

## **Information Needs and Information Seeking Behaviour of Rural Women on Household Food Security Issues in Bayelsa State, Nigeria**

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**Abstract:** Knowledge and information on scientific and technological information is a necessary condition for rural women to achieve household food security. Therefore, the purpose of this study was to assess the information needs and information seeking behaviour of rural women on household food security issues in Bayelsa State, Nigeria. Three stage sampling technique was used in which random sampling procedure was followed to select 120 rural women across twelve town communities in the state. Structured interview schedule was used for collecting the essential quantitative data from the sampled respondents. The quantitative data were analyzed using descriptive statistical tools such as percentage, frequencies and mean scores. Food security index was used to analyze the food security status. Using the food security index approach, the study revealed that 61% of the respondents were food insecure while 39% were food secure. Information on food security issues were mainly sourced from families (52.5%), friends/neighbours (46.7%) and other farmers (30.8%). The respondents perceived information on productive resources such as land, inputs and capital ( $M = 1.18$ ); as their most important information needs. The study further revealed that the respondents sought information on food preparation (88.5%), food processing (84.7%), and farming system (80.8%) from their families. The respondents perceived poor income ( $M = 1.55$ ), and concealment of information by information providers ( $M = 1.35$ ), among others as barriers to meeting their information needs. The study underlined the importance of a well-organized institutional information provision on agricultural technologies through extension services to rural women.

**Key words:** Agricultural extension services, food security, information needs, information seeking behaviour, rural women.

### **Introduction**

Information can be seen as the basic element in any development activity and it must be available and accessible to all farmers in order to bring the desired development. The role of information in enhancing food security cannot be over emphasized as it is vital for increasing food production and improving marketing and distribution strategies (Oladele, 2006). It is also an indispensable factor in the practice of farming and the basis for extension delivery. Information also open windows to sharing experiences, best practices, sources of financial aids and new markets. As posited by Aina, Kaniki & Ojiamba (1995), information has a vital role to play in improving and sustaining the food production of any nation. It is also a key component in improving agricultural production, thus leading to improved rural livelihoods and food security. Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preference for an active and healthy life (Food and Agriculture Organization, FAO, 2008).

In this dynamic world, rural women's information requirement is increasing constantly, especially as they are the key to household food security. This is because they play significant roles in ensuring nutrition, food safety, and quality and are also responsible for processing and preparing food for their households (Anugwa & Agwu, 2016). Rural women also play an indispensable role in small holder farming systems especially weeding, harvesting, processing and storage (Oladejo, Olawuyi & Anjorin, 2011). Olawoye (2001) further reports that about 60% of agricultural processing in Nigeria was supplied by rural women. In Bayelsa State where fishing and crop farming are the dominant agricultural

activities, rural women are more involved in processing and marketing of artisanal fisheries and food production than their male counterparts (Sofiri, nd). Given the enormous role played by women, their access to information on food security issues is, therefore, key to assuring food security for all.

Knowledge and information on scientific and technological information is a necessary condition for rural women to achieve household food security. Manda (2002) notes that there is a positive relationship between the increased flow of information and food production, access and utilization. Thus, armed with adequate information, rural women can reduce inputs costs, improve transport links and can have collective negotiations with buyers, hence widening the market for their products (Siyao, 2012). Masuki, Kumugisha, Mowo, Tanui, *et al.* (2010) were of the views that improvement of agricultural productivity and food security will be realised when rural women are linked to market information. Hence, quick and easy access to information is of vital importance for the achievement of food security among rural women.

Lwoga (2010) added that, quick access to relevant knowledge and information can enable rural women to make informed decisions regarding their agricultural production activities, nutrition, health and sanitation. Moreover, according to FAO (2002), improved household food security requires good decision making by rural women, for which better grassroots information availability is imperative. Therefore, access to knowledge and information is an important resource for female farmers who have access to only 10% of agricultural extension programmes (Siyao, 2012).

Rural women's access to information on food security is dependent on their information seeking behaviour. Information seeking behaviour is a broad term encompassing the way individuals articulate their information needs, seek, evaluate, select, and use information (Gundu, 2009). In other words, information-seeking behaviour is purposive in nature and is a consequence of a need to satisfy some goal. In the course of information seeking, Habtemariam, Tegegni & Azage (2015) report that rural farmers, especially women, mainly source for information from neighbours, friends, relatives and children mainly through informal discussion, experience sharing and inviting other farmers to visit their own farms. Brhane, Mammo & Negusse (2017) further add that information seeking behavior is an essential component in the designing and developing of a need based information sharing technique to meet the information needs of users. Lack of access to needed information by rural women reduces their information seeking behavior.

