Effectiveness of communication channels in dissemination of fall armyworm information on maize production in Kenya

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ABSTRACT
Effective communication channels have played an imperative role in the dissemination of information to farmers. This study sought to assess effectiveness of information communication channels used in dissemination of information on fall armyworms in maize production amongst farmers in Lugari-Kakamega County, Kenya. The study employed a descriptive research. Qualitative and quantitative data were collected through key informant's interviews, household questionnaires and focused group discussions. Radio was rated as the most effective channel. Extension agents were rated as accessible and disseminated authentic information to farmers. The study established a strong relationship between the formally employed farmers and phone, and television ownership which provided necessary income for acquisition of technologies. There was also a positive relationship between youth and computer/ laptop ownership. The study recommends that County governments should enhance dissemination of information via radio in both local and Kiswahili languages. There is also need for re-tooling of extension agents on modern pest control methods.

Key words: Fall armyworms, information communication channels, Kenya, maize production

RÉSUMÉ
Des canaux de communication efficaces ont joué un rôle essentiel dans la diffusion de l'information aux agriculteurs. Cette étude visait à évaluer l'efficacité des canaux de communication de l'information utilisés dans la diffusion d'informations sur les chenilles légionnaires d'automne dans la production de maïs parmi les agriculteurs du comté de Lugari-Kakamega, au Kenya. L'étude a utilisé une recherche descriptive. Des données qualitatives et quantitatives ont été recueillies au moyen d'entretiens avec des informateurs clés, de questionnaires destinés aux ménages et de discussions de groupe ciblées. La radio a été classée comme le canal le plus efficace. Les agents de vulgarisation ont été jugés accessibles et ont diffusé des informations authentiques aux agriculteurs. L'étude a établi une relation étroite entre les agriculteurs employés formellement et la possession d'un téléphone et d'une télévision qui ont fourni les revenus nécessaires à l'acquisition de technologies. Il y avait aussi une relation positive entre les jeunes et la possession d'un ordinateur/portable. L'étude recommande que les gouvernements des comtés améliorent la diffusion de l'information par radio dans les langues locales et Kiswahili. Il est également nécessaire de ré-outiller les agents de vulgarisation sur les méthodes modernes de lutte antiparasitaire.

Mots clés: Chenilles légionnaires d'automne, canaux de communication de l'information, Kenya, production de maïs

INTRODUCTION

Information communication channels play key role in information dissemination especially to farmers. However, assessment of the effectiveness of communication channels in information dissemination in the agriculture sector has been a challenge in Kenya and other African countries (Mburu, 2013). The rapid use of various communication channels to disseminate agricultural information to farmers on various agricultural activities by governments and other agriculture sector stakeholders has played a tremendous role in making information accessible to farmers to enhance production (Achebe and Lucky, 2013). Radio is a major communication channel and dissemination tool accessed by many farmers especially in rural areas. Other information communication channels include television, mobile phones, mobile applications, short message service (SMS), and internet (Adam, 2002).

Agriculture has been a major contributing sector for economic development in several countries. According to Shepande (2010), a well performing agricultural sector translates into significant improvements in the country's Gross Domestic Product (GDP), contributes to employment generation, and broadens the country's tax base. Hans (2015) also contended that the African economy is primarily based on the agriculture sector, which employs most of the Continent's population, especially in rural areas. Given that the livelihood of the majority of people in Kenya depend on agricultural-related activities, the sector when well developed, should contribute quite significantly to the welfare and economic development of the country (Shepande, 2010). Majority of people involved in agricultural activities are the rural poor in the country and consequently operate on a small scale basis mostly due to lack of capital.

Maize in Kenya is a staple food hence it is important to majority of the population.

