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Preference Sources of Information Used by Seaweeds Farmers in Unguja, Zanzibar

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This paper reports results from a research that aimed at assessing the preference sources of information used by seaweeds farmers in Unguja, Zanzibar. The study was carried out in five purposefully selected villages in Unguja District, Zanzibar. The study used a sample size of 100 respondents and study employed a cross-sectional research design. Data were collected by using documentary review, questionnaires, focus group discussions and personal observations. Quantitative data were analyzed by using SPSS version 16.1 while qualitative data were analyzed using content analysis. The findings of the study showed that Neighbours and or friends, radio, family/parents and personal experience are types of information sources used in the study area, but television and radio was mostly preferred consulted by respondents. The study results also revealed that the barriers to accessing agricultural information through information sources in the study area were associated with inadequate funds, lack of information services, poor infrastructure and inadequate extension agents. It is therefore recommended that the government should support rural electrification, ICTs infrastructure and improve transport system so that modern agricultural information sources/facilitates can available, accessible and used in these areas.

Keywords; Agricultural Information sources, Agricultural information, seaweeds farming, Agriculture

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INTRODUCTION

Agriculture is regarded as the engine of development in most developing countries. The economies of most developing countries including Tanzania rely on agricultural production. The agricultural sector in Tanzania employs 70-80 percent of the population and generates about 70% of rural household income (Shetto, 2008). The activity is mostly practiced in rural areas, where more than 70% of African population live and depend on agriculture for their livelihood (ECA, 2007). Seaweeds are marine crops that are cultivated in lagoon or in sheltered water (Msuya, 2011). Seaweed farming contributes importantly to the economy of the Zanzibar

Islands of Tanzania. The income from seaweed farming has empowered farmers to improve their standard of living by paying for school necessities for their children, including fees and uniforms; buy household items, such as furniture; improve their houses and even build new ones; as well as get food for the families(Crawford2002, Msuya2005).

Agricultural information is a major tool for the development of small-scale seaweeds farmers and it contributes to the livelihood of people in both rural and urban areas (Samuel *et al*., 2004) Rural farmers face widening information gaps and therefore it is difficult for them to compete in the global market (Aina, 2007). In addition, farmers including seaweeds farmers in Africa lack access to modern processing technology and market information (Matovelo, 2008). Low accessibility to agricultural information leads to low adoption of improved seaweeds technologies, which invariably affects seaweeds farmers' productivity (Ozowa, 2005).

However, the efficiency of technologies generated and disseminated depends on effective information sources which are the key process of information dissemination (Oladele, 2006). In addition farmers' sources of information basically shape the kind of decision they make (Agbamu, 2006).

Problem statement and Justification

Information flow to farmers is very important factor in developing agricultural production as well as helping the seaweeds farmers to become updated about new agricultural technologies and innovations (Lwoga, 2009). The use of information in agricultural sector enhances farming productivity in a number of ways; providing information on weather trends; best practice in farming; timely access to market information helps the farmers to make correct decisions about what crops to plant and where to sell their product and buy inputs (Bachhav, 2012). For this information to reach seaweeds farmers it will depend on information sources which are relevance, cost effective, and exhaustive. The effectiveness of any information sources depends most in particular on its selection as an appropriate channel or medium of communication (Statrasts, 2004, Bozi and Ozcatalbas, 2010).

However, little is known on the preference sources of information used by seaweeds farmers in accessing agricultural information in Zanzibar particular in Unguja, Region. A better understanding of farmers' agricultural information sources help to guide extension and other agricultural programs to better target specific groups of farmers (Babu*et al.* 2011).

Therefore the findings of this study will be a basis for influencing policy makers to develop agriculture policies and information system that focus on the needs of seaweeds farmers to improve their productivity. Also the findings will contribute to a better understanding of preferences sources of information used by seaweeds farmers inUnguja, Zanzibar. The research will also create awareness on the problems facing seaweeds farmers in accessing agricultural information and the recommended solutions to the problems. In addition findings of this study have also contributed to literature on the topic.

