorough certain channels over time among the members of a social system. The innovation-decision process according to Rogers (2003) involved five stages namely knowledge, persuasion, decision, implementation and confirmation. The individuals, in this case indigenous chicken farmers needs to be persuaded by highlighting the benefits of the technology or innovation before they make adoption decision. According to Jemilah et al (2010), agricultural extension is important in adoption of new technologies and innovations. Ideally, agricultural extension entails creating awareness on technologies and innovation, persuading farmers on the usefulness of the technology through regular trainings, and reinforcing continued use of the technologies as well as linking farmers to agricultural input suppliers, affordable financial services and market (Aremuet *et al.*, 2015).

Dehinenet et al., (2014) reported that availability of extension and training services play a significant role on the probability of dairy technology adoption. Furthermore Mwobobia (2016) indicated that education and relevant skills are important in running of any business enterprise. Mengesha (2013) who stated that contact with trainers is very crucial if adoption has to be successful, because it keeps the farmers interested and ensures they don't forget what they have learned. Ebojei, Ayinde and Akogwu, (2012) indicated that the frequency and contact with extension providers increases the higher the chances of a farmer adopting a new technology. For example, contact with extension officers positively influenced exotic chicken breed adoption in Ethiopia (Teklewold et al., 2006). Similarly, Zanu et al., (2012), reported that improved pig technology adoption was associated with increased number of contacts with extension officers, scientific alignment and training. Njuguna et al., (2017) who concluded that farmer access to trainings from the extension officers had significant effect on adoption of improved poultry technologies among smallholder farmers in Makueni and Kakamega Counties in Kenya. Gebremichael and Gebremedhin (2014) where farmer access to trainings from the extension officers had positive significant effect on adoption of improved box hive technology among smallholder farmers in Northern Ethiopia. Contact with extension officers positively influenced exotic chicken breed adoption in Ethiopia (Teklewold et al., 2006). Mapiye et al (2008), however indicated that training should be conducted by qualified and experienced personnel.

Gueye 2009, Riiseet *et al.*, (2004) states, the use of traditional technologies like free range rearing system where the chicken is reared under the natural conditions characterized by nil or minimal input, poor or no housing and lack of veterinary services was the likely cause of low indigenous chicken productivity. Owiro (2010) opined that use of appropriate and

improved technologies would result in increased productivity and income for small holder farmers. He further recommended that indigenous chicken technologies should be disseminated through an effective extension approach for improved productivity. The reviewed literature confirms the importance of extension and training on dissemination and adoption of improved agricultural technologies. None of the reviewed literature was specific on the effect of CIG training on adoption indigenous chicken technologies especially in the study area.

3. RESEARCH METHODOLOGY

The study adopted descriptive research design to analyse the effect of common interest group training on adoption of indigenous chicken production technologies. The design was preferred because it allowed for comparison among the variables during analysis. Moreover it enables easy interpretation of results thereby enhancing understanding. The target population were 291 indigenous chicken farmers who are members of 16 groups in Ainamoi Sub County. The other category were 5 key informers who were purposively selected to corroborate the information given their experience in poultry production. Kothari (2008) sample size formula was used to calculate the desired sample size of 117. Stratified sampling was then used to select desired number indigenous chicken farmers from each of the 16 CIGs. Simple random sampling was finally used to select individual farmers for interview from each group. All the key informants were interviewed while 3 groups were selected purposively for focused group discussion. Interview schedules were used to collect data from individual indigenous chicken farmers in Ainamoi Sub County, semi structured questionnaires used to collect data from key informants while focused group discussion guide used to collect data from the groups.

A research permit was sought from the National Commission for Science Technology and Innovation (NACOSTI) through a letter of introduction from the Board Graduate School, University of Kabianga. The permit was presented to the County Commissioner, Kericho County and the County Director of Education. The researcher then proceeded to make appointments with CIGs before collecting the Data. Appointments with the key informants were made through letters' to their specific departments or institution, requesting for their participation in the research. The researcher conducted face to face interviews for the sampled individual indigenous chicken farmers. The questionnaires was dropped and picked from the sampled extension agents. Sampled respondents was informed in advance to ensure that they are available and prepared.

Descriptive statistics was used to analyse the using frequencies and percentages data. Chi-Square statistics was used to test for the significance of the relationship between the variables respect to the dependent variable after subjecting the data to selected statistical tests. The results analyzed and then presented in tables, bar charts, graphs and figures.