Most small-scale farmers engaged in maize production therefore need information for proper crop management due to a myriads of challenges involved. These challenges include Maize Lethal Necrosis Disease (MLND), unreliable rainfall, drought stress, flooding, increasing soil acidifications, climate change that has interfered with planting cycles and as well as the fall armyworm (FAW) (Food and Agricultural Organisation (FAO), 2017; National Potato Council of Kenya (NPCK), 2017). Agricultural extension is defined by Adams (1982) as assistance given to farmers to help them to identify and analyze their production problems and to become aware of the opportunities for improvement. . The Kenya extension officer to farmer ratio is among the highest in East Africa. However, there is need for other information interventions to support extension led information sources amongst farmers due to the high extension farmer ratio (Gundu, 2016).

As the need for information on agricultural practices and challenges increase, more communication channels are needed to support information dissemination. Accordingly, governments, non-governmental organizations extension officers and other technocrats in the agricultural sector have turned their attention to e effectiveness of communication channels in information dissemination. Of recent, FAW has caused wide spread damage to maize and other cereals grown. Assessing the effectiveness of communication channels in dissemination of information on FAW amongst maize farmers is therefore imperative in determining the best communication channel to be used. According to Abubakar *et al*. (2009) agricultural information has been disseminated variedly using different communication channels with the most notable being media channel such as television and radio. Crandall (2012) asserts that dissemination of information on the fall armyworm is critical to smallholder farmers growing maize so as to asert food insecurity in case of maize invasion by the pest.

Factors influencing choice of communication channels amongst maize farmers. This research study was centered on the diffusion theory by Rogers (1995). The theory offers robust information and knowledge on information diffusion process where innovation is communicated via different channels over a given period to people from a particular social system. There are five established adopter categories according to Rogers; theory of Diffusion of Innovation: innovators, early adopters, early majority, late majority, and laggards. The diffusion of innovations theory refers to the process of passing a new idea among members of a community over a given period by focusing on awareness, knowledge, attitude change and decision-making process that leads to the adoption or non-adoption of an innovation (Tucker and Napier, 2002). While the majority of the general population tends to fall in the middle categories, it is still necessary to understand the influence that information and information communication channels have on the different characteristics of the target population.

Accordingly, this study aimed to identify the most effective communication channels for fall armyworm information, and to identify the most preferred channel used by the different adopter categories. Adoption of a technology may be measured by b0th the timing and extent of new technology utilization by individuals (Feder and Savastano, 2016). Rogers (1995) identified the cost, relative advantage, complexity and compatibility as characteristics which influence adoption of an innovation. A better understanding of the processes by which new knowledge diffuses within and across societies and communities can suggest actions and investments that can be undertaken by governments and sector players with the aim to promote emerging innovations (Feder and Savastano, 2006).

MATERIALS AND METHODS
The study area, Lugari in Kakamega County in Kenya was specifically sampled as there were fall army worms attacks among maize farmers in the area. The randomly sampled population included key informants from three seed companies (Western Seed Co, Pannar Seed Co and Kenya Seed Co), and two key informants from Ministry of Agriculture, extension staff and KALRO (Kenya Agricultural and Livestock Research Organization) staff. The study targeted a population of 250 maize farmers, with a sample size of 155 maize farmers Kothari (2010).

Under probability sampling, the study used systematic sampling method to find the nth number, so that every nth household from the first household which was picked randomly as selected as part of the sample till the 155 number of the sample size was attained. A semi-structured questionnaire was used to collect data f m knowledgeable respondents who knew the household agriculture activities, and they represented their households. The study used descriptive statistics in ich quantitative data were entered and coded in Microsoft Excel 2016 version and later exported to Statistical Package for Social Sciences (SPSS) version 22 for data processing and analysis. Data were then presented in graphs, tables, percentages, standard deviation and frequencies.

RESULTS AND DISCUSSION
Respondents' gender. Among the 155 farmers interviewed, 55 % were female. The above finding is in line with Diiro (2018) who stated that agriculture in Kenya has a female face as it has women as the majority of the farmers. Therefore information dissemination and information communication channels should factor in the characteristics of women for targeted communication. Further, 65 % of the respondents had families sizes of 1-5 members, 33 % had family sizes of 6-10 members while 3 % had families with more than 11 members. The larger the families size the more ICTs tools that the family is bound to own which increases access to various information communication channels.

