

Access and use of mass media by small-scale farmers in accessing agricultural information for poverty alleviation in Tanzania: a case study of Kilombero district

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Abstract

This paper reports the findings of a study that assessed the accessibility and use of mass media by small-scale farmers in accessing agricultural information for poverty alleviation in Tanzania. The study was carried out in six purposively selected villages in Kilombero district, Morogoro region. The study used a sample size of 120 respondents. It employed a case study research design and a combination of quantitative and qualitative data collection methods. Data were collected using documentary review, questionnaires, focus group discussions and observations. Quantitative data were analysed by using Statistical Package for Social Sciences (SPSS) version 16.1 whereas qualitative data were subjected to content analysis. The results of the study show that radio was the most widely used information channel compared to television and newspapers in the study area. Generally, the agricultural information received by respondents through radio was relevant to their farm activities. Moreover, the agricultural information received by the respondents through television and newspapers was only partially relevant to their farming activities. The study findings also established that the barriers to accessing agricultural information through mass media in the study area were associated with poor power supply, poor signals, high cost of purchasing mass media sources, and inadequate feedback mechanism. Therefore, it is recommended that the government should support rural electrification and improve transport system so that modern agricultural mass media sources/facilitates can be more widely available and used in these areas than presently.

Key words: Small-scale farmers, Mass Media, Information, Poverty Alleviation

1. Background information

Agriculture is the backbone of Africa's economy. According to the Economic Commission for Africa (ECA, 2012), about 70 percent of Africans and roughly 80 percent of the continent's poor live in rural areas and depend on agriculture for their livelihood. The sector accounts for about 20 percent of Africa's GDP, 60 percent of its labour forces and 20 percent of the total merchandise exports. In fact, agriculture is the main source of income for 90 percent of rural

populations in Africa. According to the Tanzania Economic Forum (2011), the agricultural sector accounts for 85 percent of exports, and employs 85 percent of the workforce and 75 percent of foreign exchange earnings and contributes about 25.8 percent to the national GDP (United Republic of Tanzania [URT, 2008]).

The need for agricultural information for the rural people, especially rural farmers, cannot be taken for granted. Agricultural information is considered as one of the most important resources in agricultural and rural development that assists the farmers to make decisions and take appropriate actions for further farming-related development (Stefano *et al.*, 2005). Despite of its importance, Ozowa (1995) opines that the vital role played by scientific and technical information for agricultural and industrial development in developing countries is still neglected and accorded a lower status than other sectors. This view is also supported by Alam and Haque (2014) who argue that most of the farmers in rural areas still lack of information and modern agricultural knowledge.

Mass media approaches to agricultural information dissemination generally are useful in reaching a wide audience at a very fast rate. They are useful as sources of agricultural information to farmers in addition to constituting ways of notifying farmers of new developments and emergencies. Mass media could play an important role in disseminating information towards agriculture development and, hence, poverty alleviation. They are seen as a critical resource in the promotion of agricultural development, with a power to alleviate poverty (Gopalakrishna, 2005).

2. Problem Statement

Adequate and relevant information from any means of communication is one of the key requirements for increased productivity and increased income, which could ultimately lead to poverty reduction among the food producers (Nkrumah, 2008). In this regard, communication technology is playing very important role in raising awareness on different agricultural technologies among farmers. For example, the mass media offer powerful channels for transferring agricultural messages and related information which can enhance poverty reduction of rural farmers. Mass media have the ability to disseminate information to large audiences efficiently (Nazari & Hassan, 2011). In addition, Mahmood and Sheikh (2005) assert that the

mass media constitute one the best sources of disseminating information on new technologies and new agricultural innovations of among farmers, and are faster than personal contacts. The achievement of agricultural development programmes in developing countries largely depends on the nature and extent of use of the mass media in the mobilisation of people for development. The planners in developing countries recognise that the development of agriculture could be speeded up through effective use of the mass media (Purushothaman, 2003).