However, Munyua (1999) observe that lack of reliable and comprehensive information for rural female farmers is a major hindrance to the achievement of household food security. Furthermore, empirical studies (Prakash, 2003; Sadaf, Javed & Luqman, 2006) have shown that they are comparatively less informative than their male counterparts on agricultural technologies that can help them improve their household food security status. Thus, knowledge about the information needs and information seeking behaviour of female farmers is crucial for effectively meeting their agricultural information needs on food availability, accessibility and utilization. Based on the foregoing, the study addressed the following research questions: what is the household food security status in the study area? what are the information needs of rural women on food security issues? what is the information seeking behaviour of rural women on food security issues? and what perceived barriers do rural women face in meeting their information needs?

The specific objectives of the study were to:

1. determine the household food security status in the study area;
2. identify the perceived information needs of rural women on food security issues;

3. ascertain the information seeking behaviour of rural women on food security issues; and
4. ascertain the perceived barriers rural women face in meeting their information needs.

### Methodology

The study was conducted in Bayelsa State, which is one of the oil rich States in the Niger Delta Region of Nigeria. It lies between latitudes 4° 15' North and 5° 23' South of the equator and longitudes 5° 22' West and 6° 45' East of the Greenwich Meridian. The southern part of the State experiences equatorial type of climate while the northern part covers the tropical rain forest zone (Nigeria Galleria, 2015). According to the 2006 census, Bayelsa State had a population of 1,704,515 people, out of which 874,083 were males and 830,432 were females (National Bureau of Statistics, (NBS), 2007). The rural women engage in fishing and subsistence production of crops such as rice, yam, plantain, banana, cassava, cocoyam, coconut, pear, oil palm and raffia palm. The State has eight (8) local government areas namely Yenogoa, Southern Ijaw, Kolokuma/Opokuma, Nembe, Brass, Ogbia, Sagbama and Ekeremor (Nigeria Galleria, 2015).

A multi-stage random sampling technique was employed in selecting the respondents. In the first stage, four local government areas (Yenogoa, Southern Ijaw, Ogbia and Sagbama) were purposively selected from the eight local government areas in the State based on the intensity of agricultural production. In the second stage, three town communities were selected through simple random sampling technique from each of the local government area, giving a total of twelve (12) town communities.

The town communities selected were:

- a) Yenogoa – Tombia, Okitiama and Gbaranturu
- b) Southern Ijaw – Ayama, Amatolo and Amasoma
- c) Ogbia– Ewoi, Otuasegha and Oruma
- d) Sagbama – Tumgbo, Bolorua and Ofoni

In the third stage, the community leaders were asked to make a list of rural women farmers in their communities. From the list, ten (10) rural women farmers were selected through simple random sampling technique from each of the communities, giving a total of thirty (30) rural women farmers per local government area. Thus, the total sample size for the study was one hundred and twenty (120) respondents.

To determine the household food security status, two methods were employed in this study so as to complement each other. The respondents were required to give their perception of their current food security situation when compared to the previous year. Also, the food security index was used to classify the respondents into food secure and food insecure households (Omonona, Agoi & Adetokunbo, 2007). The food security index formula is given by:

$$F_i = \frac{\text{Per\_capita food expenditure for the } i_{\text{th}} \text{ household}}{2/3 \text{ mean per capita food expenditure of all households}}$$

Where  $F_i$  = Food security index

When  $F_i \geq 1$  = Food secure  $i_{\text{th}}$  household

$F_i < 1$  = Food insecure  $i_{\text{th}}$  household

A food secure household is therefore that whose per capita monthly food expenditure fall above or is equal to two third of the mean per capita food expenditure for all the

households in the sampled population. On the other hand, a food insecure household is that whose per capita food expenditure falls below two-third of the mean monthly per capita food expenditure of all the households in the sampled population. Additionally, the number of food secure/insecure households in the state was determined by taking the frequency of the food secure/insecure households. The headcount ratio (H) of food security was calculated to measure the percentage of the population of households that are food secure/insecure. The headcount index formula is given by;