Table I shows the distribution of respondents by their highest education level. The findings indicated that 48% had secondary school qualification, while 27% had primary school qualification. The findings further indicate that 20% of the respondents reached tertiary level education with only 5% having no education at all. These findings are similar to those reported by Oduro- ofori et al. (2015) who also indicated that farmer's highest education level in the study area was secondary school level. The educational levels of farmers influence the farmer's productivity levels as the higher the educational levels of the farmer, the higher the agriculture production levels.

Table 1. Distribution of respondents according to their highest education level

Highest education level	Frequency	percentage
No education	4.5	7%
Primary education	26.5	41%
Secondary education	48.4	75%
Tertiary education	20	31%
Others (Specify)	0.2	1%
Total	100	115

Figure 1 shows the occupation level of respondents, and indicates that the majority (770) were engaged in farming. According to Baum (2007) agriculture is one of the dominant activities for the rural population, with 62% of farmers relying on agricultural activities as their source of in me. This emphasizes the need for rural farmers to be given agriculture support through adequate and timely agricultural information using effective information communication channels which would facilitate higher agriculture production levels.

Relationship between gender, highest education level, area of residence ownership of a phone and television by the respondents is shown in Table 2. The results show that out of the 69 men interviewed 73.9 % had phones while 40.6 % had televisions. Out of the 86 females interviewed, 78 % had phones and 37 % had televisions. There was no statistically significant relationship between gender of the respondent and ownership of phone and television.

Table 2 also shows that the majority of the respondents with tertiary education had phones
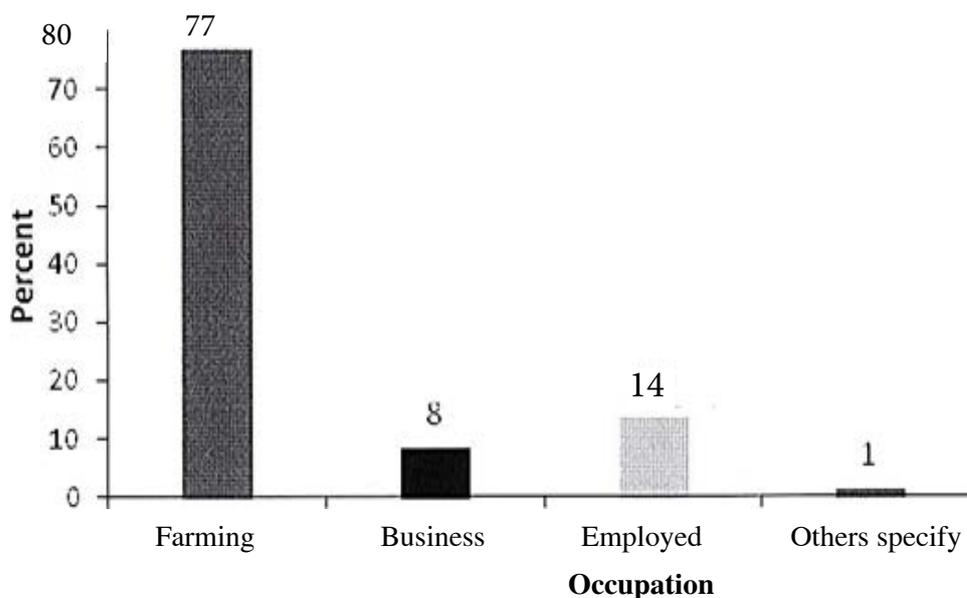
Figure 1. Percent distribution of respondents by occupation

(68%), followed by respondents with secondary education level (19%). Most respondents with primary education level had no phones. Only 10% of the respondents with no education had a television. The findings established that there was a statistically significant relationship between the education level of the respondent and owning a phone or television. Also, the results show a very strong statistically significant relationship between employment status of the respondents and ownership of a phone or television with most employed respondents owning phones and television.