Despite the potential the mass media have exhibited in the provision of agricultural information for poverty alleviation for both rural and urban communities, it is not known how these media can facilitate access and use of agricultural information towards poverty alleviation among farmers in Tanzania. Kilombero district was used as a case study to assess how mass media can facilitate easy access and use of agricultural information for poverty alleviation among farmers in Tanzania. Specifically, the study aimed at:

- a) Identifying the different sources of mass media used by farmers to access agricultural information.
- b) Examining the relevance of agricultural information received by farmers through the mass media.
- c) Identifying the constraints farmers face in receiving agricultural information through the mass media and recommend solutions to addressing such constraints.

3. Literature Review

This section reviews literature related to the study topic. The literature review is organized around broad themes and covers the following areas: the role of the mass media in accessing agricultural information, the types of mass media used in accessing agricultural information, the challenges farmers face in accessing agricultural information through the mass media and the research gap that the study sought to fill.

4. Role of mass media in accessing agricultural information in Tanzania

The mass media are considered to be an effective tool in disseminating agricultural information among farmers and they constitute the most powerful mass media for disseminating information quickly (Kakade, 2013). Moreover, the mass media are essential in providing information for enabling the rural community to make informed decisions regarding their farming activities,

especially in the rural areas of developing countries (Lwoga, 2010). For instance, a study by Ariyo (2013) in Nigeria found that most of the farmers receive agricultural innovations through the mass media. Also, Abu Hassan *et al.* (2009) conducted a study on the use of the mass media among farming communities in the rural areas and found that the majority of them still depend on the “traditional mass media” such as, newspaper, television and radio, thus raising a probability that these three mass media sources can be effective sources of agriculture information among the farmers in rural areas. Furthermore, a study by Farooq (2007) in Pakistan found that the leading agricultural information sources were print media.

The mass media in Tanzania have evolved overtime since independence (Kasanga, 1999). It is acknowledged that there are currently close to 47 FM radio stations, 537 registered newspapers, a dozen television stations and 25 cable television operators in Tanzania (Tanzania Media Fund [TMF], 2012). However, according to Mlozi *et al.* (2012), in Tanzania, agricultural information is mainly disseminated through agricultural extension officers and farmer-to-farmer extension.

5. Types of mass media used in accessing agricultural information

The mass media include farm magazine, leaflets, newsletters, newspapers, pamphlets, radio and television (Dare, 1990). Generally, the mass media can be classified as print media and electronic media (Farooq, 2007). Various mass media communication channels have been used by farmers to receive agricultural information. Some of these media have been discussed below.

5.1 Radio

Radio has been used as a powerful communication tool that has proven to be the most effective media in stimulating agriculture and the development in the rural areas (Nakabugu, 2001). Omenesa (1997) observes that radio programmes are usually timely and capable of spreading messages to the audience no matter where they may be as long as they have a receiver with sufficient supply of power. The absence of facilities such as roads, electricity and piped water are no hindrance to radio broadcasts. In fact, when used efficiently, the radio can provide broad information about agriculture quickly and accurately to a large number of farmers and create awareness of extension production recommendations (Ozowa, 1995). Indeed, radio is the most preferred tool of mass communication in Nigeria (Zaria & Omenesa, 1992; Omenesa, 1997;

Ekumankama, 2000). A further study by Alam and Haque (2014) in Bangladesh found that radio and television have been useful sources of agricultural information to farmers in addition to constituting methods of notifying farmers of new agricultural innovations and emergencies.

Since the 1960s, radio programmes in Tanzania have been playing a significant role in information dissemination. Moreover, Mbwana (1994) identifies problems associated with radio broadcast information as uncertain reliability (few broadcasts use professional agricultural staff), difficulties in knowing when agricultural broadcasts will occur, and choice of agriculture issues to be discussed, choices that are often made according to sponsors interest rather than the information user needs, in this case those of farmers.

