

A Review of Information Needs of Rice Farmers: A Panacea for Food Security and Poverty Alleviation

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Abstract

The study aimed at reviewing rice farmers' agricultural information needs, access, and utilization and the constraints faced in sourcing for information. Information were got on the concept of information needs, assessment of information needs of rice farmers, concept of information access, farmers' information search behaviour, concept of utilization or adoption of information and the constraints faced or being faced. Review of related literature on the information needs of rice farmers, access and utilization have been included. Recommendations are given for effective transformation in rice production technology sub-sector if considered such as setting up of adult literacy education programme for farmers, developing ICT-based agricultural information delivery support system.

Key words: Information, Technology, Utilization, Innovation, Access, Farmers

Introduction

Rice (*Oryza spp*) is the most important food crop in the world, being the staple food for more than half of the world's population, predominantly in Asia and Africa where more than 90% of the world's rice is grown and consumed. It is a very versatile crop and there are many varieties of rice adapted to various environment and cultivation practices (Luc et al., 2010).

The importance of rice in Nigeria is no longer the question but rather how we can meet the growing demand, reduce import and be self-sufficient. Many theories and hypotheses were tried for our rice production systems yet we haven't gotten to that self-sufficiency level (Fashola et al., 2007).

Rice is the fourth largest crop produced in Nigeria after sorghum, millet and maize (Fashola et al., 2007). In the last 30 years production has increased 6 folds with Nigeria producing 3.3 and 3.6 million tons of paddy rice in 2000 and 2005 respectively (FAOSTAT, 2007). Despite the increase in rice production in the country, it still remains a paradox that the production has consistently fallen below the national demand (Abba and Mohammed, 2000).

The consumption of rice has increased drastically. This is confirmed by Hirose and Wakatsuki (2002) that in Nigeria consumption per capita has jumped from 2.9kg in the period of 1970 – 1974 to 24.1 kg between 1995 and 1999. Annual per capita rice consumption in West Africa increased from 14 kilograms in the 1970s to 22 kilograms in the 1980s and more than 39 kilograms in 2009. For Africa as a whole, annual per capita rice consumption increased from 11 kilograms in the 1970s to 21 kilograms in 2009 (FAO, 2010). Since the early 1970s rice has been the number one source of caloric intake in West Africa and the third most important source of calories (after maize and cassava) for the continent as a whole (FAO, 2010).

In Nigeria, rice is a vital food consumption staple but has also become an important cash crop where it provides employment for more than 80% of the population in the major producing areas (Okoruwa and Ogundele, 2006). Ayinde et al (2009) noted that Nigeria is both the largest producer and consumer of rice in the West African sub-region. Moreover, Nigeria consumes considerably more rice than it produces (Business Day, 2009), leading to significant imports in recent years (Table 1).

Table 1: Rice Production, Consumption and Imports in Nigeria ('000 MT), 2000-2008.

Year	Rice Production (milled rice)	Rice consumption (milled rice)	Rice Imports (milled rice)	Rice exports
2000	40	55	15	0
2001	50	70	20	0
2002	54	75	21	0
2003	52	152	100	0
2004	37	148	136	0
2005	51	256	205	0
2006	51	186	135	0
2007	46	206	160	0
2008	51	241	190	0

Source: United States Department of Agriculture.

Information is regarded as one of the most valuable resource in agricultural and rural development programmes (Morrow et al., 2002). It is also regarded as an important input in agriculture (Oguya, 2007). Nigerian farmers are reported not to feel the impact of agricultural innovation mainly because they have no access to such vital information or due to poor dissemination (Oguya, 2007). The information usually provided is reported to be focused mainly on policy makers, researchers, students and those who manage policy decisions with little or no attention paid to the information needs of farmers who are the targeted beneficiaries of the policy decisions (Omenesa, 2007). If provided with the right inputs, feasible technology and relevant information which they actually need, small scale farmers are capable of transforming traditional agriculture (Tologbonse et al., 2008).