OBJECTIVES

General objective

The general objective of the study is to assess preference sources of agricultural information used by seaweeds farmers in accessing agricultural information in Unguja, Zanzibar

Specific objectives

1. To assess the agricultural information sources used by seaweeds farmers in accessing agricultural information inthe study area
2. To determine the sources of agricultural information preferred by seaweeds farmers in the study area
3. To identify the challenges faced by seaweed farmers in accessing agricultural information

Research Questions

1. What are the sources of agricultural information used by seaweeds farmers to access agricultural information in the area of the study?
2. What are the sources of agricultural information preferred by seaweeds farmers in the study area?
3. What challenges do seaweeds farmers face in accessing agricultural information?

REVIEWED LITERATURE

The role of information in agricultural development

Information has consistently been an important element in the development of human society and also has shaped over a long period of time the way in which we think and act (Meyer, 2005).It is an element of man's life cycle such that there is no life in modern society without information (Idiegbeyan-osejerome and Theresa, 2009). Human beings always find themselves in circumstances

that demand a certain amount of information in order to function effectively. Information helps farmers to make informed decisions regarding production, marketing, to manage their live successfully, cope with every day difficulties and to understand their opportunities Matovelo, (2008) and Idiegbeyan-osejerome and Theresa, 2009). According to Dankwah and Hawa (2014), an improved information and knowledge flow to, from and within the agricultural sector are important factor in improving small-scale agricultural production and linking increased production to remunerative markets, thus leading to improved rural livelihoods, food security and national economies.

Furthermore, the study by Mapatara (2012) revealed that, farmers need information to know the various techniques for improving and increasing agricultural productivity for instance, the use of fertilizers, useful pesticides, high quality seeds, access to agricultural credit facilities, and good marketing of their agricultural produce. Mgbada, (2006) also described that access to sufficient information is very vital to increased agricultural productivity. Information to improve seaweeds production technologies by farmers are needed in such areas as plant spacing, weeding, farm preparation.Lesaoanana-Tshabalala (2001) and Kamba (2009), argues that information is a powerful tool in addressing various agriculture needs for small scale farmers and if it is used appropriate it could change a nation's economy. According to Ozowa, (1995) information is an essential ingredient in agricultural development programs but Africa farmers seldom feel the impact of agricultural innovations either because they have no access to such vital information or because it is poorly disseminated

Information sources used by farmers to access agricultural information

Information source is an institution or individual that creates or brings about a message (Statrasts, 2004). Information only becomes useful if it is relevant, timely, and appropriate and thus, choice of channel through which information is transmitted must be appropriate, perceivable, and affordable to the user (Ochieng, 1999).Momodu (2002) established that agricultural information sources available to rural community in Nigeria were government through radio, television, and newspapers through their extension workers and agent of all types. Another studies by Bozi and Ozcatalbas (2010) in Turkey found that, family members, neighbor farmer, extension services, input providers and mass media were the main source of information used by farmers to access agricultural information.

Furthermore, the study by Okunade (2007) found that the key sources of information used by farmer in accessing agricultural information were result demonstration, general meetings, group discussion, lectures, television, radio, cinema, leaflets, bulletins, letters, and circulars. Bachhav (2012) carried the study on farmers' information needs in India found that the major sources of information were colleague farmers, Newspapers and government offices.

However, the study conducted by by Benard and Dulle (2014) in Tanzania revealed that the major sources of information used by farmers in accessing agricultural information were family/parents, personal experience, radio, neighbour and or friends and agricultural extension officers.Also the same study done by Lwoga (2009) and Swai (1998), in Tanzania show that farmers use village leaders, agricultural extension officers, newspapers and magazines, books, brochures, radio, TV and internet in accessing agricultural information.

Challenges faced by seaweed farmers in accessing agricultural information

Several studies have been discussing on challenges facing farmers in accessing agricultural information. For instance, Siyao (2012) reported the challenges facing farmers in accessing agricultural information include long distance from rural residential areas to sources of information, costs associated with usage of information, limited information services and poor information infrastructure. Similarly, Lwoga (2009) pointed that, technical language used during information repackaging limit information accessibility to farmers in rural areas. Other factors including inadequate funds, information being outdated, high level of illiteracy, lack of reading culture, and inadequate numbers of extension agents and lack of awareness of information sources also limited rural people from accessing information (FAO, 2007).