4. RESEARCH FINDINGS AND DISCUSSIONS

The hypothesis of the study was that there is no significant effect of training on adoption of indigenous chicken production technologies in Ainamoi Sub County, Kericho County, Kenya. Table 1 presents results of the demographic characteristics (gender, age and education level) of indigenous chicken farmers.

Table 1: Demographic characteristics of the CIG members in Ainamoi Sub County

Variables	Attributes	Frequency(N=114)	Percent
Gender	Male	53	46.5
	Female	61	53.5
Age	Less than 36	25	21.9
	Between 36-50 years	46	40.4
	More than 50 years	43	37.7
Education level	No education	6	8.0
	Primary	41	54.7
	Secondary	25	33.3
	Tertiary	3	4.0

Source: Study Data, 2018.

The results show that 54.5% of CIG members were females while 46.5 were males. This imply that women participate more in farming activities but their relative percentage goes down as the activities become more formal, such as in extension activities. Therefore new and revitalized technologies and management practices, social and organizational innovations are required to explicitly engage women to unleash their potential as critical actors in shaping innovation systems especially those that favour them in the social settings (Riisgaard et al., 2010). Results also show that 78.1% were aged above 36 years. The average age was 45 years an indication that most farmers were mature and therefore were able to make farming decisions. This agrees with findings by Murekefu, 2013 who established that older people engage in rearing indigenous poultry. Furthermore, age is considered to be an important factor that influences the probability of farmers' adoption of the new technologies since it is a primary Latent characteristic in adoption (Machuki, 2013). Furthermore results revealed that 92% of the farmers had at least some basic education. This is an indication that most farmers were in a position to receive and utilize new ideas and knowledge to improve on their productivity. The findings is supported by Kuti (2015) who established that education had a positive and significant effect on use intensity of improved maize varieties in Osun State, Nigeria.

Table 2 presents results of common interest groups training on organizational development aspects.

Table 2: CIGs Trainings on organizational development aspects

Management skill	Response	Frequency	Percent
Leadership	Yes	77	67.5
	No	37	32.5
Decision making	Yes	91	79.8
	No	23	20.2
Cohesion	Yes	75	65.8
	No	39	32.2
Conflict resolution	Yes	80	70.2
	No	34	29.8

Source: Study Data, 2018

The results show that 79.8% of the respondents had been trained in decision making, 70.2% on conflict resolution, 67.8% on leadership and 70.2% on group cohesion. This implies that most CIGs had been trained on various organizational aspects. This was also confirmed by livestock officers who were the key informants who had indicated that training on management was done to ensure sustainability aspects of the CIGs. This findings agrees with the findings of Davis (2010) who found out that cohesion, leadership and better decision by the organization are important in adoption of technology. And further with Hartel et al., (2010) who acknowledged that groups with good social skills and open communication are in a comfortable position to a constructive conflict management and better performance. Therefore the training of CIG members on issues of organizational management as envisioned in the CIG Approach is seen to improve sustainability.

Figure 1 shows that 89 % of CIG members had been trained been on technical aspects of chicken production, that is 101 farmers out of 114 farmers were trained on production technologies. Training is a major component of the CIG approach that is why those who had received training were very high. After the CIG has been formed and trained on organizational capacity, extension officers move to train the CIG on the specific enterprise technologies (NALEP, 2011a). This is supported by (Mwobobia, 2016) who indicated that education and relevant skills are important in running of any business enterprise. Chicken farmers should therefore be trained in the following areas, disease and proper housing, feeding, value addition, budgeting, genetic improvement, marketing and the basic understanding of the chicken anatomy and physiology. Training gives CIG members the opportunity to share challenges, come up with opportunities and are likely to put to action what they learn, improving the adoption of the desired technologies (Mochama 2015).

