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Assessment of information needs of rice farmers in Tanzania; A case study of Kilombero District, Morogoro

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ASSESSMENT OF THE INFORMATION NEEDS OF RICE FARMERS IN TANZANIA: A CASE STUDY OF KILOMBERO DISTRICT, MOROGORO.

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Abstract

This paper aims at assessing the information needs of rice farmers in Tanzania using rice producers in Kilombero District as a case study. The study was carried out in four purposefully selected villages in Kilombero District, Morogoro Region. The study used a sample size of 80 respondents. The study employed a case study research design and used a combination of methods to collect both quantitative and qualitative data. Data were collected by using documentary review, questionnaires, focus group discussions and personal observations. Quantitative data were analysed by using SPSS, while qualitative data were analysed using content analysis. The results of the study revealed that rice farmers have a wide variety of information needs including information on marketing, weather condition, agricultural credit/loan, new seeds, storage method, planting methods, diseases and pest control, and pesticide availability and its application. Key sources of information used by farmers are their family or parents, personal experience, neighbors and agriculture extension officers.

The study findings also revealed that the barriers to accessing agricultural information in the study area are associated with lack of information services, inadequate number of extension agents, inadequate funds, lack of awareness of information sources and information not easily accessible. It is therefore recommended that there is a need for government and other institution responsible to lay more emphasis on sustainable practices on information accessibility to rice farmers and also to disseminate information to them and address their information needs properly.

Introduction

Agriculture is the backbone of Africa's economy. According to ECA (2007), about 70% of Africans and roughly 80% of the continent's poor live in rural areas and depends on agriculture for their livelihood. The sector accounts for about 20 % of Africa's GDP, 60% of its labour force and 20% of all merchandise exports. Agriculture is the main source of income for 90% of rural populations in Africa. For example, in Tanzania, the agricultural sector provides 85% of exports, employs 85% of the workforce contributes, 75% of foreign exchange earnings and contributes about 25.8% to national GDP (URT, 2008).

Paddy/rice is the second most important commercial and food crop in Tanzania after maize. The crop is among the major sources of employment, income and food security for Tanzania farming households. Tanzania is the second largest producer of rice in Southern Africa after Madagascar with production level of 818,000 tones (JICA 2007). However, Tanzanian rice productivity is lower than most neighboring countries and one of the lowest in the world (European Union, 2010). About 71 % of the rice is grown in Tanzania is produced under rain fed conditions, irrigated land presents 29 % of the total with most of it in small village level traditional Irrigations. The average yield is very low, 1-1.5 t per ha.(RLDC 2009).

According to RLDC (2009) most of the rice farmers lack information on the improved seeds hence stick to traditionally preferred varieties which are not economically efficient but have prominent aromatic and palatability characteristics. Ozowa, (1995) stated 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 compared to other sectors. In addition, most of the farmers including rice farmers in Africa lack access to modern processing technology and market information (Matovelo, 2008). Ferris (2005) argues that in most African countries lack of accurate and relevant agricultural information by small- scale farmers is a major factor constraining efforts to improve the agriculture sector.

Statement of the research problem

In agriculture, the role of information in enhancing agricultural development cannot be over emphasized. Bachhav (2012) stated that, the use of information in agriculture sector is enhancing farming productivity in a number of ways. Providing information on weather trends, best practice in farming, timely access to market information helps farmer make correct decisions about what crops to plants and where to sell their product and buy inputs. According to Richardson *et al*. (1998) the information needs of farmers change from time to time due to changing agricultural technologies, environmental changes, agricultural policies, and the emergence of agricultural innovations. Yet, there is in adequate information for rice farmers of Kilombero district, Tanzania. That is why Babu *et al.* (2011) had stated that a better understanding of farmers' agricultural information needs and information sources could help guide extension and other agricultural programs to better target specific groups of farmers. Therefore, this is the gap that this study seeks to fill.