5.2 Television

Television is one of the mass media that can be used for disseminating information, making use of a variety of techniques, ranging from lectures and demonstrations to panel discussions, interviews and dramatisations (Majed, 1990). This tool is one of the great channels of mass media, which communicate information very fast on agricultural technology among the farming community. Through such communication technology, agriculture-related information can be transmitted easily to the farmers (Irfan *et al.*, 2006). A study in China by Yu (2010) shows that about 90 percent of the farmers interviewed obtained information from television. Furthermore, study by Alam and Haque (2014) carried out in Bangladesh found that the highest percent of agricultural information was adopted thanks to the use of television.

On the other hand, a study by Omosa (1998) conducted in Kenya found that television ownership and use in rural areas remained quite low and, thus, could not be relied upon to share agricultural information in such areas. Similarly, Kiondo (1998) affirms that the low level of access to television as source of information was a common feature in most developing countries. Furthermore, a study carried out in Tanzania by RLDC (2011) reported that television sets are not used on a wide scale to access agricultural information due to inadequate power supply and high costs. Chhachha *et al.*'s (2012) findings in Pakistan show that the only 18 percent of respondents preferred to watch agriculture-related programmes on television and 54.3 percent

respondent understood that television was not the main source for disseminating agriculture information among farmers.

5.3 Print media

Print media refers to written words in the form of leaflets, brochures, posters, journals, newsletters, newspapers, magazines, bulletin boards, etc. Printing helps preserve information in the form of books, booklets, brochures, newspapers, and magazines (Irfan *et al.*, 2006). With print media, information is permanent and sustainable, easily accessible, and easily duplicated and distributed (Wesseler & Brinkman, 2002). Farmers can use print media alongside other communication channels to strengthen the learning process of farmers. For instance, a study by Farooq *et al.* (2007) in Pakistan found that farmers relied more on the print media such as pamphlets followed by posters, newspapers, book/booklets, magazines and journals in getting agricultural information than on any other source. In Tanzania, a study by Lwoga (2009) shows that very few farmers made use of printed materials, such as leaflets, posters, books and newsletters to access agricultural information. This can be attributed to the language used, their availability as well as affordability.

6. Challenges farmers face in accessing agricultural information through mass media

Several barriers to accessing agricultural information through the mass media by farmers have been identified. For example, Mtega and Benard (2013) found that the major barriers to accessing agricultural information through mass media for farmers included relatively narrow coverage of the mass media, high level of illiteracy among rural communities and high poverty level. Furthermore, a study by Ramli *et al.* (2013) in Pakistan identified as a problem competition such farming information had to face from other categories of programmes such as news, entertainment, and sports coupled with unsuitable air time of the television and radio agriculture programmes. As a result, the farmers faced challenges in accessing and using agricultural information derived through the media. There was also a problem of limited rural electrification, which has to a great extent reduced the effectiveness of television in rural areas where most farmers dwell (Mtega & Msungu, 2013). Moreover, a study by Mgbakor *et al.* (2013) revealed that language and inappropriate time for broadcasting agricultural information were the main problems hindering farmers from accessing agricultural information through the mass media.

The literature reviewed thus far shows that studies have varying been conducted on the accessibility and use of the mass media in accessing agricultural information by farmers. However, the accessibility and use of mass media by small-scale farmers in accessing agricultural information for poverty alleviation in Tanzania, especially in Kilombero, Morogoro region in Tanzania has not been adequately addressed. This is the gap that this study set out to fill.

7. Research Methodology

A cross-sectional research design was used in this study. The design allows a scholar to collect data at once in a single point. The nature of the study objectives dictates the acceptance of such kind of a research design. Three wards—Ifakara, Lumemo and Kibaoni—from Kilombero district in Morogoro region were studied. Kilombero district was selected because it is one of the areas where agricultural production among small-scale farmers was high and the mass media infrastructure was comparatively more decent in the area than in other rural-based districts (Kato, 2007).

