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The Effect of Communication Channels used between Extension Officers and Farmers on the Adoption of Irish Potato Farming.

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Abstract

This study was an investigation of the effect of communication channels used between extension officers and farmers on the adoption of Irish potato farming. The problem of this study was that past studies had limited focus on effect of communication channels used between extension officers and farmers on adoption of Irish potato farming, hence a gap that demands specific studies to be carried out in order to fill it. The study's general objective was to determine the effect of communication channels used between extension officers and farmers on the adoption of Irish potato farming. The target population for this descriptive study comprised farmers from four sub-locations (Kimbo, Gathuine, Kiamiogo, Mburugiti) of Kibirichia Ward in Meru County and all the three extension officers involved in the production of Irish potato crop. From the sampling frame, respondents were selected using purposive sampling. Farmers who took part in focus group discussions were selected using homogeneous sampling. Total population sampling method was used to take the total population of the three extension officers

that train Irish potato farmers in the four sub-locations in Kibirichia Ward. One focus group discussion and one in-depth interview were conducted from each sub-location in Kibirichia Ward. Using qualitative methods in data analysis, focus group and interview data was transcribed, coded and categorized into relevant themes and sub-themes and possible and plausible explanations of the findings drawn. Findings of this study revealed that the mass media and interpersonal channels of communication used for information exchange between farmers and extension officers enhanced adoption of Irish potato farming. The mass media used were posters, leaflets and letters while interpersonal communication channels included meetings or *barazas*, demonstrations, mobile phone calls, SMS, seminars, field days and workshops. Further, farmers reported that they understood extension information disseminated through the communication channels because they created an enabling environment for information exchange (feedback). The use of mass media and interpersonal channels to communicate extension information, lead to high adoption of agricultural innovations. The researcher recommended that there is need to find the effect of communication channels used between extension officers and farmers on the rate of adoption on Irish potato farming.

Keywords: Communication Channels, Share Meaning, Adoption, Mass Media, Interpersonal Communication Channels.

Introduction

Communication and knowledge are very vital in adoption of innovations but where these are poorly disseminated as a result of poor delivery, agricultural production becomes highly impeded (Oakley & Garforth, 1985; Obidike, 2011; Onasanya et al., 2006). Early agricultural extension relied on direct communication with famers. However, changes in society have resulted in the use of diverse communication channels (Okwu & Daudu, 2011). Gamble and Gamble (2010) classifies communication channels according to: (1) the senses that carry or receive the message, (2) if the message is verbal or nonverbal or both, and (3) the primary means of communication used to deliver information, whether face-to-face communication, computer-mediated communication, telephone communication and text messaging or mass media. Age et al. (2012) however, categorizes communication channels into physical channels, non-physical channels, technical channels and token of communication channels.

All channels of communication are not equally useful in attaining the same purpose. The channel chosen relies on the total communication situation, that is, the source, receiver and the message. Different roles are played by different channels of disseminating agricultural information. The roles of channels also vary according to the stages of the adoption process. Mass media channels are important in transmitting information, creating awareness or changing cognition, giving timely advice about the occurrence of disease and pest outbreaks together with urgent advice on what farmers should do. Interpersonal channels on the other hand, bring about attitude change to farmers (Oakley & Garforth, 1985; Rogers & Nichof, 2002). Similarly, Rogers (2003) in the diffusion of innovation theory asserts that interpersonal communication channels are powerful to create and change a person's attitudes. Rogers also notes that communication that takes place through interpersonal communication channels may have the characteristic of being homophily or heterophily. If the participants are heterophilous, then it poses problems in diffusion of innovations. Interpersonal channels, according to Dominick (1999), allow immediate feedback whereas delayed feedback is one of the characteristics of mass communication.