$$\text{Headcount index (H)} = M/N$$

Where M = number of food secure/insecure households

N = the number of households in the sample

To identify the perceived information needs of rural women, the respondents were required to indicate their areas of information needs on a three point Likert-type scale with options namely: very important; important and; not important. Values assigned to these options were; 2, 1 and 0 respectively. These values were added to obtain 3, which was further divided by 3 to obtain 1.0, regarded as the mean. Variables with mean score less than 1.0 were not regarded as perceived information needs. On the other hand, variables with mean score equal to or above 1.0 were regarded as perceived information needs. To ascertain the information seeking behaviour of the women, a list of information sources was provided and the respondents were required to indicate the type of information on food security sought from those 14 sources. They were also required to indicate their frequency of seeking for such information which was measured on a five-point rating scale, thus: always =4; often = 3; sometimes = 2; rarely = 1 and never =0. The cut-off mean was 2. Variables with mean scores greater than or equal to 2 were regarded as frequently sourced information. On the other hand, variables with mean scores less than 2 were regarded as not frequently sourced information. To compute the information seeking behaviour of the respondents, each information sought from any source was given one mark; also any frequently sourced information was also awarded one mark. This was added to give a total of two marks. Thus, each source used by the respondents to seek information was given two marks. The maximum score for each respondent was 28 (14 information sources multiplied by 2 marks each), while the minimum score was 0. Finally, the information seeking behaviour of the respondents was categorized into no (0), low (1 – 9), medium (10 – 18) and high (19 – 27). To ascertain the perceived barriers rural women face in meeting their information needs, a list of barriers was made and the respondents were required to indicate their opinions on a three point Likert-type scale by checking any of the options namely: very serious; serious and; not serious constraints. Values assigned to these options were; 2, 1 and 0 respectively. These values were added to obtain 3, which was further divided by 3 to obtain 1.0, regarded as the mean. Variables with mean score less than 1.0 were not regarded as perceived barriers to meeting information needs, while variables with mean score equal to or above 1.0 were regarded as perceived barriers. The quantitative data were analyzed using descriptive statistical tools such as percentage, frequencies and mean scores. Food security index was used to analyze the food security status.

## **Results and Discussion**

### **Household food security status of the respondents**

#### ***Perception of household food situation***

Results on Table 1 show that 30% of the respondents opined that their household food situation was a little worst now when compared with that of the previous year, while 29.2% indicated that their household food situation was a little better this year. Also, 28.3% and 5.8% were of the opinion that their household food situation was the same as last year and

worse than last year, respectively. Furthermore, 5% of the respondents indicated that their household food situation was much better, while the remaining 1.7% indicated that they do not know their present household food situation. This implies a deteriorating food security situation and the need for information to be disseminated to the women who are a key to ensuring household food security.

**Table 1: Distribution of respondents according to perception of household food situation**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Household food situation</b>		
Much worse	7	5.8
Little worse	36	30.0
Same	34	28.3
Little better	35	29.2
Much better	6	5.0
Don't know	2	1.7

***Food security status of the respondents using the food security index***

Households were profiled into food secure and food insecure groups based on their per capita food expenditure. The food insecurity line is defined as two-third of the mean per capita food expenditure of the total households studied. The food insecurity line as defined is shown on Table 2.

**Table 2: The food insecurity line for the households**

<b>Deciles</b>	<b>Mean per capita food expenditure – MPCFE (₦)</b>
First	3666
Second	3390
Third	4169
Fourth	3122
Fifth	9160
Sixth	4078
Seventh	4961
Eighth	3894
Ninth	3230
Tenth	7229
Eleventh	4222
Twelfth	3652
<b>MPCFE</b>	<b>54773</b>
<b>2/3 MPCFE</b>	<b>36516</b>

*\*MPCFE = Mean per capita food expenditure*

Therefore, households whose per capita food expenditure falls below ₦36,516 were designated food insecure, while households whose per capita food expenditure equals or is greater than ₦36,516 were food secure. It was observed that 39.2% of the households were food secure while 60.8% were food insecure.

Table 3 further shows that the households could be regarded as food insecure given the fact that based on the headcount ratio, 61% had their per capita food expenditure below ₦36,516, while 39% had their per capita food expenditure equal to or above ₦36,516. The food insecurity situation in the study area may be attributed to factors such as: poor income; inadequate access to farmland which resulted to limited crop production; inadequate access to credit facilities; and limited extension contact which affects the use of modern food technologies. Sanusi, Badejo & Yusuf (2006) reported that 70% of the sampled households in

Lagos and Ibadan were food insecure as a result of their poor income and inadequate extension contact.