Further study done by Tologbonse (2008) in Nigeria found that the challenges facing small scale farmer in accessing agricultural information includes shortage of funds to manage farming process; poor government control and policies; delaying of information feedback to the farmers and irrelevant information. Babu*et al*. (2011) carried the survey on farmers' information needs and search behaviours in Tamil Nadu revealed that the major challenges to information access for the farmers is poor reliability, poor availability, lack of awareness of information sources available among farmers and untimely provision of information. Similarly, a study done by Mchombu (2000), revealed that lack of reliable electricity, low income, high cost of ICTs, and unreliable phone/broadcasting network have resulted into limited access to information by farmers.

RESEARCH METHODOLOGY

Research Design

Research design is defined as the general plan for the collection, measurement and analysis of data with the central goal of solving a given research problem (Tripath, 1999).To attain the main purpose and objectives of the study, a cross-sectional research design was adopted for this study. The design allows a researcher to collect data at once in a single point.

Study Area

This study was conducted in Unguja, Zanzibar. Unguja is a hilly island, about 85 kilometres long (north-south) and 30 kilometres wide (east-west) at its widest, with an overall area of about 1,666 square kilometres. It is located in the southern half of the Zanzibar archipelago, Indian Ocean, about 59 kilometres south of the second largest island of the archipelago, Pemba. Unguja and mainland Tanzania are separated by the Zanzibar Channel (URT, 2012). Unguja region was selected because it is among the areas in Zanzibar where seaweeds production is in large amount and also has high development ICTs infrastructure compared to other region.Five wards; Uzi, Ng'ambwa, Kaepwani, Kikungwi and Tindini in Unguja region were studied.

Sample and Sampling Techniques

In this study, both random and non-random sampling techniques were employed. Purposive sampling method was used to pick the wards and villages to be involved in the study area. Purposive sampling relies on the decision of the researcher, centered on some well-known criteria (John and Christensen, 2004). The five wards were selected purposively namely; Uzi, Ng'ambwa, Kaepwani, Kikungwi and Tindini. These wards were selected due to the fact they are among the areas in Unguja where seaweeds production is in a large scale. From each ward, two villages were selected purposively making a total of five villages.

Sampling Frame and Sample Size

The sampling frame was developed and this case was the current list of all the seaweeds farmers cultivating seaweeds in the selected villages contained in the household list in the government office in cooperation with the Village Executive Officer (VEO) in each village. Hence, 20 respondents were randomly picked from each village and thus making a total sample size of 100 respondents. 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 (Saunders *et all*., 2007). Simple random sampling was used since it gives each case in the population an equal chance of being involved in the sample (Singleton, 1993).

Methods of data collection

In this study data were collected from the respondents through the use of a questionnaire, and was administered to one hundred respondents using face- to -face interviews. Both closed and open ended questions were incorporated in the questionnaire. Moreover, Focus Group Discussion and personal observation was also done to supplement information.

Data Analysis

The quantitative data collected from questionnaire was coded and summarized prior to analysis by using the Statistical Package for Social Sciences (SPSS) version 16.1 the researchers' employed descriptive statistics, such as frequencies, percentages in data analysis. Qualitative data was analyzed using content analysis.

RESULTS AND DISCUSSION

Socio-economic Characteristics of the Respondents

The socio-economic characteristics of the respondents are presented in Table 1. The Table 1 indicates that the seaweeds farmers were predominantly female (68%). This means that seaweeds farming is mostly practised by women. This was confirmed by Msuya (2011) who revealed that seaweed farming employs about 15,000-20,000 farmers, in which most of whom are women. The study revealed that majority (70%) of the respondents was married. This entails seaweeds farming is practiced mostly by married people to make ends meet and satisfy for their family. Also the research findings revealed that most of the respondents (94%) were within the age range of 21– 60years. This implies that the seaweeds farmers were relatively young and active. Thus, all things being equal, these farmers should able to accept innovations more easily and dynamically than their aged colleagues. As noted by Nwaru, Onuoha, Iheke and Onyeachonam (2010), the mental capacity of an individual to cope with innovations declines with advancing age.