OBJECTIVES OF THE STUDY:

The major objectives of the study were:

- To find the information needs of the rice farmers.
- To find out the source of information used by the rice farmers
- To examine the challenges faced by rice farmers in meeting their information needs
- Recommend measures to improve delivery of information services to the farming communities for better rice productivity in the study area

LITERATURE REVIEW

Role of Information in Agriculture

Information has consistently been a significant element in the development of human society and has shaped over a long period of time the way in which we think and act (Meyer, 2005). Information is crucial for increasing agricultural production and improving marketing and distribution strategies (Oladele, 2006). Information also opens windows of giving out experiences, best practices, sources of financial aids and new markets. By the same token, information enables farmers to make informed decisions regarding production and marketing and managing their lives successfully to cope with everyday problems and to realize their opportunities (Matovelo, 2008; Idiegbeyan-ose Jerome and Theresa, 2009). As discussed by *Aina et al* (1995), information has a vital part to play in improving and sustaining agricultural production of any country or nation. Also, Ochieng (1999) asserts that access to information is a vital tool for empowering individuals to make informed decisions or take action for them or for community development.

Supporting the above views, Durutan (1999), had stated that agricultural producers already know that information is important and valuable and all they need is its timely accessibility in order to improve agricultural production. According to Camble (1994),

and Sturges and Neill (1990), lack of adequate and relevant information has impacted negatively on any development process including agriculture. Ferris, (2005) adds that access to accurate, timely and appropriate information enables farmers to make better decisions about what to produce, when to produce and where to sell it than those who do not have such information. Similarly, Byamugisha et al., (2008) note that the possible benefits of using current agricultural information are improvement in farming techniques and knowledge of when to use manure or fertilizer, how to treat diseases and what crops to plant.

Sources of agricultural information for farmers

Information source is an institution or individual that creates or brings about a message (Statrasts, 2004). The characteristics of a good information source are timelessness, accuracy, relevance, cost effectiveness, trustworthiness, usability, exhaustiveness and aggregation level (Statrasts, 2004). The selection of an information source depends on a number of factors; including level of income, farm size, age, geographical location, level of education (Riesenberg, and Gor 1999). Using the Indian NSSO 2003 survey, Adhiguru *et al* (2009) found that small and marginal farmers accessed less information and from fewer sources than medium and large Scale farmers. Ogboma (2010), Buba (2003), Meitei and Devi (2009), and Mtega and Benard (2013),mentions some information sources used by farmers in accessing their agricultural information including ; newspapers, journals, bulletins, community leaders, and famer groups. Another study by Daudu *et al*. (2009) reported farmers to use agricultural extensions, posters, Televisions, and Radio as their source of their information.

Furthermore, a study by (FAO, 1997) revealed that fellow farmers, neighbors and farmers' cooperative society used as preference sources of information used by farmers in accessing agricultural information. Ogboma (2010) noted the sources of information used by rice farmers were personal experience, workshops and Seminars, training, friends and neighbors, Ministry of agriculture, magazines of agriculture, extension

officers, local Government officers, non Government organization, libraries of agriculture and posters. The study by Daudu *et al* 2013 in Nigeria further showed that the main sources of information used by farmers in accessing agricultural information were Extension agents, Friends, Radio and Libraries. Similary, Bozi and Ozcatalbas (2010) revealed that family members, neighbor farmer, extension services, input providers and mass media were key sources of information for Turkish farmers.

Therefore, in view of the fact that each farmer prefers certain information sources or channels over others, it is important to do a thorough study before opting for an information source or channel to address their information needs.

Information needs of rice farmers

Devadson and Lingam (1996) had stated that, information needs represent gaps in the current knowledge of the user. In day to day work; lack of self sufficiency constitutes an information need. Information needs are thus a factor that may drive rice farmers to seek information to fill the gaps in their information and knowledge. Farmers require different types of information for day to day agricultural activities. Moreover, the level of information needs may differ between people, or a group of ppeople, depending on a range of factors, such as age, level of education, socio-economic tatus, range of information sources available, level of awareness, and ease of use of information (Kaniki, 2003). According to Meitei and Devi (2009), rural farmers are not getting the right information at the right time, leading to slow development of agricultural activities.

