Women Farmers' Agricultural Information Need and Search Behaviour in North Central Nigeria

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Abstract

Women farmers play immeasurable role in Nigerian food production, although motivation for participating in agriculture is first to contribute to household food security and income. To sustain this productivity, it is necessary to understand their information need and searching behavior as this will help close the resource access gap between male and female farmers. The study adopted survey research design. As at the time of this study, the study's population comprised 2678 women farmers drawn from the two states. The multistage sampling technique was used to select 800 farm women that participated in the study. Data was collected using a questionnaire tagged "Agricultural Information Need and Sourcing Questionnaire(AINSQ)". The study had 86% response rate. Data was analyzed using descriptive statistics, with the aid of SPSS version 17.Findings reveal that farm women farm implements (x=2.57), improved seeds (x=2.43) closely followed by land management (x=2.38). Further, they had greater access to extension agents(x=4.90), family members (x=3.60), radio (x=3.60) and other farmers (x=3.38). Conclusively, farm women expressed relatively high need for information on farm management and income generation rather than the crop-biased information. Therefore, information bothering on income generation should be included in extension service provision. Similarly, information providers need to consider using ICT.

Keywords: Information needs, Information source, Farm women, Agricultural information

1. Introduction

The 2006 census puts women at fifty two percent out of which about forty-five percent (45%) live in the Nigerian rural areas. In agriculture, a United Nation's estimate puts women's domestic food production at 80% in Africa, 60% in Asia and the Pacific and 40% in Latin America (FAO, 1998); thus revealing their high level of participation in agriculture especially in food production in African countries like Nigeria. In essence, women can be regarded as driving force for agricultural productivity. In agriculture, new information and knowledge fuel innovation and increase productivity and competitiveness. It is then necessary for farmers to access information as this will contribute to both food security and economic growth. Agricultural information enhance farming decisions to sustain growth of agricultural activities. This was better driven as Mudukuti and Miller (2002) emphasized that in the information age, dissemination of information and applying this information in the process of agricultural production will play a significant role in the development of farm settlements. Agricultural information constitutes information in all aspects of agriculture which could either be published or unpublished. According to Agbamu (2006) they can be placed in the following categories: technical, commercial, socio-cultural and legal.

In Nigeria Ozowa (1995) noted that farmers seldom feel the impact of agricultural innovations either due to lack of access or poor dissemination of such vital information. This has become a key constraint or limitation to agricultural development in the country. Currently, in the country, Agricultural Development Programme (ADP) is a major channel used for ensuring the availability of agricultural Information to farmers whether rural or urban; typically referred to as extension service. This program has gone through many developmental phases since its establishment one of which is the creation of Women in Agriculture section; aimed at meeting information needs of farm women. Nevertheless, for this approach to work, Nigerian government must first understand what farm women's information needs are and then grow a dissemination and management strategy.

Information needs can be diverse in nature but many times linked with individual's work activities; therefore agricultural information needs of farm women is closely connected with their farming activities. This cut across information on production, post planting, marketing and sales as well as policy oriented information. Information needs assessments give program designers the ability to develop interventions that target users with specific information needs. Nonetheless, it is insufficient to limit development effort to just understanding farmers' information needs; researchers need to explore women farmers' searching behavior as this will further enhance the development of better intervention programs. Paying more attention to the differences in how men and women farmers currently need and seek information may provide insight into how agricultural information can be disseminated more efficiently. This study examines the information need and sourcing women farmers around Benue and Nasarawa state in North Central, Nigeria.

2. Statement of the Problem

The role of women farmers in food production is immeasurable and their motivation for participating in agriculture is first to contribute to household food security and income. Unfortunately, minimal or non-provision of agricultural information is a key factor that has greatly limited agricultural development in Nigeria. Especially with women farmers who experience gender gap in accessing information which is a key productivity resource. To overcome this limitation program designers and the government need to understand the information need and seeking pattern of these women farmers. It is in the light of this that this study investigated Information need and searching behavior of women farmers in North Central Nigeria.