Selection of a communication channel is important. This is because there is a relationship between communication channel and communication effectiveness. The transmission of information through a communication channel affects the meaning of the message. Each channel of communication has distinct features which makes it suitable for certain situations and not others (Lengel & Draft, 1988). Guo and Sanchez (2005) also assert that there is symbolic meaning in the choice of a medium of communication beyond the content of the message. "The medium is the message," a statement by Marshall McLuhan means that the choice of channel determines the way the message will be understood (Federman, 2004).

In Kenya, Irish potato is an important food crop second to maize because of its high nutritional value and its adoption to a variety of production environments (Laititi, 2014). Potatoes are produced in the cool highlands mostly by small-scale farmers under rain-fed conditions. These areas include: Mt. Kenya region (Meru Central, Nyeri, Embu, Kirinyaga, Laikipia and Nyandarua), Aberdares and Eastern Rift Valley, Mau, Mt. Elgon and other highlands such as Taita Taveta (Kaguongo et al., 2008). The national production of Irish potatoes in Kenya is however far below the potential. FAO (2008) reports that in past years, the national average potato yields for Kenya was 9.5 tonnes per hectare but the figure has since then reduced to 7.5 tonnes per hectare. Low yields of Irish potatoes in Kenya have been attributed to failure to use clean seeds, under and over use of fertilizers, fungicides and lack of water for irrigation (Wang'ombe & Dijk, 2013). These do not include communication channels which could be a principle cause, hence a gap that demands specific studies to be carried out in order to fill it.

Thus, this study investigated the effect of communication channels used between extension officers and farmers on adoption of Irish potato farming in Meru County.

Theoretical Framework: Diffusion of Innovation Theory

Diffusion of innovation theory originated in the field of communication and was developed by Everett M. Rogers in 1962. Diffusion is the process in which a new idea is transmitted through certain media over a period of time to members of a social system. The theory states that the sources of a new idea (opinion leaders) should be unbiased, trustworthy to the adopters. The four main elements in the diffusion of new ideas are innovation, communication channels, time and social system.

An innovation is an idea, practice or object that is perceived as new by an individual(s) (Rogers, 2003). There are five qualities that determine the spread and adoption of an innovation: (1) Relative advantage which is the degree a social system perceives an innovation as better than the idea it supersedes, (2) Compatibility is the degree to which an innovation is perceived to be consistent with a social system's values, past experiences and needs, (3) Simplicity is the degree to which an innovation is perceived as easy to understand and use, (4) Triability which is the degree to which an innovation can easily be experimented with on a limited basis, and (5) Observability which is ease to see results of the innovation.

In regard to this theory, communication channels are the means through which messages are transmitted from the sender to the receiver (Rogers, 2003). Rogers asserts that mass media channels are fast and effective in creating awareness of innovations whereas interpersonal channels are effective in creating and changing attitudes towards an innovation thus influencing the decision to adopt or reject an innovation. Mass media messages reach large audience who

are scattered in a large geographical area whereas use of interpersonal channels change agents are able to persuade people to adopt the innovation.

Time is involved in the diffusion process in three ways. First, it is involved in innovation decision making which is a mental process through which an individual(s) go through from the initial knowledge about the innovation, to forming an attitude, making a decision to accept or reject, implementation and confirmation of the decision. In the innovation-decision process an individual seeks information in five stages: Knowledge, persuasion, decision, implementation and confirmation. Second, time is involved in innovativeness which is the degree to which an individual or other unit of adoption is relatively earlier in adopting ideas than other members of a social system. Third, the rate of adoption which is the relative speed with which an innovation is adopted by members of a social system.

A social system is a set of interrelated units that are engaged in joint problem solving to accomplish a common goal. The structure of a social system can have an influence on the spread of an innovation. It can either deter or facilitate the rate of diffusion and adoption of innovations. A social system also has norms, social statuses, hierarchy that influence people's behavior (Chi & Yamada, 2002). Similarly, Oakley and Garforth (1985) assert that in agricultural extension the adoption of new ideas involves farmers, groups of farmers or whole communities. Rogers asserts that the nature of social systems is either heterophily or homophily.