**Table 3: Summary statistics of food security status of the households**

Variables	Mean		
	Food secure	Food insecure	All
2/3 Mean per capita food expenditure is N36,516			
Percentage of households	39.2	60.8	100
Number of households	47	73	120
Head count ratio (H)	0.39	0.61	-

**Perceived information needs of rural women on household food security issues**

Entries in Table 4 indicate the perceived information needs of rural women on household food security issues. The information needs perceived as being important by the respondents include: information on productive resources such as land, inputs and capital (M =1.18); crop management activities such as irrigation, weeding, fertilizer application, planting distance etc (M = 1.09) and; pest and disease management such as herbicide application, insecticide application, etc (M = 1.06).

Since the respondents are farmers, they obviously need information on farming activities that will boost their food production. The result also show that the women mostly needed more information on productive resources which they have inadequate access to, thereby indicating their willingness to improve their food security situation. In line with this, Munyua (2000) opined that rural women need information on productive resources such as input supply as well as pest and disease management. Similarly, the study conducted by Achugbue & Anie (2011) on the information needs of rural women in Delta State further revealed that women need information on crop management activities such as preservation of harvested products and fertilization application. Saleh & Lasisi (2011) also state that majority of the rural women in Borno State needed information on fertilizer application as well as herbicide and pesticide application. The farmers also reported that they needed information on pest and disease management because of the poor harvest attributed to pest and disease infestation on their crops. It is important to reach rural women with these identified information so that their food needs would be met and their food security situation improved greatly. The standard deviation shows that the responses of the respondents do not vary so much from the mean, thereby indicating uniformity in the perceived information needs of the women.

**Table 4: Mean scores of respondents' perceived information needs**

<b>Information needs</b>	<b>Mean</b>	<b>Std. deviation</b>
Crop management	1.09*	0.86
Livestock management	0.67	0.82
Food preparation	0.73	0.79
Food processing	0.78	0.83
Farming system	0.85	0.85
New agro-technologies	0.88	0.86
Harvest management	0.80	0.86
Pest and disease management	1.06*	0.87
Productive resources such as land, inputs and capital	1.18*	0.86
Food prices	0.57	0.80
Marketing of food products	0.49	0.76
Transportation system	0.51	0.78
Agricultural support services	0.61	0.82
Nutrition education	0.62	0.82
Health care	0.85	0.91
Sources of safe water	0.55	0.81
Sanitation	0.51	0.79
Government policies/regulations on food	0.36	0.69
Food storage	0.49	0.77
Fish breeding and spawning	0.58	0.83
Fish farming technologies	0.58	0.83
Fish construction and management	0.58	0.83
Fish processing	0.57	0.83
Fish storage	0.57	0.83
Fish marketing	0.57	0.83

*\*Perceived information needs*

#### **Information seeking behaviour of rural women on household food security issues**

Table 5 reveals that the majority (88.5%, 84.7%, 80.8% and 71%) of the respondents sourced for information on food preparation, food processing, farming system and crop management activities from their families. Also, those who sourced information from friends/neighbours on transportation to ease food access; marketing of food; food price; and fish marketing constituted 75%, 66.7%, 63.6% and 41.7% of the respondents, respectively. The respondents further indicated that they sourced for information on government policies/regulations on food (66.7%), fish farming (50%), sanitation (15.8%) and fish construction and management (14.3%) from radio. A greater proportion (50%, 43.6%, 27.5% and 22.2%) of the respondents sourced for information on fish farming, health, nutrition education, sources of clean water and agricultural support services from the private sector which includes catering schools, churches and hospitals. This implies that the respondents mostly seek information from close family members and friends probably because they have easier access to them than other sources.

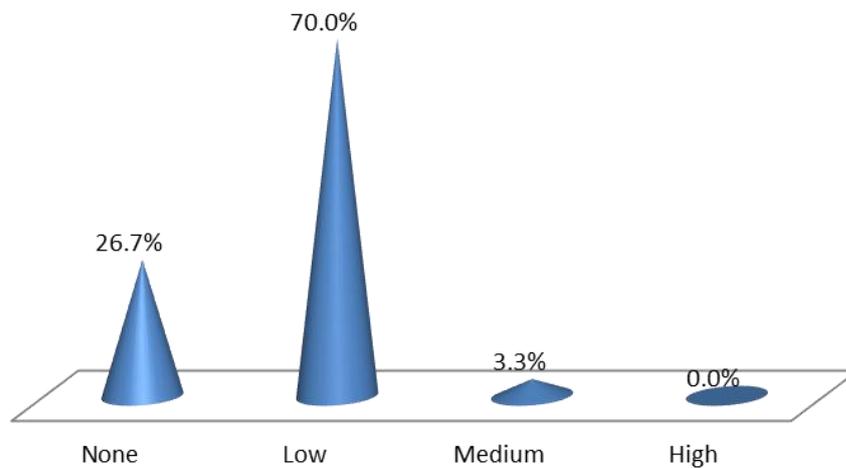
**Table 5: Percentage distribution of respondents by agricultural information and sources**