Adoption (utilization) of innovations is a very important tool to measure the effectiveness and efficiency of agricultural extension (Adedoyin, 2005). A thorough knowledge of the target group and the participation of the target group in the development and dissemination of the technology is a pre-requisite to adoption of the technology in question (Adedoyin, 2005). According to Tologbonse et al (2006), rice farmers' adoption behavior and perception of information source may be responsible for their low output. The need to find out their adoption behavior and perception of information sources is therefore pertinent.

Information Needs

Information need is an individual or group's desire to locate and obtain information to satisfy a conscious or unconscious need. The 'information' and 'need' in 'information need' are inseparable interconnections. Needs and interests call forth information (Wikipedia, 2013). The objectives of studying information needs are:

1. The explanation/observed phenomena of information use or expressed need;
2. The prediction of instances of information uses;
3. The control and thereby improvement of the utilization of the information manipulation of essential conditions (Wikipedia, 2013).

The concept of information needs was coined by an American information Scientist, Robert S. Taylor (1962) in his article "The Process of Asking Questions" published in American Documentation (Now Journal of the American Society of Information Science and Technology). In this paper, Taylor attempted to describe how an inquirer obtains an answer from an information system, by performing the process consciously or unconsciously. According to Taylor (1962), information need has four levels:

1. The conscious and unconscious need for information not existing in the remembered experience of the investigator. In terms of the query range, this level might be called "the ideal question"- the question which would bring from the ideal system exactly what the inquirer, if he could, state as his need. It is the actual, but unexpressed, need for information.
2. The conscious mental description of an ill-defined area of indecision. In this level, the inquirer might talk to someone else in the field to get an answer.
3. A researcher forms a rational statement of his question. This statement is a rational and unambiguous description of the inquirer's doubts.
4. The question as presented to the information system.

According to Adebayo (2006), information has been identified as an important and crucial variable in the development process. Adebayo (2006) posited that agricultural information is central in enhancing agricultural productivity and facilitating poverty alleviation among rural farmers.

Okwu and Umoru (2009) identified information needs of women farmers in Benue State to include the following: improved variety of crops, new cropping systems, new irrigation methods, fertilizer application, and

pesticide application, better farm produce processing methods, improved marketing system and better storage system.

Information Needs of Rice Farmers

Information needs assessments give programme designers that ability to develop interventions that target users with specific information needs. Approaches work through the different phases of decision making that a farmer faces during cropping season and selling. In addition to production – oriented information, off – farm income generation options are also important information needs in addition to sustainable natural resource management (Swanson, 2008). In an information needs assessment, a farmer may highlight an important information need based on his/her requirement on interest, but unfelt or unrecognized needs will be revealed through his approach. Nevertheless, the value of an information needs assessments, by engaging directly with users of information, should not be over looked (Ali and Kumar, 2011).

Information Access

Access, according to Tadesse (2008), is the ability to get or know more and have ways of evaluating an innovation, quite apart from hearing about it earlier. Farmers differ in their access and utilization of agricultural information from extension service and other sources. Such diversity among farmers could be related to various personal, social, economical, or institutional factors. Understanding reasons behind such diversity and farmers' current level of access and utilization of agricultural information is of paramount importance. To enhance the production and productivity of agriculture, farmers should have access to well organize and relevant information and proper and sufficient utilization of agricultural information requires good facilitation (Tadesse, 2008).

Access to the appropriate information for agriculture and rural development becomes difficult task for the farmers. Due to inadequate scientific farm information delivery to the farmers, agriculture exhibits low productivity. Disappointing scientific information dissemination makes the farming become less remunerative and also creates food insecurity problem (Tadesse, 2008).

Farmers' Information Search Behaviour

The level of information search in terms of global, national, and local information sources will depend on the aspirations of the searchers. Further, farmer's ability to search for information depends on the sources that are accessible to them. For example, local information needs could be met by a well – organized extension system that uses traditional and modern methods of communication such as television, radio, and mobile phones, while the need for global information has to be met through internet connection or through contact with private firms. The roles of non – governmental organizations (NGOs) and farmer – based organizations (FBOs) are increasingly being recognized as key for information sharing on specific crops and cropping systems (Swanson and Rajalahti, 2010). The private sector, which includes the high- value agriculture chains developed through contact farmers and input dealers who promote their agrochemicals, also plays a critical role in filling the information gaps that may exist in rural areas (NSSO, 2005).