Methodology

Research Design

This study adopted the cross-sectional, qualitative descriptive design. This design takes place at a single point in time. Descriptive research attempts to describe, explain and interpret conditions and processes of the present and to examine a phenomenon that is occurring at a specific place and time (Kasomo, 2006). This research design was appropriate for the qualitative study on adoption of Irish potato farming in Kibirichia Ward because it was possible to ascertain the current level of adoption among farmers.

Instruments

The main data collection instruments for this study were one-on-one in-depth interview and focus group schedules. The one-on-one interviews entailed open-ended questions about the topic under study. Additionally they provided both the interviewer and interviewee the opportunity to discuss some topics in depth. The researcher prepared a list of open-ended questions to be covered during the FGD. The open-ended discussions required explanations, descriptions and narrations on shared meaning in the adoption of Irish potato farming.

Sampling Procedure

Focus group discussions respondents were purposively selected. Participating farmers were selected using homogeneous sampling, which is an approach of purposive sampling. The sub-chief of each location assisted in identifying nine farmers from their sub-location to be included in the focus group discussions. In-depth interviewees were selected using total population sampling which is also a technique of purposive sampling. Consequently, the research interviewed all the three Kibirichia Ward extension officers.

Data Collection Procedure

Data gathering was done through administration of interview schedules in one-on-one (O-O-O) interview with three key informants and interview guides in four Focus Group Discussion (FGDs) one in each sub-location of Kibirichia Ward, namely, Kimbo, Mburugiti, Kiamiogo and Gathuine. Before the interview sessions begun, the researcher informed the respondents about the study details and gave them assurance about ethical considerations, such as, confidentiality and anonymity. The researcher also strove to build a rapport with the respondents before the interview, to help them relax. Permission was sort from the interviewee(s) to use a tape recorder. Respondents were asked identical open-ended questions in the same sequence without the interviewer influencing the process. At the end of the interview, the researcher thanked the respondents and asked them if there was any information that they would like to add.

Results and Discussion

Demographic Information

Most of the farmers in this study ranged between 40-70 years of age while minority were between 20-30 years and one was 80 years old. Female farmers were more than the male in the Focus Group Discussions (FGD). Majority of the farmers had an experience of 10-19 years in Irish potato farming. Some women respondents claimed to have been born and brought up in other areas which did not cultivate Irish potatoes and were married in Kibirichia Ward where they practice Irish potato farming. Majority of the farmers had attained secondary education followed by those with primary education and a minority were either university graduates or had no formal education.

All the agricultural extension officers in Kibirichia Ward were in age brackets 52-54 years. Two of the officers were males while one was a female and they all had 8-10 years of working experience in Kibirichia Ward. All the extension officers were college graduates with two having attained a diploma while the third one had a Certificate in Agriculture.

Mass Media Used

Mass media used to disseminate extension information on Irish potato farming were posters, leaflets and letters. Farmers from Kiamiogo stated that information on Irish potato farming was disseminated through posters, letters and leaflets while Gathuine farmers got information through leaflets distributed by the extension officers. For example, one farmer said, *"Extension officers write letters which are distributed and read out to the farmers."* Kimbo farmers however, asserted they that received messages through posters only. One respondent said:

When extension officers have planned a one day farm visit, they put up posters to inform us of the event. For example, when they plan to use Mr. Marangu Kurea's farm to conduct a demonstration, they put up posters to notify the farmers.

All the farmers, however, were categorical that they did not receive messages on Irish potato farming through the newspaper, magazines, radio or television.

Similar to the farmers' responses, extension officers pointed out that they mainly communicated to the farmers using letters, leaflets and posters. *"Actually we have been using posters and also writing letters through the churches and schools in order to reach out to farmers. Letters are normally addressed to the farmers through the church chairmen,"* one extension

officer said. However, main stream mass media was also used to communicate to farmers albeit marginally. For instance, one extension officer reported that information on Irish potato farming was also communicated through the radio, television and newspapers especially when the Meru County government occasionally provides finances to support field days for farmers. In such cases, farmers are informed about meetings through the local media channels like the Meru County newspaper, the Meru Television Stations like Muuga Television Channel, and radio stations such as Muuga FM. The extension officer also reported:

When it is our own local meetings, we print advertisements about the meeting on A4 papers. We print the posters ourselves using our office computers... However, for the county meetings, we use big posters that are printed on A2 papers and also announce through the radio.