Dulle and Aina (1999) argue that in order to provide timely, appropriate and relevant information to farmers, it is necessary to classify their information needs. The study by Benard (2011), Sabo (2007) ,Mtega and Benard (2013), Meitei and Devi (2009), showed that the information needs for farmers differ and range from how and where to purchase agricultural equipments, information on improved seeds varieties, information on marketing, loans or credits, weather condition, irrigation, Information on soil fertility.

Another study by Babu *et al.,* (2012) found that the important information needs for rice farmers were pest and disease management, pesticide and fertilizer application, best time to plant, planting method, storage and seed treatment.Tologbonse D, *etal*. (2008) conducted the study of information need of rice farmers community in Niger state, the findings showed that the majority of farmers (89.9%) needed information about the crop production. A study in Tanzania by Lwoga (2009) established that 66.3% of the small-scale farmers interviewed needed information on controlling plant diseases and pests, 59.1% on marketing, 58.6% on credit facilitates, 54.7% on control of animal diseases and 29.3% on irrigation practices. Moreover, Ozowa (1995) argues that information needs of farmers vary, given new and complex problems farmers face every day.

The Challenges facing rice farmers in accessing agricultural information

Several Challenges facing farmers in accessing agricultural information have been identified. For instance, Tologbonse *et al*. (2008) found that challenges facing farmers in accessing agricultural information were outdated information, language barrier, lack of awareness on existence of different information sources, lack of funds to acquire information and poor format of information carrier. Furthermore, the study by Daudu (2009) pointed out some of the problems encountered by farmers in Nigeria in accessing agricultural information. These include financial problems, inadequacy of facilities/professional, incomplete or irrelevant information. Also, Byamugisha *et al.* (2008), point out the challenges encountered by farmers in Uganda when searching for agricultural information as lack of cooperation from fellow farmers in sharing agricultural information and language barriers.

Aina, (1990) revealed that the factors affecting the flow of agricultural information to farmers in Africa include, the limited number of radios and television sets, the low literacy level of farmers, and the inadequate number of personnel trained in agricultural information. Similarly, Babu *et al.* (2011) conducted a study on farmers' information needs and search behaviors in Tamil Nadu. The findings from this study showed that the major constraints facing farmers in accessing information were poor availability,

poor reliability, lack of awareness of information sources available among farmers and untimely provision of information. Furthermore, Mtega and Benard (2013) carried out the study on the state of rural information and communication services in Tanzania. The findings from the referred study show that, poor/unreliable information infrastructure, high illiteracy levels, low income, lack of electricity and high cost of ICTs have limited the accessibility of information services in rural areas.

The above reviewed literature showed that even though the information needs of various categories of farmers have been studied, the information needs of rice farmers, especially in Kilombero, Morogoro Tanzania, have not been adequately addressed. This is the gap that this study intends to fill.

Research Methodology

A cross-sectional research design was adopted for this study. The design allows a researcher to collect data at once in a single point. The nature of study objectives dictates the adoption of such kind of a research design. Four villages from two wards from Kilombero district in Morogoro region were studied. Kilombero District was chosen because it is among the areas where cultivation of rice is in large amount compared to other districts (Kato, 2007) These villages were Mbingu, Mofu, Taweta and Tanganyika.

In this study, both random and non random sampling techniques were employed. Purposive sampling was used to select the wards and villages to be included in the study area. John and Christensen (2004) argue that purposive sampling relies on the decision of the researcher, based on some well known criteria. The two wards were selected purposively, namely Mngeta and Mlimba. In each ward, two villages were selected purposively making a total of four study villages, which were, Mbingu, Mofu, Tanganyika and Taweta. The sampling process required the development of a sampling frame, whereby in this study was the current list of all the farmers who growing rice in

the selected villages contained in the household list in the government office in collaboration with the Village Executive Officer (VEO) in each village. Thus, 20 respondents were randomly selected from each village and hence making a total sample size of 80 respondents. . Saunders *et al*.,(2007) argue that a sample size of 30 or more will usually result in a sampling distribution that is very 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 included in the sample (Singleton, 1993).