Table 1: Distribution of respondents according to their demographic characteristics (N=100)

Variable	Categories	N	%
Sex	Male	32	32.0
	Female	68	68.0
Age	below 20 years	2	2.0
	21 to 30 years	51	51.0
	31 to 40 years	27	27.0
	41 to 50 years	9	9.0
	51 to 60	7	7.0
	61 and above	4	4.0
Marital status	Single	15	15.0
	Married	70	70.0
	Divorced	8	8.0
	Widowed	7	7.0
Level of education	None	7	7.0
	Primary	32	32.0
	Secondary	60	60.0
	Certificate	1	1.0
Farm size	Below 1acre	45	45.0
	1 to 2 acres	47	47.0
	3 to 4 acres	8	8.0
	5 and above	0	0.0
Farming experience	Below 5 years	28	28.0
	6 to 10	37	37.0
	11 to 15	22	22.0
	16 and above	13	13.0
Income	Below 100 000	25	25.0
	100 001 to 200 000	47	47.0
	200 001 to 300 000	14	14.0
	300 001 and above	14	14.0

Source: Field data October 2014

Also the study findings showed that 60% of the respondents had a secondary education. This entails that majority of the respondents had a secondary education and this can have an impact on information accessibility. Katungi (2006) in his study found that more educated farmers had more access to information. Further analysis of the results showed that 37% of the respondents had a farming experience of 6 to 10 years. This implies that majority of respondents had a long experience in seaweeds farming practices. This experience can have tremendously impact on type of information and information sources usage among farmers. Agwu and Adeniran (2009) found that farming experience has positive significant relationships with the use of various information sources.

Furthermore, the research findings revealed that (47%) of the respondents earn monthly income between 100,001 and 200,000 Tanzanian Shilings (Tshs), followed by 25% of the respondents who earn income below 100,000 Tshs, 14% of the respondents earn between 200,001 to 300,000 Tshs and 14% of the respondents earn more than 100,000Tsh. The income earn by an individual can have influence on the access and use of information sources. This means that farmer

Table 2: Distribution of respondents according to source of information (N = 100)

Sources	Frequency *	Percent
Agricultural extension officers	54	54.0
Agricultural inputs suppliers	64	64.0
Family/parents	83	83.0
Internet	4	4.0
Leaflets	4	4.0
Mobile phones	35	35.0
Neighbours and or friends	93	93.0
Personal experience	83	83.0
Radio	87	87.0
Television	63	63.0
Village leaders	79	79.0

Source: Field data October 2014

Table 3: Preference sources of information among seaweed farmers (N = 100)

Sources	Most preferred		Slightly preferred		Not preferred	
Preference	N	%	N	%	n	%
Village leaders	67	67.0	17	17.0	16	16.0
Agricultural extension officers	48	48.0	24	24.0	28	28.0
Radio	91	91.0	6	6.0	3	3.0
Television	93	93.0	4	4.0	3	3.0
Internet	9	9.0	25	25.0	66	66.0
Brochures	4	4.0	32	32.0	64	64.0
Leaflets	8	8.0	41	41.0	51	51.0
News paper and Magazine	4	4.0	49	49.0	47	47.0
Farmer groups	17	17.0	50	50.0	32	32.0
Personal experience	64	64.0	23	23.0	13	13.0
Agricultural inputs suppliers	77	77.0	14	14.0	9	9.0
Mobile	71	71.0	14	14.0	15	15.0

Source: Field data October 2014

with higher income would tend to look more information from different information sources. Swanson (1997) also supports that income influence farmer's information source preferences.