This study revealed that posters, leaflets and letters were mass media channels used to disseminate information on adoption of Irish potato farming. These findings concur with Age et al. (2012) who argued that print and electronic media such as television, radio and newspapers, are used globally to inform farmers about agricultural innovations. All the farmers in this study were categorical that they did not receive information on Irish potato farming through the mass media. However, the extension officers reported that electronic media were used only when the Meru County government works jointly with them. Probably, the Meru County government uses mass media to reach a large number of people irrespective of their location within the county. In addition, the Meru County government could be having more funds allocation compared to the Buuri sub-county where Kibirichia Ward belongs. This is in agreement with Oarkley and Garforth's (1985) assertion that mass media disseminate the same information to a large number of people.

Interpersonal Communication Used

Farmers in all the FGDs concurred that extension officers used seminars, meetings or *barazas*, home and farm visits, fellow farmers, field days, phone calls and demonstrations to convey messages. For example, a respondent from Kimbo sub-location said:

Extension officers use seminars, chief's barazas, field days and demonstrations. The officers also visit individual farmers in their homes to discuss farming issues over a cup of tea after which they go to the farm for more discussions. We like home visits because they have a personal touch.

Another farmer from Kimbo also noted that, *"Since the turn up for chief's barazas is high, the officers normally request the chief to give them a chance to speak to the farmers."*

Seminars and mobile phone calls were sometimes used by extension officers to disseminate information to group leaders of farmers or contact farmers who in turn passed across the message(s) to their members. Demonstrations were used to teach good agricultural practices and they were carried out in progressive farmers' farms. For example, one farmer said, *"There is a farmer called Kimaita who is known to be the best farmer in Kimbo, Ncooro area. The officers like using his farm for demonstrations."* Another farmer added, *"Demonstrations are good because we learn by seeing."* Farmers however said that tours were rare.

Asked the same question as the farmers, all the extension officers pointed out that meetings, demonstrations, mobile phone calls, SMS, seminars, field days and workshops were the key interpersonal channels of communication. One extension officer had this to say, *"We use mobile phone calls, SMS, meetings, seminars, field days and demonstrations. During*

demonstrations, we teach practically; when I plant, farmers get to see how I am planting. That is what we call demonstration." In addition another extension officer said:

Demonstrations are one of the methods we use to train farmers. We demonstrate as we explain to the farmers what we are doing. We use demonstrations to teach groups of farmers because currently, we are three extension officers serving 28,000 farmers in Kibirichia Ward. We have therefore, about eighteen groups to attend.

Findings revealed that meetings or *barazas*, demonstrations, mobile phone calls, SMS, seminars, home and farm visits, fellow farmers, field days and workshops were the interpersonal channels of communication used to disseminate information on adoption of Irish potato farming. These findings are in agreement with Cheboi and Mberia (2014) who found that interpersonal channels used in the diffusion and adoption of zero grazing technology were opinion leaders, churches, family members, peers, demonstrations, field days, meetings and public *barazas*. Other studies (Ng'ang'a et al., 2003; Okwu & Daudu, 2011; Wafula, 2015) found that farmer to farmer, opinion leaders, demonstration, field days, seminars, field schools, extension visits, trade fairs, mobile phones, group meetings, chief *barazas*, agricultural shows, church and school meetings were interpersonal channels used to communicate agricultural messages.

Most Preferred Channels of Communicating

The most preferred channels of communicating information on Irish potato farming were demonstrations, field days, *barazas* and seminars. For instance, all farmers from Mburugiti group asserted that all face-to-face communication channels were good because they were able to ask questions and get instant clarification from the extension officers. One farmer in the group highlighted demonstration as the best while another farmer preferred seminars to tours because seminars were held locally thus making them cheaper as compared to tours.