Table 3 shows that of the 155 respondents interviewed 69 men were interviewed and 87 % had phones while 90 % did not have computers/ laptops. For the 86 females interviewed, 87 % had radios, while 97% had no computers. Table 3 also shows that majority of the respondents (88%) who had radios had secondary education level, followed by respondents with primary education level (80%). On the other hand, the majority of the respondents (26%) who owned computers/laptops had tertiary education levels followed by 3% with secondary education levels. All the respondents with primary and no education had no computers/ laptops. Therefore, there exists a strong relationship between ownership of a computer/laptop and the respondent's education level. Table 3 further shows that all respondents from Munyiki had no radios (100 %). The majority of the respondents who had phones were from Marakusi (88%), followed by respondents from Mbagara (54%). On the other hand, the majority of respondents who had computers/laptops were also from Marakusi (7 %).

Table 2. Relationship between gender, educational level, area of residence and occupation of the respondents with ownership of a phone and television (P-Value=0.05)

Social-Demographic Factors	Ownership of Mass Media Communication Channels (Devices)				
	Phones		Television		Number of Respondents
	Yes	No	Yes	No	
Gender					
Male	51 (73.9%)	18 (26.1%)	28 (40.6%)	41 (59.4%)	69
Female	67 (77.9%)	19 (22.1%)	32 (37.2%)	54 (62.8%)	86
Pearson Chi-Square valu (2-sided)	0.562		0.669		
Highest Education Level					
No Education	0 (0%)	8 (100%)	1 (10.0%)	7 (90%)	8
Primary Education	2 (4.9%)	39 (95.1%)	6 (14.6%)	35 (85.4%)	41
Secondary Education	14 (18.7%)	61 (81.3%)	29 (38.7%)	46 (61.3%)	75
Tertiary Education	21 (67.7%)	10 (32.3%)	24 (77.4%)	7 (22.6%)	31
Pearson Chi-Square					
value (2-sided)	0.000		0.000		
Area of Residence					
Marakusi	30 (25.4%)	88 (74.6%)	45 (38.1%)	73 (61.9%)	1 18
Mautuma	2 (50.0%)	2 (50.0%)	2 (50.0%)	2 (50.0%)	4
Mbagara	3 (12.0%)	22 (88.0%)	7 (28.0%)	18 (72.0%)	25
Munyuki	0 (0%)	I (100%)		I (100%)	1
Sipande	2 (28.0%)	5 (71.4%)	2 (28.0%)	5 (71.4%)	7
Pearson Chi-Square vaue (2-sided)	0.215		0.302		

Occupation

Business	8 (38.1%)	13 (61.9%)	16 (76.2%)	5 (23.8%)	21
Employees	8 (61.5%)	5 (38.5%)	8 (61.5%)	5 (38.5%)	13
Farming	101 (84.9%)	18 (15.1%)	85 (70.6%)	36 (29.4%)	121
Pearson Chi-Square value (2-sided)	0.000		0.000		155

Table 3. Relationship between gender, highest education level, area of residence and occupation of the respondent with ownership of a radio and computer/laptop

Social-Demographic Factors	Ownership of Mass Media Communication Channels (Devices)				
	Radio		Computers/Laptops		Number of Respondents
Gender	**Yes**	**No**	**Yes**	**No**	
Male	60 (87.0%)	9 (13.0%)	7 (10.1%)	62 (89.9%)	69
Female	75 (87.2%)	11 (12.8%)	3 (3.5%)	83 (96.5%)	86
Pearson Chi-Square value (2-sided)	0.963		0.940		
Highest Education Level					
No Education	8 (85.7%)	1 (14.3%)	0 (0%)	8 (100%)	8
Primary Education	33 (80.5%)	8 (19.5%)	0 (0%)	41 (100%)	41
Secondary Education	66 (88.0%)	9 (12.0%)	2 (2.7%)	73 (97.3%)	75
Tertiary Education	29 (93.5%)	2 (6.5%)	8 (25.8)	23 (74.2%)	31
Pearson Chi-Square value (2-sided)	0.565		0.000		
Area of Residence					
Marakusi	104 (88.1%)	14 (11.9%)	9 (7.6%)	109 (92.4%)	118
Mautuma	3 (75.0%)	1 (25.0%)	0 (0%)	4 (100%)	4
Mbagara	14 (56.0%)	11 (44.0%)	0 (0%)	25 (100%)	25
Munyuki		1 (100%)	0 (0%)	1 (100%)	1
Sipande	6 (85.7%)	1 (14.3%)	1 (14.3%)	6 (85.7%)	7
Pearson Chi-Square value (2-sided)	0.638		0.360		
Occupation					
Business	12 (92.3%)	I (7.7%)	2 (15.4%)	11 (84.6%)	21
Employees	19 (90.5%)	2 (9.5%)	4 (19.0%)	17 (81.0%)	13
Farming	103 (85.7%)	18 (14.3%)	5 (3.4%)	116 (96.6%)	121
Pearson Chi-Square value (2-sided)	0.795		0.026		155