In this study, both random and non-random sampling techniques were used. Purposive sampling was used to pick the wards and villages to be included in the study. John and Christensen (2004) argue that purposive sampling relies on the decision of the researcher, centred on some well-known criteria. In this regard, the three wards of Ifakara, Lumemo and Kibaoni were selected purposively. These wards are areas rich in agricultural production and have a relatively high development of mass media infrastructure compared to other wards. In each ward, two villages were selected purposively, hence the six study villages. The sampling process required the development of a sampling frame. As such, a list of all the farmers in the selected villages contained in the government office was drawn in co-operation with the Village Executive Officer (VEO) in each village. Thus, 20 respondents were randomly selected from each village to bring the sample size of 120 respondents. Saunders *et al.*(2007) argue that a sample size of 30 or more usually results in a sampling distribution that is close to the normal distribution and the larger the absolute size of a sample, the closer its distribution will be to the normal distribution. Simple random sampling was used since it gives each case in the population an equal chance of being involved in the sample (Singleton, 1993).

Data were collected from the respondents through the use of a questionnaire that was administered with 120 respondents. Both closed and open ended questions were incorporated in the questionnaire. Moreover, focus group discussion and personal observation were also carried out to supplement information. The quantitative data collected from questionnaire was coded and summarised prior to analysis by using the Statistical Package for Social Sciences (SPSS) version 16.1. The researchers utilised descriptive statistics, such as frequencies, percentages in data analysis. Qualitative data, on the other hand, was subjected to content analysis.

8. Study findings and Discussion

This chapter presents the findings of the study and the discussion of the findings. The discussion based on objectives of the study.

9. Background Characteristics of Respondents

The findings presented in Table 1 below summarise the demographic characteristics of the respondents. The results show that 55 percent of the respondents were males and 45 percent were females. About 41.25 percent of the respondents were in the age group of 31-40 years, 25.8 percent were aged of 41- 50 years, 3.3 percent were aged below 20 years. In other words, most of the respondents were in their productive age. With regard to the marital status, the findings show that about 67.5 percent of the respondents were married, 20 percent of the respondents were single, 6.5 percent were divorced and six percent of the respondents were widowed. This means that a great majority of the respondents in the study area were married **couples**.

On the other hand, the results show that the majority of the respondents (77.5%) had completed primary education, 9.2 percent reported that they had never attended any education, 13.3 percent of the respondents had secondary education. This means that the respondents were moderately educated, hence able to read and write. In this regard, they were in a position where they could receive agricultural information through various sources including the print media.

In addition, the majority of the respondents (38.3%) had a farm size of 1-2 acres, 29.2 percent had a farm size of 3-4 acres, 28.3 percent had a farm size of above four acres and only 4.2 percent had a farm size below one acre. This shows that small holder farmers were in the majority in the study area. This dominance is a common in Tanzania where farming is dominated

by subsistence and peasant farmers as opposed to commercial or large-scale farmers. Other studies by Shao (2007) and Matovelo (2008) came up with similar findings. Also, the findings presented in Table 1 on farming experience portrays that 49.2 percent of the respondents had experience of above 15 years in farming, 23.3 percent had experience of 10 - 15 years, 19.2 percent of the respondents had experience of less than five years with only 8.3 percent of the farmers having experience of 5 - 9 years. The implication is that the respondents had generally been involved in farming for many years. The farming experience of farmers to a large extent affects their managerial know-how as well as the use of different extension methods including the mass media (Aina, 2006).

Table 1: Distribution of respondents according to their demographic characteristics (N=120)

Variable		Frequency	Percentage
Sex	Male	66	55
	Female	54	45
Age	<20	4	3.3
	21 - 30	22	18.3
	31 – 40	26	21.7
	41 – 50	31	25.8
	51 – 60	18	15
	> 60	19	15.8
Education level	Non	11	9.2
	Primary	93	77.5
	Secondary	16	13.3

Variable		Frequency	Percentage
Marital status	Married	81	67.5
	Single	25	20
	Divorced	8	6.5
	Widow	6	6
Land size (Acre)	Below 2 acre	5	4.2
	1 – 2 acres	46	38.3
	3 – 4 acres	35	29.2
	Above 4 acres	34	28.3
Faming experience	Below 5 years	23	19.2
	5 -9 years	10	8.3
	10 – 15 years	28	23.3
	Above 15 years	59	79.2
		120	100