Data were collected from the respondents through the use of a questionnaire, and was administered to eighty respondents using face- to -face interviews. Both closed and open ended questions were included in the questionnaire. However, Focus Group Discussion and personal observation was also done 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). The investigators utilized descriptive statistics, such as frequencies, percentages in data analysis. Qualitative data was analyzed using content analysis.

Study findings and Discussion

Background Characteristics of Respondents

Table 1 presents results for background characteristics of respondents. Out of 80 respondents, 43 (53.75%) were females and 37 (46.25%) males.. On the other hand, age category 31 – 40 years accounted for 41.25%, while respondents with the age below 20 years accounted for only 1.25%. Age categories of the respondents give the impression that the majority of rice farmers interviewed were in the active age group. This can have impact on information accessibility and use. Adeogun *et al.,* (2010) had opined that, the younger farmers would most likely be willing to spend more time to obtain information on improved technologies compared to the old farmers.

Table 1; Sex, age and education level of respondents (N=80)

Variables	Frequency	Percent
Sex		
Male	37	46.25
Female	43	53.75
Total	**80**	**100**
Age category in years		
20-30	7	8.75
31-40	33	41.25
41-50	13	16.25
51-60	16	20
above 60	10	12.5
bellow 20	1	1.25
Total	**80**	**100**
Education of respondents		
None	10	12.5
Primary	47	58.75
Secondary	23	28.75
Total	**80**	**100**

Many of the rice farmers (58.75%) in the study had attained primary education level. This was followed by those who had attained secondary education level (28.75%) and those who had not attained any formal education (12.50%). This implies that majority of

the rice farmers had attained primary level education. Their level of education affects information accessibility, comprehension and adoption of new agricultural innovations and practices (Aina and Dulle, 1999). Good educated farmers can easily access information from various sources, and can be able to create knowledge out of those sources.

Types of crops grown by the respondents (N=80)

Table 2

Main types of crops cultivated	Frequency	Percentage
Maize	80	100
Paddy	80	100
Banana	80	100
Cassava	75	93.8
sweet potatoes	55	68.8
Groundnuts	53	66.2
Beans	32	40
Cocoa	24	30
Simsim	23	28.8
Sunflower	19	23.8
Oranges	19	23.8
Coconuts	18	22.5
Avocado	11	13.8
Peas	10	12.5

Maize, paddy and banana were the main crops grown by any rice farmer in the study (Table 2). These were followed by cassava (93.8%), sweet potatoes (68.8%) and

groundnuts (66.2%). However, very few farmers grew coconuts, avocado and peas. Variety of crops grown in the study area are supported by the fact that the area is very fertile and wetly. For the sake of this study, paddy is the concern.

Farmers' Experience in rice Farming (N=80)

Table 3

Categories of years	**Frequency**	**Percent**
Below 5 years	11	13.75
5-10 years	23	28.75
10-19 years	25	31.25
20 years and above	21	26.25
Total	**80**	**100**

Many rice farmers had duration of between 10 and 19 years in growing the crop (Table 3). However, there were few farmers involved in rice farming in less than 5 years. This gives an impression that the respondents had been involving in growing rice for many years. This indicates that the farmers had enough experience of issues related with rice farming and hence formed the respondents were suited for this kind of a study.

Income level of Rice Farmers (N= 20)

Table 4

Income per annum (Tsh)	**Frequency**	**Percent**
less than 100000	22	27.5
more than 400000	21	26.25
100000-200000	17	21.25
200000-300000	17	21.25
300000-400000	3	3.75
Total	**80**	**100**

Table 4 shows the results for income level of rice farmers in the study area. Majority of rice farmers (27.5%) had income level of less than Tsh. 100 000/= per year, while others were receiving more than Tsh. 400 000/= (26.25%) and 21.25% of the rice farmers were receiving Tsh. 100 000/= - 200 000/= and Tsh. 200 000/= - 300 000/= respectively. Very few farmers (3.75%) had their annual income level between Tsh. 300 000/= and 400 000/=. The income level of the rice farmers in the study is not satisfactory as the income per capita in Tanzania is Tsh 475 000/= (URT 2003). In that case Limited access to agricultural information services partly accounts for the problem.