3. Objectives and Research Questions

The study was designed to investigate the agricultural information needs and searching behavior of farm women in North Central Nigeria. The following specific objectives guided the study to:

- 1. Describe the agricultural information needs of rural women
- 2. Determine the extent to which agricultural information sources are accessible to the rural women
- 3. Determine the sources rural women in North Central consult for agricultural information

4. Concept of Agricultural Information

Information is a term that has gained popularity with the wide spread use of computer networks. This has accounted for the appellation 'Information Society' where it is believed that performance of human activities depends on information availability, access and utilisation. Stanley, as cited in Odunewu and Omagbemi (2008) posits that information is one of the basic human needs after air, water, food and shelter. This makes information very crucial for everyday living of people around the world enabling people to relate with one another. In agriculture, productivity is greatly determined by the amount of information available to its stakeholders. According to Tadesse (2008), agricultural information includes agricultural messages via extension services embodied in agricultural technologies and shared between the actors in the agricultural extension system. Also, knowledge is a range of information gained from interaction and information combined with experience, and it is organized and interpreted by the human mind for the purpose of taking decisions and actions. Drawing on this definition, the researcher conceptualized agricultural information as information passed on to farmers through extension services primarily to help improve economic yield from farm produce and by extension the farmers' living condition.

4.1 Agricultural Information Need

Information need is mostly linked be individual's work activities, therefore farmers' information need revolve around their farming activities. Information needs of farmers can be classified according to "agricultural cycle" (Mittal, Gandhi, and Tripathi 2010) or the "agricultural value chain" (Ali and Kumar 2011). But irrespective of the categories, they are seen as phases of decision making that farmers' are required to face during cropping season.

Although, studies on farmers' information needs have taken various patterns such as gender, farmer group (e.g. youth) and development area; like men's, women farmers' information needs revolve around the resolution of problems such as income generation, best farming practices, methods of fertilizer application, agricultural inputs, market prices, transportation, food processing and preservation and new agricultural technologies (Okwu and Umoru, 2009; Zaid and Popoola, 2010; Saleh and Lasisi 2011).

4.2 Sources of Agricultural Information

The success in any farming enterprise is largely determined by the amount of information provided and used by the farmers. In Nigeria, agricultural information comes from research institute of agriculture, University of Agriculture, government legislation, service institutions, agro-based industries and agriculture departments in conventional universities. Hard research-based sources such as reports from research institutes, learned journals, students' theses and dissertations, as well as books, monographs and conference proceedings constitute sources from which policy makers and others could extract Science and Technological Information (Djenchuraev, 2004). Meta sources such as abstracts, indexes, subject specialists or authorities also provide information that could guide policy makers. Some of these sources could be obtained from the institutional libraries, in the ministry of science and technology, institutes and agencies. In this digital era, it is expected that some of the required STI would become accessible through the Internet.

Extension service can be described as a service of information, knowledge and skill development to enhance adoption of improved agricultural technologies and facilitation of linkages with other institutional support services (input supply, output marketing and credit). Therefore, the role of extension service has been changed from technology transferring service to information and knowledge brokering and facilitator role. This implies that farmers have a wide range of information sources available to them and if properly utilised, it is

possible to have an improved farming or agricultural practice such that farmers' business or enterprise increases and in turn, development or improved socio-economic status of such farmers.

Farmers consult a wide range of information sources in order to thrive in their business. Generally, these information sources are classified into two categories: traditional and modern information sources. Examples of the traditional information sources used by farmers are: farmer's personal experience, family members and neighbour farmers. On the other hand, the modern information sources include the public extension services, agricultural faculties, farmers' union and associations, input dealers, mass media and the internet (Demiryurok 2000).

Meitei and Devi (2009), in rural Manipur, found that farmers needed a variety of information related to seed varieties, pesticides, and fertilizer. The preferred medium was radio, followed by television and newspapers.

5. Methodology

The study adopted a descriptive survey design. As at the time the study was conducted, it had a population size of 2,416 women that engage in crop farming within the 7 states found in North Central geo-political zone of Nigeria (FRN Gazette,2009) Due to the relative large size of the population, the multistage sampling technique was adopted for sample selection. First, the purposive sampling was used to select 2 states with relative high number of arable women farmers. Thus, selected states were Benue state and Nasarawa state. Then, the random sampling technique was used to select 50% of all Local Government Areas found in the study states. This gave a total of 19 Local Government Areas sampled in the study. Finally, based on data gotten Nasarawa Agricultural Development Program (NADP) and Benue State Agricultural and Rural Development Authority [BARNADA], the study randomly selected 800 farm women from the study 19 LGAs. This was done by randomly selecting 30% of rural farm women found in the sampled LGAs, 300 from 1001 farm women in Nassarawa and 500 from 1677 farm women in Benue state respectively.