As depicted in Table 4, most of the respondents aged 36-55 years had radios (88%), followed by respondents aged above 55 years(86%) and lastly those aged 18-35 years (85%). On the other hand, the majority of the respondents (19 %) who had computers/laptops were in the age-group of 18-35 years followed by respondents aged above 55 years (7%). The study found a statistically significant relationship between age of the respondent and ownership of a computer/laptop. Table 4 further shows that the majority of the respondents who had

radios were married (89%), while most of the respondents who did not have radios were single (80%). On the other hand, the majority of the respondents who had computers/laptops were also married at (6%) while all the respondents who were divorced had no computers/ laptops (100%). However, the study found no significant relationship between marital status of the respondent and ownership of a radio, but found a strong relationship between age and ownership of a computer/laptop.
Furthermore, most of the respondents who had radios were from family sizes of 1-5 members

(10%). On the other hand, all the respondents from family sizes of more than I l members had no computers/ laptops (0 %). The study found that there is a statistically significant relationship between family size of the respondent and ownership of a radio and computer/laptop. Lastly, Tables 3 and 4 also show that most of the respondents who had radios were farmers (85 %).

Table 5 shows the relationship between age, marital status and the family size of the respondent and ownership of a radio and

Table 4. The relationship between gender, highest education level, area of residence and occupation of the respondent and ownership of a radio and computer/laptop

Social-Demographic Factors	Ownership of Mass Media Communication Channels (Devices)				
	Radio		Computers/Laptops		Number of Respondents
Gender	Yes	No	Yes	No	
Male	60 (87.0%)	9 (13.0%)	7 (10.1%)	62 (89.9%)	69
Female	75 (87.2%)	11 (12.8%)	3 (3.5%)	83 (96.5%)	86
Highest Education Level					
No Education	8 (85.7%)	1 (14.3%)	0 (0%)	8 (100%)	8
Primary Education	33 (80.5%)	8 (19.5%)	0 (0%)	41 (100%)	41
Secondary Education	66 (88.0%)	9 (12.0%)	2 (2.7%)	73 (97.3%)	75
Tertiary Education	29 (93.5%)	2 (6.5%)	8 (25.8)	23 (74.2%)	31
Pearson Chi-Square value (2-sided)	0.565		0.000		
Area of Residence					
Marakusi	104 (88.1%)	14 (11.9%)	9 (7.6%)	109 (92.4%)	118
Mautuma	3 (75.0%)	1 (25.0%)	0 (0%)	4 (100%)	4
Mbagara	14 (56.0%)	11 (44.0%)	0 (0%)	25 (100%)	25
Munyuki	0 (0%)	1 (100%)	0 (0%)	1 (100%)	1
Sipande	6 (85.7%)	1 (14.3%)	1 (14.3%)	6 (85.7%)	7
Pearson Chi-Square value (2-sided)	0.638		0.360		
Occupation					
Business	12 (92.3%)	1 (7.7%)	2 (15.4%)	11 (84.6%)	21
Employees	19 (90.5%)	2 (9.5%)	4 (19.0%)	17 (81.0%)	13
Farming	103 (85.7%)	18 (14.3%)	5 (3.4%)	116 (96.6%)	121
Pearson Chi-Square value (2-sided)	0.795		0.026		155