Variables	Percentage (%)											
	Radio	Television	Friends/neighbours	Farmers	Agricultural cooperatives	International organizations	Private sector	Telephone	Community leaders	Extension agents	Research institutes	Families
Crop management	4.3	5.8	5.8	1.4	-	-	-	4.2	-	7.5	-	71.0
Livestock management	-	8.3	16.7	-	-	-	16.7	-	-	-	8.3	50.0
Food preparation	-	3.3	6.6	-	-	-	1.6	-	-	-	-	88.5
Food processing	-	1.7	8.5	3.4	-	-	1.7	-	-	-	-	84.7
Farming system	5.8	1.9	3.8	5.8	-	-	1.9	-	-	-	-	80.8
New agro-technologies	8.0	8.0	28.0	-	-	-	12.0	-	-	-	8.0	28.0
Harvest management	12.5	4.2	4.2	-	-	-	-	-	-	-	-	75.0
Pest and disease management	11.1	5.6	33.3	22.2	-	-	5.6	-	-	-	-	22.2
Productive resources such as land, inputs and capital	5.3	5.3	26.3	26.3	10.5	-	-	-	10.5	-	5.3	10.5
Food prices	-	-	63.6	18.2	-	-	-	-	-	-	-	18.2
Marketing of food products	-	-	66.7	16.7	-	-	-	-	8.3	-	-	8.3
Transportation system	-	-	75.0	16.7	-	-	-	-	-	-	-	8.3
Agricultural support services	11.1	-	22.2	11.1	-	-	22.2	-	-	-	-	33.3
Nutrition education	-	5.0	20.0	5.0	-	-	27.5	-	-	-	-	42.5
Health care	-	-	33.3	-	-	-	43.6	-	2.6	-	-	20.5
Sources of safe water	5.6	-	33.3	5.6	-	-	22.2	-	11.1	-	-	22.2
Sanitation	15.8	5.3	5.3	-	-	1.7	3.6	-	10.5	-	-	57.9
Government policies/regulations on food	66.7	-	33.3	-	-	-	-	-	-	-	-	-
Food storage	12.5	12.5	12.5	-	-	-	-	-	-	-	-	62.5
Fish breeding and spawning	-	-	25.0	-	-	-	12.5	-	-	-	-	62.5
Fish farming technologies	50.0	-	-	-	-	-	50.0	-	-	-	-	-
Fish construction and management	14.3	-	-	-	-	-	14.3	-	-	-	-	57.1
Fish processing	-	-	33.3	-	-	-	11.1	-	-	-	-	44.4
Fish storage	-	-	28.6	-	-	-	14.3	-	-	-	-	42.9
Fish marketing	-	-	41.7	-	-	-	8.3	-	-	-	-	41.7
<b>Grand mean</b>	<b>17.2</b>	<b>5.6</b>	<b>27.2</b>	<b>12.0</b>	<b>10.5</b>	<b>1.7</b>	<b>15.9</b>	<b>4.2</b>	<b>8.6</b>	<b>7.5</b>	<b>7.2</b>	<b>44.9</b>

\*Multiple responses

### ***Categorization of the information seeking behaviour of the respondents***

Figure 1 shows the categorization of the respondents based on their information seeking behaviour. The majority (70%) of the respondents had a low information seeking behaviour, while 26.7% of them did not seek for information on food security. The remaining 3.3% had a medium information seeking behaviour. The low information seeking behaviour of the women may be attributed to some socio-economic and cultural constraints such low level of education, inadequate access to farmland and inadequate access to agricultural information from a variety of sources. These factors could affect their willingness to seek for agricultural information and subsequently use it so as to improve their food security situation. Asres (2005) asserted that the information seeking behaviour of rural women enables them to be more productive in their roles of achieving household food security.