The results in Table 2 above showed that the sources of information used by respondents in accessing agricultural information in the study area. The findings entails that (93.0%) of the respondents used Neighbours and or friends as a source of agricultural information, (87%) used radio,83% used family/parents and personal experience, 79% of the respondents consulted village leaders, 64% of the respondents used agricultural input suppliers and 63% used Television while 4% of the respondents use internet as source of agricultural information.

Preferred information sources by seaweeds farmers are presented in Table 3 above. The result revealed that greater proportion 93% of the respondent preferred Television as their source of agricultural information, 91% preferred radio, 77% preferred agricultural input suppliers, 71% prefer mobile phones and the least source from newspapers, magazine and bronchures.

Table 4: Challenges / barriers to information access

Challenges	Frequency*	Percent
Inadequate funds	93	93.0
Inadequate number of extension agents	78	78.0
Information outdated / too old	72	72.0
Lack of awareness of information sources	65	65.0
Lack of information services	92	92.0
Lack of reading culture	73	73.0
Poor infrastructure	87	87.0
Poor knowledge- sharing culture	57	57.0

Source: Field data October 2014

The Table 4 above showed the challenges facing by farmers in accessing agricultural information. Results showed that 93% of respondents mentioned inadequate funds, 72% mentioned information outdated, 92% mentioned lack of information services, 73% mentioned lack of reading culture, 78% mentioned inadequate number of extension agents, 65% mentioned lack of awareness of information sources, 57% mentioned poor-knowledge sharing culture, and 87% mentioned poor infrastructure. The results agrees with that of earlier studies by Obadiah et al. (2008) ; Aina, (1990) ; Ugboma (2010) ; Byamugisha et al., (2008) ; Lwoga2009 who have reported different challenges prevented farmers to accessing information from different information sources.

DISCUSSION

Source of information used by seaweeds farmers

From these findings, Neighbours and or friends constitute the most important source of information to the respondents, followed by radio, family/parents, personal experience; village leaders, agricultural inputs suppliers, Television and the least sources were internet and leaflets. This agrees with what Wolf, Just and Zilberman (2001) seem to propose that agricultural information comes from informal contacts/neighbours. This is probably because, they are the cheapest means of obtaining information, and it does not require much effort to acquire information from these sources. This also was confirmed during Focus Group Discussion with some of the farmers who claimed that they don't have money to buy newspapers or books so they relied on their friends and other cheap sources. Adhiguru*et al*. (2009) revealed that other progressive farmers and input dealers were the main sources of information due to convenient access to those sources and higher cost of information acquisition from other sources.

The study however, revealed that the internet and leaflets usage as sources of information was very low. This was not surprising because Malhan and Rao, (2007) also noted that in developing countries the use of internet in farm decision making is much less. This could be contributed by unavailability of these sources, low level of education, lack of awareness on the use of internet as agricultural information sources. This was confirmed by one of the respondent during Focus Group Discussion who claimed that he knows well computer but he does not know how to search agricultural information from these sources. These results confirm an earlier study by Dankwah, (2014) who reported that Internet use requires some skills which may not be popular within the farming communities.

Preference sources of information

From these results Television and Radio were the most preferred sources of information used by the respondents in accessing agricultural information. There are parallels between the findings of earlier studies, such as those by Fawole (2008), Benard (2011) and Hassan *et all.,* (2010), this investigation shows the main preferred source for acquiring information of the farmers is Television and Radio. This is probably because they easily available, accessible, credible sources of information and they can transfer message to farmers within a short time of period. This was evident by researcher in the study area whereby almost every house had either radioor television set and they were using them as their sources of information for seaweeds farming. According to (Nazari, & Hasbullah (2010)Television and radio play main part in transfer modern agricultural technology to educated and uneducated farmers within a short time for farmer communities. In relation to cost, it is an extremely cost-effective medium as compared to other extension media and methods involving individual and group contacts (Kakade, 2013).