computer/laptop. As shown, most of the respondents aged 36-55 years (88%) had radios, followed by respondents aged above 55 years (86 %) and lastly those aged 18-35 years (85%). On the other hand, the majority of the respondents who had computers/laptops were in the age-group 18-35 years (19%) followed by respondents aged above 55 years (7%). The study found no statistically significant relationship between the age of the respondent and ownership of radio and computer/laptop, whereas the relationship between age of the respondent and ownership of a computer/ laptop was statistically significant. Table 5

further shows that majority of the respondents who had radios were married (89 %), while most of the respondents who did not have radios were single (80 %). On the other hand, the respondents who had computers/laptops were also married (6%). The study found a strong relationship between age and ownership of a computer/laptop.

Most of the respondents who had radios were from family sizes of 1-5 members (10 %). On the other hand, all the respondents from family sizes of more than I l members had no computers/laptops. The majority of

Table 5. The relationship between age, marital status and family size of the respondent with ownership of a radio and computer/laptop

Social-Demographic Factors	Ownership of Mass Media Communication Channels (Devices)				
	Radio		Computers/Laptops		Number of Respondents
Age	**Yes**	**No**	**Yes**	**No**	
18-35	18 (85.7%)	3 (14.3%)	4 (19.0%)	17 (81.0%)	21
36-55	80 (87.9%)	11 (12.1%)	3 (3.3%)	88 (96.7%)	91
0ver 55	37 (86.0%)	6 (14.0%)	3 (7.0%)	40 (93.0%)	43
Pearson Chi-Square value (2-sided)	0.936		0.032		
Marital Status					
Divorced	2 (100%)	0 (0.0%)	0 (0.0%)	2 (100.0%)	2
Married	120 (89.6%)	14 (10.4%)	8 (6.0%)	12 (94.0%)	134
Single	4 (80.0%)	1 (20.0%)	2 (40.0%)	3 (60.o%)	5
Widowed	9 (64.3%)	5 (35.7%)	0 (0%)	14 (100.0%)	14
Pearson Chi-Square value (2-sided)	0.052		0.015		
Family size					
1-5 members	10 (10.0%)	90 (90.0%)	6 (6.0%)	94 (94.0%)	100
6-10 members	7 (14%)	43 (86.0%)	4 (8.0%)	46 (92.0%)	50
11+ members	3 (60.0%)	2 (40.0%)	0 (0.0%)	5 (100.0%)	5
Pearson Chi-Square value (2-sided)	0.003		0.049		155

the respondents who had computers/laptops were from family sizes of 1-5 members (6%). The study found that there was a statistically significant relationship between family size of the respondent and ownership of a radio and computer/laptop.

The effectiveness of the various mass media channels used in disseminating information on fall armyworms to maize farmer is shown in Table 6. In general the majority (58%) rated radio as most effective channel in FAW information dissemination followed by mobile text messages (45 %). Emails and web portal were rated as least effective.

Table 7 shows the accessibility, acceptability, authenticity, credibility, familiarity, usability likability and interactivity of mass media communication channels as perceived by the respondents. The results show that telephone calls were most liked (43 %) and interactive (43 %) as a means of mass media communication channel.

Table 8 depicts the effectiveness rate of inter-personal communication channels. Results showed that to a very great extent (90 %) the respondents rated fellow farmers as the most effective inter-personal communication channel, followed by agro dealers (63 %) and peers (58%). Extension officers/ agents (45 %) were rated low in effectiveness in FAW information dissemination.