Gathuine farmers were of the opinion, *"Demonstrations are good because we are able to imitate what we see the officers doing."* Kiamiogo farmers also said, *"Demonstrations are good because during demonstrations, the extension officers come with samples of fertilizers and seeds. They use a small piece of land in one of the farms to show us how to plant and apply fertilizers."* Another farmer said, *"Just as the others have said, demonstrations are the best; I don't like missing them."*

Asked the same question, all extension officers stated demonstrations, training and visits (T&V), phone calls, SMSs, meetings, seminars, field days and home visits as the most preferred channels for transmitting agricultural extension messages on the adoption of Irish potato farming. Demonstrations were preferred because they were practical enabling farmers to learn visually how to utilize various agricultural innovations. The following information was given by one of the extension officers, *"Demonstrations are attended by very many farmers who get to see for themselves what to do. There is a lot of practical work in demonstrations so the farmers practice what they have learned in their farms."* Reports from the three extension officers indicated that during demonstrations, farmers turned-up in large numbers because the officers often partner with other stakeholders like seed and agro-chemical companies who had a boosting effect on the dissemination and reception of information on Irish potato farming. Similarly, during training and visit, farmers were able to learn and adopt the agricultural techniques which they were taught on their farms. *"Home visits are good because we are able to give farmers individual attention and this motivates them to adopt what they have learnt faster,"* said another

respondent. Findings also revealed that extension officers didn't use only one or two channels of communication but engage a variety of them:

We use a combination of many channels to get the message across to as many farmers as possible. For example, we can use our own mobile phones to communicate to various contact farmers to consult or inform them on when we will be conducting trainings and demonstrations.

Results indicate that demonstrations, field days, meetings and seminars were the most preferred channels in disseminating information on adoption of Irish potato farming. This study finding supports Licht and Martin (2007) who found that personal consultations, demonstrations, meetings and workshops were most preferred. Oakley and Garforth (1985), Rogers (2003) and Rogers and Nichof (2002) and reported that the use of interpersonal channels of communication could be attributed to the role they play in creating and changing attitudes towards an innovation which in turn influence the decision to adopt or reject an innovation. Further, the current research revealed differences between farmers' and extension officers' responses on channels of preference. Farmers stated only face-to-face channels while extension officers pointed out both face-to-face and machine-assisted interpersonal communication channels (mobile phone calls and SMS). This finding contradicts that of Ogola (2015) who found that electronic media (radio), interpersonal channels (fellow farmers and extension officers) and machine-assisted interpersonal communication channels (telephone calls) were farmers preferred channels of receiving agricultural information. The differences between farmers and extension officers' response on channels of preference could be attributed to the fact that extension officers used different channels because they played various roles in disseminating agricultural information at different stages of the adoption process (Oakley & Garforth, 1985; Rogers, 2003; Rogers & Nichof, 2002). It is important, therefore, that agricultural extension officers use a variety of communication channels, including face-to-face, mass media and machine-assisted interpersonal channels, when conveying agricultural messages to farmers. Bembridge (1991) argued that five or more channels of communication used in combination have enough impact to influence significant changes in farming practices and agricultural productivity.

Factors Considered when Choosing a Channel(s) of Communication

Factors considered by extension officers when choosing a channel(s) of communicating information on adoption of Irish potato farming were ability to reach many farmers, distance among farmers, farmers' perception levels, and ability to ask questions and give immediate feedback. According to respondents, factors that influenced the farmers' level of perception were their level of education, advancement and experience in Irish potato farming. One extension officer said:

There are some groups where some members have little education. Groups are not the same. Group composition will determine which language to use. The type of group will dictate the teaching materials to use, the language to speak and the message to give. For example, I don't give written messages to old people who cannot read and I rarely call ladies using the mobile phone because they often don't move around with them.