**Figure 1: Categorization of the information seeking behaviour levels of the respondents**

### **Perceived barriers rural women face in meeting their information needs on household food security issues**

Data on Table 6 reveal that the perceived barriers to rural women meeting their food security information needs are: poor income ( $M = 1.55$ ); inappropriate information by information providers ( $M = 1.35$ ) and; high cost of acquiring information ( $M = 1.30$ ). Poor income restricts women's access to information as it will make it difficult for them to purchase communication gadgets so as to access information. Opara (2010) note that most small scale rural women farmers have poor income and this constrains their meeting their information needs. Also, Siyao (2012) in his study conducted on barriers to agricultural information access discovered that small-scale sugar cane female growers could not meet their agricultural information needs because of lack of enough income to buy communication ICTs. The farmers also reported that information providers such as extension agents conceal information from them because they want them to pay for such information. However, their poor income makes it difficult for them to pay for such information, which comes in form of trainings and printed materials.

Other perceived barriers to rural women meeting their information needs on household food security issues were: poor access to sources of information such as television, radio, internet, etc ( $M = 1.24$ ); poor extension services ( $M = 1.22$ ); poor communication infrastructure ( $M = 1.18$ ); poor participation in social organization ( $M = 1.17$ ); time constraints due to domestic work load, insufficient/lack of power supply and inadequate information system ( $M = 1.15$ ), respectively; age ( $M = 1.12$ ); technical language format of agricultural information and inappropriate airing time of agricultural information ( $M = 1.07$ ), respectively and; poor educational status ( $M = 1.06$ ).

Poor access to sources of information such as television, radio and extension services has been identified as constraints to the respondents meeting their information needs. The cost of purchasing television and radio, which are major sources of information among rural farmers, is quite high and as such many women cannot afford them. Also, the unstable electricity supply prevalent in most rural areas in Nigeria makes it difficult for those who have these gadgets to access information on food security issues. The situation is made worse as rural women have inadequate access to extension services (Akinyele, 2009). It is a well known fact that men have more access to agricultural extension services than women. This is because rural women may have to spend long hours working outside the home to raise extra money to buy food, have the pressures of managing its distribution within the family and are

most likely to go without food themselves so that their children can get enough and as such they are constrained time-wise to attend extension trainings programmes, which would enable them access relevant agricultural information. The standard deviation did not vary so much from the mean, thereby indicating uniformity in the response of the respondents concerning their perceived barriers to meeting their information needs.

**Table 6: Mean scores on perceived barriers to rural women meeting their information needs on household food security issues**

<b>Perceived constraints</b>	<b>Mean</b>	<b>Std. deviation</b>
Poor income	1.55*	0.66
Poor educational status	1.06*	0.78
Large family size	0.73	0.83
Age of the farmer	1.12*	0.78
Poor participation in social organizations	1.17*	0.75
Poor access to sources of agricultural information	1.24*	0.69
Poor health status of rural women	1.05*	0.55
Poor extension services	1.22*	0.69
Lack of rural agricultural libraries and telecenters	0.82	0.86
Cultural and religious taboos that constrain women's access and use of information	0.91	0.79
High cost of acquiring information	1.30*	0.63
Poor communication infrastructure	1.18*	0.64
Technical language format of agricultural information	1.07*	0.76
Inadequate information system	1.15*	0.74
Distance from market	0.95	0.84
Insufficient /lack of power supply	1.15*	0.71
Inappropriate information by information providers	1.35*	0.68
Inappropriate airing time of agricultural programmes	1.07*	0.78
Time constraints due to domestic work load	1.15*	0.71

*\*Perceived constraints*

### **Conclusion and recommendations**

The majority of the women need information need particularly in the areas of productive resources and crop management activities. Furthermore, the major sources of information were informal and the reliability of messages through them may not be guaranteed. The situation is further worsened by the fact that the women do not have adequate access to professional extension advisory services on food security information. The study underlined the importance of a well-organized institutional information provision on agricultural technologies through demand-led extension and advisory services to rural women. Therefore, it is recommended that extension agents should develop appropriate technologies and transfer to rural women based on their identified information needs. Also, since families, friends/neighbours and other farmers were the most important, close and frequently used sources of information for women farmers, it is recommended that policy makers, extension agents, NGOs and related organizations should consider the impact and influence of informal sources of agricultural information and as such they should be viewed as essential sources of information and trained so as to disseminate information effectively.

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