However, the research findings from this study revealed that newspapers, magazine and brochures were the most preferred least sources of information used by farmers in accessing agricultural information in the study area. These findings were in line with Oriakhi and Okojie (2013), Bawa and Bzungu (2014) who found that print media were the most preferred least sources of information utilized by farmers in obtaining agricultural information. This is probably because of their availability, affordability in terms of costs, and lack of awareness and language barriers. For example some of the farmers in the study area were complained about unavailability of such sources, they said that they get those sources when there are seminars, or when there is emergency of crop diseases, or tend to borrow it from their fellow farmers who possessed it. Moemeka (1990) had previous given a reason for farmers refusal of the print source in that only literate member of the society can understand the information contents, non-literate members will have to rely on an interpreter before they can benefit, and most of the print sources are located in the urban centres and lastly, the cover price are not within the reach of the normal farmers.

Challenges encountered by seaweeds farmers in accessing agricultural information

From these findings, inadequate funds were the most problem faced farmers in accessing agricultural information in the study area. Due to financial constraint some of the farmers were not able to buy some of the information resources that were sold to them. Not only but also some of the seaweeds farmers were not able to join some of the important seminars or workshops conducted in the district quarter due to the financial problems, and this can be one of the reasons for low usage of printed sources, and internet resources in the study area. Further, analysis revealed that lack of information services as it was mentioned by majority of the respondents was another main problem constrains farmers from accessing information. Farmers informed that there was lack of information services in the study area like, village information centers/telecenters and libraries that they could help them to accessing agricultural information. Presence of village information centre or libraries could have made seaweeds farmers to have access to more information sources like printed sources. This is in line with (Aina and Dulle, 1999) who pointed out that lack of agricultural libraries in the farmers' locality is an obstacle in accessing agricultural information.

Furthermore, the research findings showed that poor infrastructure was also the problems hindered farmers in accessing information. Most of these farmers complained that when they bother to visit the district quarter to acquire newspapers or internet services or seminars, they left disappointed because of poor road /communication infrastructure. Ellen (2003) states that physical barriers to information accessibility are affected by poor information infrastructure or poor communication facilities.

Another challenge to information access was inadequate number of extension agents. This was true because in the area of the study there were only two extension officers covering all five study villages, hence this become tedious for them to cover all villages and attend all farmers. This implies that only few farmers receive new agricultural technologies and innovations from such sources. Idiegbeyan-ose Jerome and Theresa (2009) asserted that due to low numbers of extension staff it is hard for farmers to obtain new information. This means that inadequate numbers of extension officers can have negative impact in seaweeds farmers' production. Pangan (2007) asserted that agriculture extensions help farmers to increase their productivity of their farms and improve their living standard.

CONCLUSIONS AND RECOMMENDATIONS

Information is very essential resource for any development including agriculture, and therefore for anything and everything information is required. Andinformation can only be useful if it is accessed through relevant, timely, and appropriate information sources.The findings of the present study revealed that the seaweeds farmers in Unguja district used various types of information sources in accessing information for seaweeds farming. Although they preferred much to access agricultural information from Television and Radio. Besides, inadequate funds lack of information services, poor infrastructure, and inadequate number of extension staffs have caused them challenges in accessing agricultural information properly. Therefore there is a need for government authorities and other institution/organizations responsible to put more emphasis on sustainable practices on information accessibility to seaweeds farmers through relevance, cost effectiveness and exhaustiveness information sources. However, to deliver better access and improve the effectiveness of information sources in the dissemination of agricultural information for agricultural development in the study area, the following recommendations were made:

(i) Establishment of farm radio to rural farmers or listening group among the farmers should be encouraged.
(ii) The government should support the rural

electrification, ICTs infrastructure and improve the rural transport system so that modern agricultural information sources/facilitates can available and used in these areas.

(iii) Agricultural extension agents especially in the Unguja region and Ministry of Agriculture should strengthen the use of radio and television in information dissemination to seaweeds farmers in the study area. There is a need for more expert broadcasters who are knowledgeable in agriculture to handle agricultural programs.

(iv) Government or other institutions responsible should provide agricultural loans to seaweeds farmers so that they can improve their information accessibility and hence improved productivity.

(v) Adequate broadcasting of the agricultural programmes which is relevancy to seaweeds farmers' farm activities on the radio and television will keep the farmers up-to-date and enable them to plan their time to listen to and watch such programme.

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