Table 2: Annual income of farmers

Income	N	%
Less than 100,000	24	20.0
100,001 – 200,000	25	20.8
200,001 – 300,000	26	24.7
More than 400,000	45	37.5
Total	120	100

10. Income level of the farmers

Table 2, which illustrates, the annual income level of the respondents in the study area, shows that 37.5 percent of the respondents earned an annual income of above 400,000 Tshs per year, 21.7 percent had an income of 200,001 - 300,000 Tshs per year, 20.8 percent had an income of 100,001 -200,000 Tshs whereas 20.0 percent earned an income of less than 100,000Tshs per year. This indicates that the majority of the respondents in the study area earned income which was satisfactory to meet their daily needs. This is probably because most of farmers in the study area produced both food and cash crops. This advantageous financial position can have impact on information accessibility. Indeed, an extension officer said that the farmers with good harvests were the ones who frequented their offices, asking for different information and sometimes they went outside the villages in search of information. Swanson (1997) also supports the view that income influences farmer’s information source preferences.

Table 3: Source of mass media used by farmers in accessing agricultural information

Sources of mass media used by farmers	n	%
Radio	108	
Television	65	

Posters	1	54.2
Magazine/Newspaper	46	0.8
CD/Cassette Video	3	38.3

Table 4: Frequency of use of mass media

Media	Frequencies of use of mass media					
	Frequency		Occasionally		Never	
	N	%	N	%	N	%
Radio	71	59.2	37	30.8	12	10.0
Television	6	5	59	49.2	55	45.8
Posters	0	0.0	1	0.8	119	99.2
Magazine/Newspaper	1	0.8	45	37.5	74	61.7
CD/Cassette Video	0	0.0	3	2.5	117	97.5

Source: Field Data (2014)

11. Sources of mass media used by farmers in accessing agricultural information

The results in presented Table 3 indicate the sources of mass media used by respondents in accessing agricultural information in the study area. The findings reveal that 90.0 percent of the respondents used the radio as a source of agricultural information, 54.2 percent used television, 38.3 percent consulted newspapers/magazine whereas 0.8 percent and 2.5 percent of the respondents used CD/video and posters, respectively as sources of agricultural information. None of the respondents mentioned the use of the internet as a source of information for the farmers in this locality.

This indicates that radio, television and newspapers were the main mass media sources used by the farmers in accessing agricultural information. The results in Table 4 also show that radio was

the mostly frequently consulted source of mass media by the farmers in accessing agricultural information. This implies that the majority of the farmers still relied on the “traditional mass media”, thus suggesting that these three mass media sources can still be effective sources for agriculture information dissemination among the farmers in the rural areas, particularly in the absence of reliable power supply and ICT infrastructure to support new media in these rural outposts.

Similar findings which show radio as main sources of mass media being used by farmers in accessing agricultural information were observed in other studies such as Meitei and Devi (2009) in India, Agwu and Adeniran (2009) in Nigeria, and Lwoga (2009) in Tanzania. This is probably because the radio is cheap and affordable for most of the farmers. In this regard, Kakade (2013) argues that radio is an extremely economical medium as compared to other extension media and methods involving individual and group contacts. This calls for the government and other information providers to establish more community radio that to assist in disseminating agricultural information to the farmers and, hence, increase their agricultural production and alleviate poverty.

Moreover, higher percentages of respondents claimed to have never used posters, CD/cassette video and newspapers in the study area as sources of mass media in accessing agriculture information. This was not surprising because Hassan et al. (2011) also found such low usage of posters and CD/cassette video technology in accessing agricultural information in Malaysia. This could be contributed by lack of power supply, low level of education, unavailability and lack of awareness on the use of CD/cassette video as agricultural information sources.