The current study shows that farmer-related factors were of importance while choosing the channel of communication. These findings differs with Chauhan (2007) who observed that channel related factors such as availability of the communication channel to the communicators,

appropriateness of the channel to the receiver and message and the main object of communication were more critical. This the study finding also contradicts Oakley and Garforth (1985), Rogers (2003) and Rogers and Nichof (2002) who argued that different channels play different in various stages of the adoption process. These researchers asserted that mass media channels are important in transmitting information, creating awareness or changing cognition, giving timely advice about the occurrence of disease and pest outbreaks together with urgent advice on what farmers should do. Interpersonal channels on the other hand, bring about attitude change to farmers so as to adopt agricultural innovations.

Feedback

Majority of the respondents in the four groups stated they were able to give extension officers immediate feedback. In fact, the respondents pointed out that the officers constantly encouraged them to ask questions and seek for clarification in areas they did not understand. One farmer from Kimbo said, *“As long as they give us information in a language that we understand, we are able to give the officers feedback.”* A farmer from Gathuine said, *“We are able to have an exchange of ideas during these activities and give feedback on the spot especially during demonstrations, field days, farm visits, seminars and barazas.”* Minority of the farmers however pointed out that, sometimes there was delayed feedback. That is, at times extension officers were not able to answer some questions asked by farmers due to lack of knowledge on the information sought. In such cases, extension officers assured farmers that they would give them the needed information once they got it.

Extension officers were of the same view with the farmers on the question of feedback. One extension officer claimed that both immediate and delayed feedback existed. Immediate feedback occurred when farmers were given a chance to seek for clarification and ask questions during the meetings. On the other hand, delayed feedback occurred when farmers did not get back to the officers, informing them of their progress. When one of the extension officer's was asked if they were able to get feedback from the farmers, the officer said:

Yes we are able to get feedback but remember, we are working with farmers whose education is not advanced. Few of them come back to tell us of their experiences. However, besides what they tell us we also employ our own methods to get feedback. Sometimes as we walk around and meet farmers we ask them, ‘By the way, how did our farm perform?’ or ‘How is the new variety?’ That way we get feedback. However there is no single best channel for getting feedback. It is important to also note that farmers are very fast in reporting when the crop has not done well. They report faster than when the crop has done well. Let me repeat. When a product or a variety has failed, they are very fast in bringing back the reports than the other way round. Like now, during abnormally dry season, there is a lot of information we are being given by the farmers.

On the same note, another extension officer said, *“Farmers appreciate us when they get high yields as a result of practicing what we teach them. When they harvest, some of them thank us by giving us a part of their produce while others give us money due to their joy.”*

Results indicated that both immediate and delayed feedback were evident in channels used in communicating information on adoption of Irish potato farming. According to the respondents, the occurrence of immediate or delayed feedback was attributed to the time taken by the officers to answer questions and farmer to relay information regarding their farming

progress; not the channels used. This study finding disagrees with Dominick (1999) who reported that interpersonal communication channels allow immediate feedback whereas delayed feedback is one of the characteristics of mass communication. Feedback, whether delayed or immediate, helps one to know if the message has been understood or not (Agbamu, 2006; Ofuoku, 2012). Further, Oakley and Garforth (1985) and Onasanya, Adedoyin & Onasanya (2006) argued that adoption and transfer of agricultural technology will not take place unless farmers understand extension messages transmitted through an appropriate feedback mechanism.