Table 6. Effectiveness of mass media channels used in disseminating information on fall worms among maize farmers

Social-Demographic Factors	Ownership of Mass Media Communication Channels (Devices)		
	Radio	Computers/Laptops	Number of Respondents
Television	0.6	48.4	51
Radio	87.1	12.9	0
Newspaper	1.9	92.9	5.2
CD/DVD	0.0	33.6	66.5
Telephone Calls	72.9	25.9	1.3
Farmers Magazine	0.0	6.5	93.5
Internet	2.6	45.1	52.3
Web Portal	0.0	3.2	96.8
Mobil App	0.0	1.9	98.1
Mobile Text messages	64.6	33.5	1.9
Email	0.0	3.2	96.8

Table 7. Accessibility, acceptability, authenticity, credibility, familiarity, usability likability inter-activity of mass media communication channels

	Television	Radio	Newspaper	Telephone Calls	Farmers Magazine	Internet	Mobile App	Mobile Text Messages
Accessibility	18 (11.6%)	38.7%)	2 (1.3%)	30 (19.4%)	1 (0.6%)	2 (1.3)	0 (0.0%)	42 (27.1%)
Acceptibility	10 (6.5%)	60 (38.7%)	3 (1.9%)	43 (27.7%)	0 (0.0%)	4 (2.6%)	7 (4.5%)	28 (8.1%)
Authenticity	42 (27.1%)	52 (33.5%)	2 (1.3%)	11 (7.1%)	1 (0.6%)	2 (1.3%)	20 (12.9%)	25 (16.1%)
Familiarity	45 (29%)	57 (36.8%)	2 (1.3%)	24 (15.5%)	3 (1.9%)	2 (1.3%)	9 (5.8%)	13 (8.4%)
Usability	9 (5.8%)	32 (20.6%)	2 (1.3%)	42 (27.1%)	I (0.6%)	2 (1.3%)	0 (0.0%)	67 (43.2%)
Likeability	10 (6.5%)	45 (29.0%)	3 (1.9%)	66 (42.6%)	1 (0.6%)	2 (1.3%)	0 (0.0%)	28 (18.1%)
Interactivity	0 (0.0%)	40 (25.8%)	0 (0.0%)	67 (43.2%)			I (0.6%)	47 (30.3%)
Reliability	18 (11.6%)	52 (33.5%)	2 (1.3%)	30 (19.4%)	I (0.6%)	2 (1.3)	8 (5.2%)	42 (27.1%)

Table 8. The effectiveness rate of inter-personal communication channels used in information dissemination on fall army worm among maize farmers

Inter-personal communication channel	Rate of effectiveness in FAW information dissemination				
	Very great extent	Great extent	Moderate extent	Low extent	Very low extent
Extension Officer/Agent	0 (0%)	8 (5.2%)	49 (31.6%)	70 (45.2%)	28 (18.1%)
Peer	90 (58.1%)	45 (29%)	20 (12.9%)	0 (0.0%)	0 (0.0%)
Fellow farmers	140 (90.3%)	15 (9.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Agro Dealers	98 (63.2%)	45 (29%)	12 (7.7%)	0 (0.0%)	0 (0.0%)

CONCLUSION AND RECOMMENDATION

The study examined the level of effectiveness of the communication channels used in information dissemination on FAW to maize farmers in Kenya. There was a strong relationship between ownership of a computer/laptop and the respondent's education level, occupation and age. In addition, the study also found a statistically significant relationship between family size of the respondent and ownership of a radio and computer/laptop. However, the study found no statistically significant relationship between gender and ownership of a television.

While considerable efforts have been made by the Government of Kenya to disseminate information on FAW, care should be taken to establish the effectiveness of different communication channels used in information dissemination. The study however established that radio was the most effective communication channel in information dissemination on FAW to maize farmers in Lugari, Kakamega County. A greater percentage of farmers therefore rely on information from the radio followed by text messages for communication. Lastly, the study found out that communication between farmers was the most effective inter-personal communication channel for disseminating information on FAW.

In a bid to strengthen effectiveness of communication channels used in disseminating

information on FAW, extension officers should be trained on efficient communication kills as well as about FAW so as to create awareness. This study consequently recommends that the Kenya Ministry of Agriculture and Technology in conjunction with the Ministry of Information and Technology should work on modalities of ensuring that radio is made accessible to maize farmers as it is the most effective communication channel. This can be achieved through rural electrification to ensure constant supply of power for the radios. The study further recommends use of phones by the Government extension officers in disseminating information on FAW.

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The authors declare that there is no conflict of interest in this paper.

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