Table 5: Farmers’ convenient time for listening to agricultural-based broadcasts

Time	N	%
Morning	20	16.7
Afternoon	7	5.8
Evening	49	40.7
Night	44	36.7

Source: Field Data (2014)

12. Farmers’ convenient time for listening to agricultural broadcasts

The results presented in Table 5 depict the farmers’ convenient time for listening to agricultural broadcasting programmes. The findings show that 40.8 percent of the respondents prefer listening to agricultural broadcasts during evening, 36.7 percent prefer during the night , whereas 5.8 percent prefer listening to agricultural broadcasting programmes in the afternoons. Farmers were found to be involved in either farm or home activities almost throughout the day. It was evident that a convenient time for listening to any agricultural programme was very important but time consuming. Therefore, any agricultural programme that needs the attention of the farmers has to be aired at an appropriate time of the farmers. Due to their preoccupations during the day, the majority of the farmers in this study reported listening to agricultural programmes in the evening hours. This finding is not in line with that of Yahaya (2001) who suggests that farmers own functional radio sets and prefer listening to agricultural programmes during morning and night hours of the day. The difference in time zone, the nature of economic activities and cultural difference might explain this discrepancy. Also, a radio receiver can be carried anywhere and thus can allow the farmers to listen to the programme as they laboured with farming chores. The implication is that media owners and other information providers have to be creative in setting the convenient time for the farmers to ensure that they were able to listen to the agricultural broadcasting programmes targeting them.

Table 6: Frequency distribution of relevance of agricultural knowledge farmers’ gain through the mass media

	Frequency percentage					
	Very relevant		Relevant		Not relevant	
	N	%	N	%	N	%
Television	20	30.7	45	69.2	55	84.6
Radio	7	6.5	61	56.5	40	37
Poster	1	0.8	11	9.2	108	90
Magazine	0	0	22	18.3	98	81.7
CD	0	0	9	7.5	111	92.5

Source: Field Data (2014)

13. Relevance of agricultural knowledge that farmers gain through mass media

Ferris (2005) argues that access to accurate, timely and appropriate information enables farmers to make better informed decisions on what to produce, when to produce and where to sell it. Those who have timely access to relevant information can make more rational decisions than those without it. The research findings presented in Table 6 show that most of the information that was aired through radio was relevant to the farmers’ needs. This implies that radio agricultural programmes are relevant because the knowledge gained helps farmers to improve their agricultural activities, hence improving the farmers’ livelihoods. Omenesa (1997) observes that radio programmes are generally timely and capable of spreading messages to the audience no matter where they are as long as they have a receiver with adequate supply of power with them.

However, a great deal of information that was accessed through magazine, posters and television was found to be partially relevant to the farmers’ information needs. This means that efforts should be intensified in delivering more relevant agricultural information to the farmers through magazine, posters and television. This can have a significant impact on farmers’ agricultural productivity. According to Meitei and Devi (2009), rural farmers are not receiving the right

information at the right time, hence leading to slow development of rural farmers' community in sustainable agricultural development activities.

13. Does these mass media sources meet the farmers information need

The respondents were also asked to indicate whether the mass media used met their information needs. The findings show that 58.3 percent of the respondents mentioned that the mass media sources did not meet their information needs whereas 41.7 percent claimed the opposite. This means that most of the mass media sources were not able to meet the farmers' information needs. These findings are inconsistent with that of a survey report of the Pakistan Agricultural Research Council (2008), which established that the radio alone catered for the information needs of the farmers three times as much as the extension workers and 66 percent of the Pakistani farmers meet their information needs through the mass media. The discrepancy can be due to little coverage and relevance of agricultural information programme, poor television signals as most of the farmers indicated during the focus group discussion. Most of the farmers complained about poor television signals in some of the study areas

Table 9: Challenges farmers face in accessing agricultural information through mass media (N=120)

Challenges	Frequency	Percentage
Poor signal	91	75.8
Poor internet Connectivity	6	5.0
Poor power supply	94	78.3
Highly cost of purchasing and maintain media source	53	44.2
Inability to write and read	7	5.8
Inadequate feedback mechanism	10	8.2

Source: Research Data (2014)