Yahaya (2002) reported that radio is the most potent source of information for farmers and farmers' companions. Not only do farmers seek and find information from radio useful, but such information seeking behaviour has been associated with an increase in farmers' knowledge of improved agricultural practices, thereby enhancing their productivity. According to Yahaya (2002), constant listening to a radio programme contributes to the easy adoption of new practices by non – literate farmers and can lead to enhanced productivity. Several farmers' characteristics have been found to be significantly related to radio – listening habits, knowledge of improved agricultural practices and, consequently, productivity.

Tiamiyu (2001) identified one major information access constraint as inadequate levels of availability and accessibility of modern information technology components within Nigerian public agencies. It is not a gain – saying that public service particularly Ministry- based institutions such as the Agricultural Development Programme (ADP) have no basic information sourcing facilities such as the internet which is globally computer networked. Consequently extension personnel are not able to access needed information relevant to their task, which are logged in the internet (Tiamiyu, 2001).

Library facilities linked to most renowned databank in the world needed to facilitate appropriate agricultural information for extension services in this new era are non – existent. Even when conventional library services exist, they neither cater for the specific agricultural interest nor networked. As a result, when faced with challenges in the field, extension agents have no reference points to proffer solutions, back up their suggestions to farmers and update themselves with most recent and relevant agricultural data for their operations (Nwaogwugwu et al., 2006).

According to Nwaogwugwu et al (2006), by the nature of their assignment, extension agents are most of the time in the rural areas and secluded from the trend of events in the changing world. Such environments characterized by lack of power supply for simple gadgets such as radio, television sets, personal communication equipment etc. and lack of information service centre does not motivate information sourcing. Consequently, the crave for agricultural information is subjected to the obsolete and inadequate oral – face to face interaction during fortnightly training (FNT) meetings in the Agricultural Development Programmes in Nigeria.

Factors that influence information search strategies are not common to all regions in a country. For example, Halakatti, et al (2010), in the Haveri district of Karnataka, examined farmers' use of mass media; television was most used followed by radio and then print media. 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. Bhagat, et al (2004) interviewed 200 farmers in Jammu and Kashmir, where the most – used information source was contact farmers, followed by the State department of extension staff, and then television and radio. Singh et al (2003) interviewed 80 farmers in Harayana and found that progressive farmers were the most frequently accessed information source. Small farmers cited market prices, weather information, information on diseases and plant protection, and seed information as their top needs (Mittal et al., 2010). Using the Indian NSSO(2005) survey, Adhiguru et al (2009) showed that small and marginal farmers accessed less information and from fewer sources than medium and large scale farmers.

Utilization of Information

Utilization refers to the actual systematic implementation of a scientifically sound, research-based innovation with an accompanying process to access the outcome(s) of the change. (<http://stti.awards.confex.com>). To access, assess, and apply the content of information, users must have economic resources, including money, skills and technology, and social resources, such as motivation, trust, confidence, and knowledge (Heeks, 2005). Individuals must be able not only to access that content, assess its relevance, and apply it to a specific decision, but ultimately to act upon the information. This requires further resources and capacity. For example, content may be available to a community, but it may not be accessed because of, for instance, low levels of literacy, or it may be accessed but not acted upon because of poor financial capacity to buy the necessary inputs. Some studies have shown that farmers who have access to information technology are more likely to participate in agricultural and rural development programmes and other political, social and cultural practices (Anastasios et al., 2010). According to Coudel and Tonneau (2010), information may seem appropriate, usable, relevant, but it can only be useful if the actors have the capacity to use it and if their environment offers them the opportunity to use it.

Rice Information needs, Access and Utilization

Since developing appropriate educational and marketing strategies for farmers will need to reflect how farmers groups differ in their information search behaviour, a better understanding of farmers' agricultural information needs and information search behaviour could help extension and other agricultural programmes to better target specific groups of farmers. This has important implications for extension programmes, particularly where information failures in public-sector extension systems (such as limited feedback and reach to farmers) has reduced content relevance and thus extension impact (Anderson and Feder, 2007).