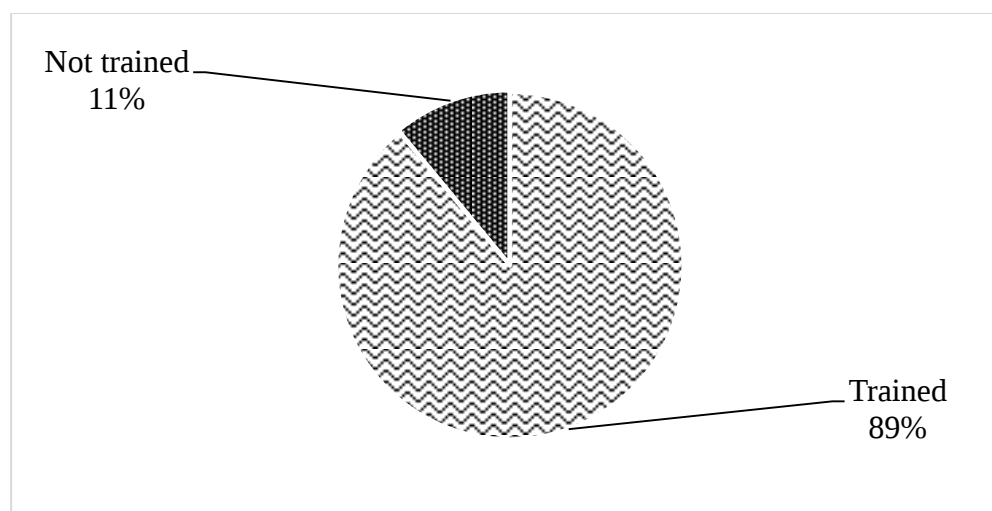


Figure 1: CIG members trained on indigenous chicken production technologies.

Source: Study Data, 2018

Table 3 show that, majority (37.7%) of the respondents indicated that training was on request, with 27.2% and 25.4% indicating that the trainings were held every 3 months and monthly respectively. Less than 10% indicated that they were trained once a year and every two weeks. This suggests that the extension officers need to make a deliberate effort to plan for trainings if uptake of technologies has to improve. The findings are supported by Mengesha (2013) who stated that contact with trainers is very crucial if adoption has to be successful, because it keeps the farmers interested and ensures they don't forget what they have learned. Agriculture being a devolved function in Kenya, County Department of Agriculture should improve on frequency of contact between extension officers and the farming community to facilitate technology adoption.

Table 3: Frequency of CIG trainings on technical aspects of indigenous chicken production

Frequency of trainings	Frequency	Percent
Every two weeks	8	7.0
Monthly	29	25.4
Every 3 months	31	27.2
On request	43	37.7
Once a year	3	2.6
Total	114	100.0

Source: Study Data, 2018

Table 4 presents indigenous chicken farmer's opinion on the extent to which CIG training affects adoption of chicken production technologies.

Table 4: Extent adoption of improved indigenous chicken due to training

Response	Frequency	Percent
Very great Extent	22	19.3
Great extent	43	40.4
Moderate Extent	29	22.8
Small Extent	12	10.5
Not at all	8	7.0
Total	114	100.0

N=114, mode = to a great extent

Source: Study Data, 2018

Results show that 19.3% agreed that trainings played a significant role in adoption of indigenous chicken technologies to a very great extent, 40.4% to a great extent, 22.8% to a moderate extent, respectively. Only 8% were of contrary opinion. This is supported by Degu, (2012) who reported that access to agricultural knowledge influences a farmer's decision to adopt a new innovation or technology. Contact with extension officers positively influenced exotic chicken breed adoption in Ethiopia (Teklewold et al., 2006).

Table 5 presents result of the Chi –Square test of the null hypothesis that CIG training has no significance effect on adoption of the indigenous chicken technologies.

Table 5: Chi-Square test on significance of CIG training on adoption of indigenous chicken Technologies

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.858	4	.003
Likelihood Ratio	11.942	4	.018
Linear-by-Linear Association	9.317	1	.002
N of Valid Cases	114		

Source: Study Data, 2018

The results show statistical significance ($\chi^2 = 15.858$, $df = 4$, $p = 0.003$) since the alpha value was set at 0.05. We therefore reject the null hypothesis (H_0) which states that CIG training has no significance effect on adoption of the indigenous chicken technologies and conclude CIG training significantly affect adoption of indigenous chicken technologies.

5. CONCLUSION AND RECOMMENDATIONS

Based on findings on CIG organizational development training, training on indigenous production technologies, opinion on the extent to which training affects adoption and Chi-square test of independence, the study concludes that CIG training has a significant effect on adoption of the indigenous chicken production technologies. The study therefore recommends frequent organized trainings on the various aspects of indigenous chicken production technologies especially feeding, housing and disease control for increased adoption and sustainable productivity hence increased income and food security.

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