14. Challenges farmers face in accessing agricultural information through mass media

Data from presented in Table 7 indicates that the majority of the respondents encountered problems when accessing agricultural information through the mass media. The problems they encountered were power supply (78.3%), poor signals (75.8%), high cost of purchasing and maintaining media source (44.2%), inadequate feedback mechanism (8.3%), inability to write and read (5.8%), and poor internet connectivity (5.0%). It was also evident from focus group discussion that lack of funds, lack of awareness by some of the farmers on use of various mass media sources in accessing agricultural information and the irrelevance of agricultural programmes broadcast through various mass media sources were the other challenges they had to contend with. This implies that poor power supply was the main problem the farmers faced when it came to accessing agricultural information through the mass media. This was true because in some of the study areas, there was no power supply and this hindered the farmers from receiving information through the mass media channels that depend on power supply. The researchers found in the field that in areas where there was electricity connection farmers also relied on television as a source of agricultural information. Similarly, Sife (2008) who mentioned that the limited television viewing is mostly due to limited power supply and few number of TV stations in the country. This can have impact on information accessibility among farmers and hence poor agricultural productivity in the country.

These findings further reveal poor radio and television signal as major challenges constraining farmers from accessing information through these sources. Similarly, the results with regard to television and radio signals are in line with those of Mtega and Malekan (2009) who found that poor television signals as the main factor hindering information accessibility among farmers in rural areas. Therefore, there was a need for the government and other information providers to increase more signals so that we can have sustainable information accessibility and, hence, improve the farmers' livelihood. Furthermore, the results show that high cost of purchasing and maintaining media source was another impediment that hindered farmers from accessing information from the mass media. For instance, during the focus group discussion, some of the farmers lamented over the high cost of

purchasing dry cells for their radio, high cost of purchasing newspapers/ magazine as well as the high cost of acquiring television and radio sets. Therefore, government should subsidise dry cells, magazines, television sets, radios and other media source in these rural areas to enhance farmers' access to agricultural information and, hence, increase their farm income.

Furthermore, it was established that inadequate feedback mechanism was another problem that the farmers had to contend with when it came to accessing information as some of the farmers reported. For example, during interviews some farmers complained that during programmes aired on radio or television it was not possible to ask for clarifications or solutions to certain agricultural queries. This observation is supported by Ariyo *et al.* (2013) who argued that the mass media involves one-way communication from information source to the receivers; they permit limited and delayed feedback. In other words, elements of interactivity could be introduced, for example, through call-ins.

15. Conclusions and Recommendations

Based on the findings of the study, it can be concluded that radio, television, and newspapers are types of mass media used in the study area, but radio was the most frequently consulted by the respondents. Generally, the agricultural information received by the respondents through radio was relevant to their farming activities. On the other hand, the agricultural information received by the respondents through television and newspapers was only partially relevant to their farm activities. Challenges the farmers faced when accessing information on agriculture from the mass media include poor power supply, poor signal, high cost of purchasing mass media source, and inadequate feedback mechanism. However, to provide better access and improve the effectiveness of the mass media in the dissemination of agricultural information for agricultural development in the study area, the following recommendations are made:

(i) Agricultural extension services, for example, in the Morogoro region need to be strengthened and the Ministry of Agriculture should enhance the use of radio and television in information

dissemination among farmers in the study area. There is also a need for more expert presenters, who are knowledgeable in agriculture, to handle agricultural programmes.

(ii) Adequate publicising of radio and television agricultural programmes relevant to farmers' activities will keep the farmers up-to-date and enable them to plan their time to listen to and watch such programme.

(iii) Establishment of farm radio to rural farmers or listening groups among farmers should be encouraged.

(iv) The government should support rural electrification and improve the rural transport system so that modern agricultural mass media sources/facilities can be made available and used in these areas.

(v) Similarly, there is also a need for the government to supply more print media to rural areas to improve information accessibility among the farmers.

(vi) Media owners should air more agricultural programmes on both radio and television and should make sure that the programmes are broadcast at appropriate and convenient times for farmers, especially in the evenings.

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