The impact of high income is to access agricultural information by any cost, as it supported by extension officer who said that, the farmers with good harvesting are the people who always come to the offices, asking for different information and same times they go outside of the villages seeking for information. According to Swanson (1997), income influence farmer's information source preferences.

Information needs of rice farmers

Before asking the farmers to identify their information needs, they were asked if they need information to improve rice farming activities. The study revealed that 82.5% of the respondents need information in improving rice farming. This is probable because information is very important element in any economic development. These findings agree with that of Kamba, (2009) who argues that no community can develop without knowledge and it can only become knowledgeable if it recognizes and uses information as the tool for development, including agriculture.

Table 5: Information needs of rice farmers (N= 80)

Information needed by rice farmers	Frequency	Percentage
Information on marketing	77	96.3
Information on agricultural credit/loan	73	91.25
Information on how to use fertilizers	57	58.75
Information on pesticide availability and its application	62	77.5
Information on weed control	55	68.75
Information on diseases and pest control	64	80
Information on storage method	68	85
Information on land preparation	22	27.5
Information on new seeds	71	88.7
Information on irrigation	45	56.2
Information on planting method	67	83.7
Information on weather condition	76	95

The respondents were asked to indicate the type of information they need from the checklist of answers and were asked to provide more than one answer. As evident the Table 5 above, majority of the farmers need information on marketing (96.3%) weather condition (95%) agricultural credit/loan (91.25) New seeds (88.7%) storage method (85%) Planting methods (83.7%) diseases and pest control (80%) and Pesticide availability and its application (77.5%) followed by weed control (68.75%). Others areas that were mentioned by farmers include fertilizers use (58.75%), Irrigation (56.2) and land preparation (27.5%).

Table 6: Sources of Information for Rice Farmers (N=80)

Sources of information used for accessing agricultural information on rice farmers	Frequency	Percentages
Family/parents	76	95
Radio	60	75
Personal experience	74	91.2
Neighbors and or friends	68	85.0
Agriculture extension officers	65	81.2
Books	54	67.5
Village leaders	52	65.0
Brochures	50	62.5
Farmer groups	42	52.5
Cell phones	34	42.5
Leaflets	33	41.2
Television	22	27.5
New papers and magazines	2	2.5
Internet	0	0.0
Library and information centre	0	0.0

As it shown from the Table 6 above majority of the rice farmers rely on their family or parents, personal experience, neighbors and agriculture extension officers for obtaining the information while other important sources used by farmers are Radio (75%), books (67.5) ,village leaders (65.0%), and brochures (62.5%).

Others got information through Farmer groups (52.5%) and cell phones (41.2%). Very few got agricultural related information through leaflets, television and newspapers.

However, none of the respondents were using internet and library or information center as the source of agricultural information in the study area.

Table 7: Preference sources of information among rice farmers in percentage (N= 80)

Source of information	Most preferred	Preferred	Least preferred	Not preferred
Personal experience	93.8	0.0	6.2	0.0
Family/parents	80.0	16.2	0.0	3.8
Neighbors and or friends	66.2	13.8	10.0	10.0
Agriculture extension officers	57.5	18.8	11.2	12.5
Radio	37.5	41.2	13.8	7.5
Brochures	37.5	15.0	12.5	35.0
Farmer groups	33.8	15.0	11.2	40.0
Books	28.8	18.8	26.2	26.2
Leaflets	13.8	6.2	22.5	57.5
Cell phones	11.5	5.0	21.0	62.5
Village leaders	11.2	45.0	28.8	15.0
Television	11.2	6.2	13.8	68.8
Internet	3.8	0.0	0.0	96.2
Library and information centre	3.8	0.0	0.0	96.2
News papers and magazines	2.5	0.0	3.8	93.8

Preference sources of information among rice farmers

The result of the responses of the farmers as regard of the preferences sources of information is shown in Table 7 above. The table revealed that the most preference sources of information as perceived by the farmers were personal experience, family/parents and Neighbors and or friends. However, the findings revealed that internet, Library and information centers, News papers and magazines were not preferred as the sources of information.

