

Effectiveness of information and communication technologies in dissemination of agricultural information to smallholder farmers in Kilosa District, TanzaniaLevi, C.¹, Kyazze, B. F.¹ & Sseguya, H.¹¹Department of Extension and Innovation Studies, Makerere University, P. O. Box 7062, Kampala, Uganda**Corresponding author:** ndalacha@yahoo.com

Abstract

Information Communication Technologies (ICTs) have the potential to act as effective information dissemination channel that facilitates sustainable relationships between farmers and other stakeholders in agriculture sector. Past and on-going efforts in fostering dissemination of agricultural messages have not had the desired impacts of transforming the agricultural systems and impacting livelihoods. This is in part due to failure to capitalize on the most effective ICTs. The study assessed the effectiveness of ICTs namely radio, television and mobile phone in dissemination of agricultural information. The effectiveness is measured in terms of accessibility, timeliness as well as relevance of the information provided. Results show that 50.5% of the farmers have access to information provided by all the three ICT facilities. However radio and mobile phone are seen to be more effective as compared to television. From a survey in Kilosa 72.5% of the respondents who use radio testified that they have been receiving a particular package of agricultural information at the right time. For TV and mobile phone users the percentage of those who indicated the information to be timely is 53.8 and 95.1 respectively. In terms of relevancy; 61.5%, 51.3% and 77.8% of the farmers who are using radio, Television and Mobile phone respectively indicated that the information brought to them is suitable in their farming context. This is an indication that ICTs are effective in dissemination of agricultural information to smallholder farmers despite of some shortcomings.

Key words: Agricultural knowledge and information system, agricultural productivity, livelihoods

Résumé

Les Technologies de l'information et de la communication (TIC) ont le potentiel d'agir comme canal de diffusion efficace d'information qui facilite les relations durables entre les agriculteurs et les autres intervenants dans le secteur de l'agriculture. Les efforts passés et en cours dans la promotion de la diffusion de messages sur l'agriculture n'ont pas eu les effets souhaités de la transformation des systèmes agricoles et produire un impacte sur les moyens d'existence. Ceci est en partie dû à l'échec de capitaliser sur les TIC les plus efficaces. L'étude a évalué l'efficacité des TIC à savoir la radio, de la télévision et de téléphone portable dans la diffusion de l'information agricole. L'efficacité est mesurée en termes d'accessibilité, de la rapidité ainsi que de la pertinence des informations fournies.

Les résultats montrent que 50,5% d'agriculteurs ont accès à des informations fournies par les trois facilités de TIC. Toutefois la radio et le téléphone portable sont considérés comme les plus efficaces par rapport à la télévision. D'après une enquête dans Kilosa 72,5% des répondants qui utilisent la radio ont déclaré qu'ils ont reçu un paquet particulier de l'information agricole au bon moment. Pour les utilisateurs de la TV et des téléphones portables, le pourcentage de ceux qui ont indiqué que l'information soit opportune est de 53,8 et 95,1 respectivement. En termes de pertinence; 61,5%, 51,3% et 77,8% des agriculteurs qui utilisent la radio, la télévision et le téléphone portable respectivement ont indiqué que les informations mises à leurs portées est utile dans leur contexte agricole. Ceci est une indication que les TIC sont efficaces dans la diffusion de l'information agricole aux petits agriculteurs en dépit de quelques lacunes.

Mots clés: La connaissance agricole et système d'information, la productivité agricole, les moyens d'existence

Background

For many years in Tanzania, farmers have been accessing agricultural information from extension workers through interpersonal communications. In the current situation this seems to be inefficient given that the distance and ratio of extension staff to farmers is increasing; this calls for effective approaches for agricultural information dissemination such as use of ICTs in extension service delivery. The need for use of ICTs in agricultural extension is further justified by the fact that the farmer-extension officer ratio in Tanzania is about 10,000-20,000:1 (Rukonge *et al.*, 2008) and this complicates face-to-face interactions. The experience in developing countries shows that ICTs can help in enabling rural development workers to gather, retrieve, adapt, localize and disseminate a broad range of information needed by rural families (Stienen *et al.*, 2007). The aim of this study was therefore; to assess how effective this has been so far in the district.

Literature summary

The use of ICTs - radio, television and mobile phones in particular, can accelerate agricultural development by improving access to information and knowledge services. From the perspective of agricultural knowledge and information systems (AKIS), ICT can be seen as a useful tool in improving linkages between research, farmers and agricultural extension systems (Balaji *et al.*, 2007). Sife *et al.* (2010) described ICTs as effective tools for the provision of information services as it allows a two way communication and can provide more than one service simultaneously.

Study description

The study was conducted in Kilosa district, Tanzania located at latitude 06°49'24.83 S and longitude 036°59'21.53 E. Survey research method was used in which semi structured questionnaires were administered to collect primary data from the respondents. To complement the quantitative data that were generated by the questionnaires, qualitative

data were also collected to enable the researcher to put interpretation in context. An interview with key informants was conducted to gain more insight into the environment and the contextual factors related to accessibility, timeliness and relevance of ICTs in dissemination of agricultural information. A meeting with small group of farmers of Ilonga village was also conducted to obtain their views on how would they want the information to flow. An observation (listening/watching/dialing) was done to determine the quality and relevancy of radio/television and mobile phone infrastructures; this helped to get a firsthand experience of the issues generated in the interviews. Documentary review was also done to collect secondary data.

Research application

Results showed that many farmers are able to access information using ICTs. This constitutes of 88.3% of the 240 respondents who can access information using radio followed by mobile phone 51.7% and 16.2% for television. This indicates that ICTs are continuously becoming a significant tool for the farmers to access and organize agricultural information. The finding collaborates with Scholars Abubakar *et al.*, (2009) and Manyozo, (2009) who described that access to agricultural information in most developing countries has been provided through radio. Also Churi *et. al*; (2012) discovered that Majority of farmers possess mobile phones

Table 1. Farmers ability to access information through ICT.

ICT	Ability to access agricultural information	Percentage (n=240)
Radio	Yes	88.30
	No	11.70
Television	Yes	16.20
	No	83.80
Mobile phone	Yes	51.70
	No	48.30

Source: Survey data, 2014.

Table 2. Farmer's level of satisfaction of the information received through ICT.

Level of satisfaction	Frequency	Percent
very satisfied	21	8.8
satisfied	106	44.2
somehow satisfied	84	35.0
unsatisfied	26	10.8
very unsatisfied	3	1.2
Total	240	100.0

Source: Survey data, 2014.

which are cheap and easy to use; as a result they are able to make calls to input suppliers, extension workers and other agricultural stakeholders.

For the farmers to reach their maximum potential they need timely and relevant information. Results indicated that many farmers in the area are satisfied with the use of ICT in accessing agricultural information despite some shortcomings (Table 2). This implies that ICT have helped the farmers in the area to access relevant information that can help to solve their various problems related to agricultural activities. According to Asia-Pacific Association of Agricultural Research Institutions, APAARI (2004) for farmers' information needs to be satisfied through use of ICT are for market related information including price trends, accessing input and support services to be met and getting solutions to individual and community agricultural problems, especially diagnosis of disease and pest problems.

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