Consequently, 800 copies of the validated questionnaire tagged INSQ "Information Need and Sourcing Questionnaire" was used for data collection. The study had 86% response rate. Data was analyzed using both descriptive and inferential statistics. The analysis was carried out using the Statistical Package for Social Science (SPSS) version 17.

6. Analysis of Result

6.1 Research Question 1: Agricultural Information Needs of Rural Work	6.1
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Types of Farm Information	High	Moderate	Low	Mean	Std. D.
Farm implements	402(58.7%)	174(25.4%)	109(15.9%)	2.5650	.69286
Improved seeds	467(68.2%)	138(20.1%)	80(11.7%)	2.4277	.75090
Land management	409(59.7%)	220(32.1%)	156(22.8%)	2.3825	.77213
Pest management	351(51.2%)	185(27.0%)	151(22.0%)	2.3299	.78121
Storage methods	351(51.2%)	172(25.1%)	162(23.6%)	2.3153	.77222
Processing methods	356(52.0%)	172(25.1%)	307(44.8%)	2.2978	.81582
Price	322(47.0%)	171(25.0%)	192(28.0%)	2.2964	.79916
Soil preparation	360 (52.6%)	169(24.7%)	156(22.8%)	2.2905	.81577
Irrigation methods	248(36.2%)	130(19.0%)	97(14.2%)	2.2891	.80456
Harvesting methods	359(52.4%)	185(27.0%)	176(25.7%)	2.2759	.82083
Inorganic fertilizer	346(50.5%)	209(30.5%)	130(19.0%)	2.2380	.84484
Environmental practices	316(46.1%)	189(27.6%)	180(26.3%)	2.2234	.79364
Loan/ financial help	322(47.0%)	190(27.7%)	173(25.3%)	2.2175	.82238
Farm labour	350(51.0%)	188(27.4%)	147(21.5%)	2.2161	.82719
Other farm activities	212(30.9%)	194(28.3%)	198(28.9%)	2.1985	.82805
Market	345(50.4%)	158(23.1%)	182(26.6%)	2.1898	.84581
Fertilizer application	146(21.3%)	193(28.2%)	133(19.4%)	2.1387	.83581
Cropping system	385(56.2%)	177(25.8%)	123(18.0%)	1.9139	.89665

Table 1. Agricultural Information needs of rural women

Table 1, states the pattern of rural women's agricultural information needs found in the study locale. A considerably high number of farm women expressed need for information on farm implements (2.57), improved seeds (2.43) closely followed by land management (2.38). On the other hand they seem to have less need for information on cropping system. This may reveal the participation pattern of women in agriculture which is more of planting, processing and marketing of farm sales.

Findings here imply that women still lack adequate supply of agricultural information that are pertinent to improving their level of productivity. As women experience insufficient agricultural information supply, they might be forced to stick to traditional or old agricultural practices which, in turn, will jeopardize the essence of

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agricultural research efforts in the nation.

6.2 Research question 2: Extent of access to agricultural information sources by rural women Table 2. Women's access to agricultural information sources