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Table 8: Challenges Facing Rice Farmers in accessing agricultural information

Challenges	Frequency	Percentages
Lack of information services	78	97.5
Lack of relevant materials in offices and libraries	25	25
Inadequate number of extension agents	77	96.2
Lack of awareness of information sources	75	93.75
Information not current/too old	28	35
Inadequate funds	78	95
Information not easily accessible	65	81.25
Poor knowledge-sharing culture	45	56.25
Time	65	81.25
Language barrier	56	70.0

The respondents were asked what challenges/constraints they face in accessing information and to choose their answers from the checklist. Their responses are indicated in Table 8 above, showing that the challenges faced by respondents in accessing agricultural information were of Lack of information services (97.5%), Inadequate number of extension agents (96.2%), Inadequate funds (95%) Lack of awareness of information sources (93.75%), information not easily accessible (81.25%), time (81.25%). Furthermore, 70% mentioned language barrier, 56.25% mentioned Poor

knowledge-sharing culture, 35% mentioned information not current/too old and (25%) mentioned Lack of relevant materials in offices and libraries as one of challenge constraining farmers in accessing information.

Discussion

Information needs of respondents

Information on marketing, agricultural credits/loan and new seeds varieties were the major information needs for rice farmers in the study area. This implies that farmers lack access to market information for their crops. This is consonance with Shepherd, (2000), who pointed out that information on, quantities traded, market prices and other marketing-related matters rarely reaches farmers in developing countries. Also, most of rice farmers complained about lack of currently, and timely information on weather condition, this is probable because of climate change which had resulted on unpredictable rains and variability hence farmers fail to plan the right time to plant their crops. This is supported by Stigter, (2002) who pointed out that, access to relevant weather forecast information and its communication can greatly reduce the risk and uncertainty in rain fed agriculture. Similarly, the study revealed that most farmers did not know where to get credit, hire tractors or purchase agricultural tools such as power tillers, which could be used to improve their agricultural productivity. Munyambonera *et al*., (2012) adds that availability and access to adequate, timely and information on low cost credit from different institutionnal sources is of great importance especially to small and marginal farmers. The findings further revealed that, farmers need information on availability of new seeds varieties.

Despite the efforts of research institutions to develop different seeds varieties with more productivity patterns, drought and disease tolerance, however during the interview and focus group discussion with the farmers it was noted that very few farmers use new improved seeds. This is probable because of lack of awareness on existence of such

seeds or lack of enough capital to acquire them. This findings collaborated by RLDC (2009) which reported that most of the farmers lack knowledge on the improved seeds hence stick to traditionally preferred varieties with are not economically efficient.

Information sources

Family/parents, personal experience, neighbors or friends and agricultural extension officers were the major sources of information used by rice farmers in accessing agricultural information. The implication here is that most of the respondents relied on interpersonal sources in accessing agricultural information, probably because of their regularly availability and accessibility. Lwoga *et al*. (2011) for instance stressed that interpersonal sources such as friends, family members and neighbours are all the time become the main providers of the agriculture information due to their credibility, reliability and most of all, they are trusted by the rural community.

However, none of the respondents reported to use neither internet nor library and information centres in accessing agricultural information. This is probably because of low level of education, lack of electricity, lack of libraries or information centres in the rural areas, lack of awareness of the role of internet in provision of agricultural information to farmers and lack of lack of ICTs infrastructure in rural areas. Finding of this study are not surprising as they are in line with what have been reported previously by Benard (2011), Mtega and Benard (2013); Shaffril *et al*. (2010) and Samah *et al*. (2011). For instance have established a few reasons why farmers are reluctant to use advance technology in accessing agricultural information such as internet, and among the reasons are do not know the benefits of the advance technology; do not have skills or expertise in using the advance technology; lack of time spent on ICT and difficulties in using ICT. This therefore, call for the institution responsible to create enabling environment for the farmers to use this modern technology so as they can access timely and current agricultural information.