Adoption of Irish Potato Farming

Majority of the farmers from the four sub-locations asserted that there was increased adoption. For example, a farmer from Kiamiogo said, *"We have to keep up with change and technology."* A Mburugiti farmer reported, *"Adoption has increased because different varieties of Irish potatoes are planted all the time,"* while a farmer from Kimbo who was of a different opinion said, *"It is moderate. It is neither low nor high; it is in the middle."* This view was justified by another farmer who said, *"We adopt but not all of us are quick in adopting. Only few farmers are fast in adopting and the rest of us wait and see how those who have adopted are faring on."*

Asked the same question, all the extension officers noted that there was increased adoption of Irish potato farming. One extension officer, for example, said, *"It has increased because we teach farmers new information which they pay attention to and adopt."* In addition, another extension officer said:

Actually, the production has really increased because we have taught them good agricultural practices. We have taught them to use certified seeds from Kisima Farm. We have also taught them how to space seeds during planting because spacing was initially a problem. We have been teaching them about crop rotation, pests and diseases control.
(Sic)

According to this study there was an increase in the adoption of Irish potato farming in Kibirichia Ward. This finding contradicts Muthoni and Nyamongo (2009) and Nyagaka et al. (2009) argument that despite numerous efforts and resources dedicated to the creation and diffusion of new Irish potato production technologies, the average farm production has not yet increased. The increase in adoption of Irish potato farming could be attributed to the fact that Irish potatoes are an important source of food, employment and income in developing countries (FAO, 2008; Kabungo, 2008).

Effect of Communication Channels on the Adoption of Irish Potato Farming

Farmers reported that interpersonal channels led to high adoption as compared to mass media. A farmer from Mburugiti said, *"All the channels used by extension officers to communicate information on Irish potato farming lead to high adoption."* Another farmer from the Mburugiti group added, *"We find demonstrations more effective in disseminating information on Irish potato farming. We are able to put into practice what we are taught by extension officers during practical demonstration."* A Kimbo farmer said, *"Demonstrations, seminars, chief's brazas and field days lead to high adoption of Irish potato farming. However, posters, letters and leaflets have low effect on adoption of Irish potato farming because extension officers use them to create awareness about upcoming meetings or new Irish potato varieties."*

All the extension officers in Kibirichia Ward reported that all channels of communication lead to high adoption of Irish potato farming. One of the extension officers said, *“Both mass media and face-to-face communication channels lead to high adoption of Irish potatoes farming. Whenever we disseminate information on Irish potatoes, farmers are very keen to get the information and practice it because Irish potato is a cash crop in Kibirichia.”* Another officer reported that farmers who had access to communication channels were quick in adopting agricultural innovations on Irish potato farming.

Findings revealed that majority of the farmers reported that all interpersonal channels led to high adoption as compared to mass media. However, extension officers reported that both interpersonal channels and mass media lead to high adoption. These finding agree with those of Nwankwo and Orji (2013) and Cheboi and Mberia (2014) who found that use of mass media and interpersonal channels to communicate extension information lead to the adoption of agricultural innovations. The discrepancy between farmers and extension officers responses on the effect of mass media of adoption could be attributed to farmers inaccessibility to some channels such television and newspapers (Adejoh et al., 2016). Moreover, a number of scholars (Oakley & Garforth, 1985; Rogers & Nichof, 2002; Rogers, 2003) asserted that the roles of channels vary according to the stages of the adoption process. Mass media channels are important in transmitting information, creating awareness or changing cognition and giving timely advice. Interpersonal channels on the other hand, bring about attitude change. Therefore, for effective diffusion and adoption of innovations to take place, it is important that agricultural extension officers use a variety of communication channels when conveying agricultural messages.

Conclusion

In conclusion, findings of this study revealed that the channels of communication used for information exchange between farmers and extension officers were both mass media and interpersonal. They both facilitated shared meaning and adoption of Irish potato farming. Farmers reported that they understood extension information disseminated through the mass media and interpersonal communication channels which created an enabling environment for information exchange and feedback. The ability of these channels to relay feedback enhanced farmers understanding and high adoption of the agricultural innovations in Irish potato farming.

Implication of the Study

Drawing from the conclusions, this paper observes that to attain a hundred percent adoption of Irish potato farming, agricultural extension officers should establish more communication campaigns which they will use together with mass media and interpersonal communication channels to disseminate information on Irish potato farming. The government should employ public relations officers and development communication experts who can develop communication campaigns. This will promote effective dissemination of extension information to farmers and improve adoption of Irish potato farming.

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