CATEGORIES		INFORMATI		Highly	Accessible	Moderately	Scarcely	Not	Mean	SD
2.112GOINED		SOURCES		Accessible		Accessible	accessible	Accessible		
Modern	Institutional or	Extension	agents/services	308(45%)	225(32.8%)	91(13.3%)	25(3.6%)	36(5.3%)	4.0861	1.09352
Information	Organized	(NADP)								
Sources	bodies	Agric. Institute	e/University	47(6.9%)	90(13.1%)	118(17.2%)	190(27.7%)	240(35.0%)	2.2905	1.25842
		Library		39(5.7%)	53(7.7%)	80(11.7%)	156(22.8%)	357 (52.1%)	1.9212	1.20655
			ns/Cooperative	108(15.8%)	153(22.3%)	199(29.1%)	94(13.7%)	131(19.1%)	3.0190	1.32605
		Other Govt. Pr	rojects	42(6.1%)	80(11.7%)	158(23.1%)	169 (24.7%)	236(34.5%0	2.3036	1.22644
		Other NGOs		46(6.7%)	92(13.4%)	172(25.1%)	166(24.2%)	209(30.5%)	2.4161	1.23569
		Input dealers/	suppliers	72(10.5%0	137(20.0%)	173(25.3%)	132(19.3%)	171(25.0%)	2.7182	
										1.31713
		Electronic	Radio	216(31.5%)	218(31.8%)	96(14.0%)	66(9.6%)	89(13.0%)	3.5927	
	Mass media	sources			1.00/22 10/0	00/10 (0/)		101/08 00/0		1.35905
			Television	143(20.9%)	160(23.4%)	93(13.6%)	98(14.3)	191(27.9%)	2.9504	1.52576
			Turk a mund	(7(0.99/)	(5(0,50/)	55(0.00/)	120(10.00/)	2(0(52.70/)	2.02(2	1.52576
			Internet	67(9.8%)	65(9.5%)	55(8.0%)	130(19.0%)	368(53.7%)	2.0263	1.37092
			Mobile/Cell	128(18.7)	182(26.6%)	83(12.1%)	92(13.4%)	200(29.2%)	2.9212	1.37092
			phone	120(10.7)	102(20.070)	05(12.170)	J2(13.470)	200(27.270)	2.9212	1.52069
			Film / Slide	68(9.9%)	64(9.3%)	89(13.0%)	141(20.6%)	323(47.2%)	2.1431	1.52007
			Projection				()			1.36046
		Print	Newspaper	77(11.2%)	112(16.4)	109(15.9%)	145(21.2%)	242(35.3%)	2.4701	1.40000
		sources	or magazines	. ,	. ,	. ,	. ,	· /		
			Extension	92(13.4%)	106(15.5%)	141(20.6%)	154(22.5%)	192(28.0%)	2.6380	1.38191
			Manuals							
			Extension	1118(17.2%)	92(13.4%)	182(26.6%)	130(19.0%)	163(23.8%)	2.8131	
			posters							1.39028
			Bulletins/	172(25.1%)	197(28.8%)	130(19.0%)	92(13.4%)	94(13.7%)	2.5606	
			Newsletter							1.40422
Traditional	Interpersonal	Other farmers		91(13.3%)	105(15.3%)	113(16.5%)	164(23.9%)	212(30.9%)	3.3810	
Information	Media				21 0(20 E)	100/10 00/2		6.5 (0.50)		1.35377
Sources		Family membe	ers	207(30.2%)	210(30.7)	120(17.5%)	83(12.1%)	65(9.5%)	3.6000	
										1.28782

Table 2 reveals that women farmers have access to agricultural information sources. Their access to these sources although can be relatively described as average with just few sources being well accessed by the women. Specifically, women had greater access to extension agents/services (4.90), family members (3.60), radio (3.60) and other farmers (3.38). on the other hand, the least accessed sources by the women is the library(1.92) closely followed by the internet(2.02), film/slide projection (2.14) and Agricultural institutes/university (2.29).

This may imply that women had higher access to interpersonal and old Information and Communication Technology (ICT) based sources as compared to the little access to institutional and recent ICT based sources.

6.3 Research Question3: Information Sou	ourcing
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Table 3. Information Sources Consulted by Farm Rural Women

		N=685
Sources of Agric. Research Info.	Consulted	Not Consulted
Extension agents/services (NADP OR BARNADA)	630(91.9%)	45(6.7%)
Radio	522 (76.2%)	163(23.8%)
Farmers' Unions/Cooperative	445 (64.9%)	24035.0%)
Other farmers	424 (61.9%)	261(38.1%)
Family members	422 (61.6%)	263(38.4%)
Mobile/Cell phone	415(60.6%)	270(39.4%)
Television	369 (53.9%)	316(46.1%)
Extension posters	368 (53.7%)	317(46.3%)
Extension Manuals	323(47.2%)	362(52.8%)
Input dealers/ suppliers	316(46.1%)	369(53.9%)
Newspaper or magazines	310(45.3%)	375(57.4%)
NGOs	261(38.1%)	424(61.9%)
Other Govt. Projects	249(36.4%)	436(63.6%)
Bulletins/ Newsletter	247(36.1%)	438(63.9%)
Agric. Institute/University	232(33.9%)	453(66.1%)
Internet	130(19.0%)	555(81.2%)
Film / Slide Projection	130(19.0%)	555(81.2%)
Library (give examples)	109(15.9%)	576(84.1%)