Preference sources of information

The results shows that personal experience, family/parents and neighbors or friend were the most preferred sources of information, while internet, library and information centers and newspapers were not preferred sources of information. These findings imply that the respondents prefer interpersonal methods in receiving agricultural information, this probably because with interpersonal method farmers can easily share their experiences with each other, hence improving their production. These findings are supported by Nmtambo, (2007) who reports that farmer- to- farmer contacts enable farmers to exchange news and adopt new technology, especially from experienced fellow farmers.

Challenges faced by respondents in accessing agricultural information

The majority of the respondents cited lack of information services in the study area was one the challenges facing farmers in accessing information. Through the focus group discussion with the key informants and personal observation via the researcher it was noted that there was no information services available in the area of the study such as village/ward libraries and information centres. This is a common problem in most rural farmers in Tanzania. Therefore, information providers should regard it as a challenge and provide farmers with access to current and relevant agricultural information. The findings further revealed the inadequate numbers of extension agents as major challenges constraining farmers from accessing information. For instance, in the study areas surveyed, there were only two extension officers. In view of this, it is not easy for them to face all the villages and reach out to all the rice farmers. This also in line with what have been found by Aina's (2006) findings, which revealed that the ratio of agricultural extension workers to the population in Africa is low.

Similarly, inadequate funds was another challenge hindering farmers from accessing agricultural information as it was pointed by majority of the respondents. Due to financial problems, some of the farmers cannot afford to buy information sources or attend important agricultural workshops/seminars or agricultural shows. Agricultural

extension officers and village leaders' views concurred that there was lack of adequate funding to meet the transport cost for visiting farmers, in order to conduct demonstrations and workshops to sensitize the farmers. Also, the study revealed that majority of respondents were not aware on existence of information sources. For instance, one respondent from Mbingu village reported that she does not know where to get help apart from friends, family members and from the personal experience. Therefore, agricultural information sources and services where they exist should be widely published and promoted, not only to create awareness but also to promote and encourage usage by farmers.

CONCLUSION

Information is very important resource for all agricultural activities, and therefore for anything and everything information is required. The findings of the present study revealed that the rice farmers in Kilombero district need various types of information for rice farming, and they use a number of information sources for access to their required information. Although they get assistance from, fellow farmers, parents, extension officers, and personal experience, their level and skills in using modern technologies in accessing agricultural information are not at a satisfactory level. Besides, lack of information services, lack of financial support, and inadequate number of extension staffs, information not easily accessible, and lack of awareness of information sources etc. have caused them problems in accessing agricultural information properly. There is a need for government and other institution responsible to lay more emphasis on sustainable practices on information accessibility to rice farmers and also to disseminate information to them and address their information needs properly.

Recommendations

- Local government authorities,and other private organizations in collaboration with the Tanzania Library Services should establish Information or Documentation Centres in rural areas. These should be stocked with relevant and current agricultural information resources in Kiswahili to meet the needs of rice farmers

- Due to the shortage of funds and extension officers, Private Organisations should provide assistance in disseminating agricultural information to rice farmers so that farmers can have wide access to current and relevant agricultural information.

  Media owners should broadcast more agricultural programmes on both radio and television and should make sure that the programmes are broadcast at appropriate and convenient times for farmers.
- Adequate workshops, training and awareness should be given to the rice farmers and be promoted by the government and other private organizations.

- The government should support the rural electrification and improve the rural transport system so that modern agricultural information services/facilitates can available and used in these areas.

- Government should take appropriate initiatives to encourage and help farmers. However, government should consider granting incentives and support to the agricultural sub sector and to the farmers in form of credit or loan as these would allow them take action to use sustainable agricultural practices.

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