Tologbonse, et al (2008) carried a study of information need of rice farmers community in Niger State and disclosed that majority of farmers (89.9%) need information about the crop production. This is similar to the findings of Wesseler and Brinkman (2002) that asserted that information needs of rice farmers are centered on production. About 75% are interested in information on soil and land management and 67% interested in information related to agricultural and rural credit. Meitei and Devi (2009) conducted the study of farmers' community in Manipur State. This study shows that majority of farmers did not access to information for their activities. Further, they emphasized that ICT based agricultural information support systems be developed.

Published studies on farmers' information needs and preferences are limited in developing countries. In Africa, farmers information sources and information needs have been analyzed (Aina, 2006), and a number of studies have examined the factors that influence farmers search strategies (Okwu and Dauda , 2011) , Opara (2010) and Adolwa, et tal (2010). In India, for example, where more than half the population is dependent on agriculture and allied activities, improved knowledge delivery to farmers is needed, to support sustainable farm productivity. An analysis of the Indian NSSO (2005) survey showed that small and marginal farmers accessed less information, and from fewer sources, than medium and large-scale farmers (Adhiguru, et tal., 2009). Studies like this show the heterogeneity of farmer access and use of information.

Farmers are clearly not a homogenous group, and understanding the specific factors that influence their information source selection, access and use is a first step toward better targeting of extension programmes and advisory services that facilitate information sharing. However, a majority of published literature that examined the factors that affect farmers' information search behaviours, and the factors that influence farmers' use of different information sources, comes from studies in developed countries (Suresh, et al., 2012). According to Tologbonse (2008), majority (72.2%) of the rice farmers usually access information from the extension agents followed by friends/fellow farmers (26.7%). The high percentage (72.7%) of farmers seeking for information from the extension agent tend to give credence to personal contact as a preferred communication medium.

This is in agreement to the findings of (Tologbonse and Adekunle, 2000; Tologbonse, 2002) that extension agents are important sources of agricultural information. In a study conducted by Tihamiyu, et al (2009), the mean technology use score of the whole sample was 52% indicating that rice farmers adopt about half of the complementary technology on the average. 45% of the sample farmers scored above the mean showing that majority of the sample farmers (55%) belongs to low technology adopters. This means that the adoption of technology had not made an appreciable headway and traditional methods of rice cultivation still dominate the production system. This low level of technology adoption may be responsible for the relative low yield of 147kg/ha obtained by the sampled farmers compared with the average of 2100kg/ha obtained from NERICA rice trials conducted in 21 States by the National Rice/Maize Centre (Erensein et al., 2004). In this study the mean yield for low technology users was 1212kg/ha while it was 1786kg/ha for high technology category. Study conducted by Tologbonse (2008) indicated that major constraints faced by rice farmers include lack of funds to obtain information (54.3%) and language barrier (50.5%). Other constraints encountered are outdated information (36%) and presentation/poor format of information (33.9%).

Conclusion

Therefore, all effort and attention geared toward agricultural production by government and non-governmental organizations must take cognizance of the importance of information needs of the rice farmers, access and utilization of same in order to meet the ever increasing challenges of food security and alleviation of poverty for a stable economy. This is because the success of our agricultural economy largely depends on these and should be seen as such and must be taken seriously. Otherwise is a waste of both human and material resource investment.

Recommendations

The following recommendations are given to effect transformation in rice production if considered:

Agricultural extension agencies should take note of the information needs of rice farmers particularly in areas of pesticides, fertilizers, and improved farm implements and try to step up their services in these areas of need.

Farmers' adult literacy education programme is required to help them acquire basic skills and abilities to seek and receive needed agricultural information through modern communication channels such as mass media, extension agents, e.t.c.

Government should encourage and assist rice farmers by giving them special attention in terms of access to needed farm inputs. New farming implements which will reduce drudgery and are affordable should be made available to them and at appropriate time and seasons.

Rice farmers should be considered in terms of granting loans to help boost their production capacity to ensure food security not only in their domain but in Nigeria as a nation.

Finally, ICT-based agricultural information delivery support system should be developed to encourage modern production technology adoption by farmers.

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