Table 3 indicates sources of agricultural research information consulted by rural women. Here, extension agents/ services were the most consulted agricultural research information source by the rural women with 630 (91.9%). Next to this is the radio 522 (76.2%), farmer's union or cooperative 455 (64.9%), other farmers 424 (61.9%), family members 422 (61.6%), mobile phone 415 (60.6%), and so on. On the other hand, the least agricultural information source consulted by the rural women is the library 109(15.9%) closely followed by the internet 130(19.0%) and film or slide projection 130(19.0%).

This implies that rural women still seek agricultural information through traditional means such as personal/ oral means of communication. Unfortunately, the library, which should be the store house of research outputs, appeared the least consulted source with 15.9%. This perhaps is due to either lack of information centres or library facilities in these communities or perhaps, relatively low educational status of rural women. Similarly, the relatively low adoption of sources like the internet and film or slide projection may reveal the slow or non adoption of new information and communication technologies that would have aided information sharing among the women.

Also it is important to note that the use of mobile phones has fared better and scored 60.6% reasonably well against other known "modern or new" technologies. Therefore, on an average, its use in Nigerian rural communities proves handier.

7. Discussion of Findings

From the analysis of the study, it is apparent that greater number of women in North Central Nigeria still expressed high need for agricultural information especially those that are income related rather than the cropbiased ones. This is related to the findings of (Okwu and Umoru, 2009; Zaid and Popoola, 2010; Saleh and Lasisi 2011). They identified various areas where rural women require information for the purpose of improving their productivity. They include: income generation, best farming practices, methods of fertilizer application, agricultural inputs, market prices, transportation, food processing and preservation and new agricultural technologies. It is also evident that various sources are relatively accessible to the women for obtaining agricultural information.

Finally the women that participated in this study revealed similar pattern of their access to information sources and their consequent consultation. Many of them expressed their high consultation of interpersonal or oral sources as well as old ICT based sources. This is in agreement with past studies such as (Demiryurok 2000, Boz 2002; Ajayi, 2003; Yakin and Boz 2007 and Zaid and Popoola, 2010) where husbands, fellow women, mass media (radio, television), agricultural extension officers, friends and neighbours, agricultural faculties, farmers' union and input dealers were major agricultural information sources consulted.

Unfortunately, few expressed their use of recent ICT-based sources like the internet and institutional sources such as the library and agricultural institute. These sources unfortunately should have served as major sources for communicating agricultural information to these women farmers. This supports the challenge given by (Ofuoku, Emah and Itedjere, (2008) that research institutes and universities are not giving enough attention to carry out their responsibilities of information generation and delivery to farmers.

It is also worthy to note the relative use of the mobile phone for obtaining agricultural information. This commensurate with the submission of Banmeke and Ajayi (2007) who note that some of the women farmers in developing countries still depend on traditional sources of information.

8. Conclusion

In conclusion, information remains a key component in ensuring agricultural development and productivity in Nigeria. Since women are seen as major player in this sector it is important to understand their information need and seeking pattern as this is expected to influence the sector's productivity level as well as inform information service providers on what strategies to adopt for agricultural disseminating information. Also, in spite of the wide range of sources available to these women to consult and the observed average access to these sources, farm women still expressed relatively high need for agricultural information especially those that will enhance income generation and productivity.

Similarly, they still consult more of interpersonal and media sources with little or no significant exploit of the modern Information and Communication Technologies with the exception of mobile phones.

Finally, it contributes to a growing body of literature that aims to understand to close gender gaps in agriculture and lead to more equitable opportunities for farmers.

9. Recommendation

Based on the findings of this study, the following recommendations were proposed:

i. Provision of productivity related information that takes into consideration farm women's agricultural information need including information on pricing, loan and resource acquisition, marketing and competition.

ii. Information service providers need to explore modern sources such as use of Information and communication Technologies for disseminating agricultural information. Although this might imply the establishment of Information Technology Centers in the communities.

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