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## Marketing Information Usage among Rice Producers in Benue State, Nigeria

B. C. Asogwa<sup>1\*</sup>, O. Abu<sup>1</sup> and M. A. Onkpe<sup>1</sup>

<sup>1</sup>Department of Agricultural Economics, University of Agriculture, Makurdi, P.M.B. 2373,  
Makurdi, Benue State, 970001, Nigeria.

### Authors' contributions

*This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.*

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### ABSTRACT

This study analysed marketing information usage among rice producers in Benue State, Nigeria. Data were collected from 130 randomly sampled rice producers in Benue State using a structured questionnaire. Descriptive statistics and inferential statistics were used to analyse data collected. The study showed that 53.85% of the respondents had access to marketing information. Other rice producers (53.85%) were the most readily available sources of agricultural marketing information among the respondents. The study showed that 65.38% of the respondents did not utilize marketing information. Furthermore, the study found that 66.92% of the respondents were not members of cooperative society. The level of marketing information utilization (from the listed information sources) among the respondents was generally low (73.33%) to medium (86.67%). The result of the binary logistic regression showed that at 5% level of significance, age, sales, other rice producers, education, off-farm employment and farm size had significant influence on farmers' utilization of marketing information in the study area. The study showed that the most limiting constraint to accessing marketing information among the respondents was high cost of accessing information (74.62%). It is recommended that extension agency should encourage rice farmers to subscribe to the various rice farmers groups that abound in the state. This will make information easily accessible to them and enhance information utilization among the farmers. Extension agents should intensify their efforts so as to spend much time to teach farmers on the areas of needs. Mass Media extension

\*Corresponding author: E-mail: [bcasogwa@yahoo.com](mailto:bcasogwa@yahoo.com);

teaching method should be used regularly to disseminate marketing information to rice farmers in such a manner that the farmers will understand the message. Furthermore, the formal information sources (print and electronic media) should double efforts to carry out their function of information generation and delivery to farmers.

*Keywords: Agriculture; marketing; information; utilization; rice producers.*

## 1. INTRODUCTION

Information is an indispensable factor in the practice of farming and it is the basis for extension service delivery. It is defined by [1] as data that have been put into a meaningful and useful context which is communicated to recipient who uses it to make decisions. [2] opined that information can also be described as power which an individual in every society should have easy access to.

Agricultural information, according to [3], is defined as all published or unpublished knowledge in all aspects of agriculture. He classified agricultural information into four categories viz: technical, commercial, socio-cultural and legal information. Rice farming and marketing information can be considered as all published or unpublished knowledge in all aspects of rice production and marketing.

The quality of information rests solidly on three pillars viz: accuracy, timeliness and relevance [1]. Accuracy of information implies that it is free from bias. Timeliness means that recipients can get information when they need it. Relevance focuses on whether the piece of information specifically answers the users' question of what, why, when, who and how? An individual consciously or unconsciously engages in information search in order to find appropriate information which can fill certain information gap, thereby regaining physiological and psychological balance. Access to adequate information is very essential to increased agricultural productivity [4] and marketing efficiency [5].

It is in recognition of the importance of information for farmers' agricultural business that governments of developing countries including Kenya and Tanzania [6] had to launch their Agricultural Marketing Information Systems. These Agricultural Marketing Information Systems are often managed by agricultural organizations that create information to farmers so that farmers can make better decisions in order to take advantage of market opportunities and manage continuous changes in their production systems and market access [7].

According to [8], information has economic value if it helps estimate the value of something. Both individuals and society at large are interested in the extent to which information about the value of a commodity is contained in its market price. Apart from distributional issues, society's interest is that market price should guide resource allocation so as to maximize value-weighted production. Prices that would induce such efficient resource allocation are themselves efficient.

Different agencies in Nigeria including research institutes and agricultural organizations are saddled with the responsibility of generating improved farm and marketing technologies and disseminating them to farmers. Improved technological practices in agricultural marketing arise from new agricultural innovations and technologies. [4] observed that adequate attention has not been given to information related to activities in agriculture. Production will

suffer if the information aspect of the agricultural system/service is not well handled among producers.

Information about agricultural innovation that is available in Nigeria from Agricultural Research Institutes and Faculties of Agriculture in Nigerian Universities is quite enormous. The problem therefore lies with effective dissemination of information about the innovation. This is a function entrusted to the agricultural information dissemination agencies. There is need to provide support by non-governmental organizations to sustain agricultural development. These support activities could be in form of creation of new sources of agricultural marketing information in rural areas, provision of rural extension services, and ensuring that improved agricultural technologies are well disseminated to the ultimate users.

Information services must be geared towards improving production and capacity development of manufacturing companies in the developing countries. Marketing strategies, innovation and specialized information services are necessary for the survival of any growing industry globally.

According to [9], agricultural commodity marketing in Benue State has not been as efficient and effective as it should be, mainly due to the ignorance of the farmers of the market environment and the ineffectiveness of past intervention strategies. Farm producers attempt to mitigate risk and uncertainty by utilizing accurate and reliable information [10]. Information can enhance efficiency if it is used to aid decision making and management of risk [11]. Farm producers often use information to minimize their risk exposure or increase their expected income [12]. When faced with a choice of information sources, producers are expected to select those information sources that yield the highest marginal benefits [10].

It is believed that the financial market achieves informational efficiency as traders with the best information and the most skilled traders make profits at the expense of those with inferior information or ability and come to dominate the market [13]. Several authors have described the relationship between the performance of management information systems and user attitudes and perceptions [14,15,16,17,18,19]. [18], in a study of an industrial sales force, concluded that user perceptions of system performance (system usefulness or adequacy) were highly correlated with actual information systems use.

In recognition of the significance of information in technology transfer, [20] opined that the emergence of information economy as a global phenomenon with organized production, conscious utilization of information and effective and efficient deployment of information is increasingly becoming the basis for creativity, productivity, and profitability. Hence, access to marketing information (input and output prices, consumer behaviour, market demand and supply) has probably ceased to be a problem, but rather the ability to generate and intelligently use knowledge and information resources about marketing information. Furthermore, for any true agricultural progress, farmers must know, understand and act on the available information. Therefore, how far people progress in whatever they are doing depend largely upon the accessibility to accurate and reliable information as well as their utilization of available information. [21] asserted that in rural Nigeria, as in many other developing countries, good agricultural information can make all the difference to a household's revenue and food security. Therefore, if the targeted segment of the population (rice producers) has access to available and readily useable information, it would hopefully better their lots.

Therefore, meaningful and sustainable agricultural and rural development in Nigeria depends largely on how accessible and well utilized are the agricultural marketing information by the farmers. It has been observed that rice producers scarcely have access to basic marketing information required for increased rice production, not because of the unavailability of marketing information but due to their inability to receive and properly utilize them. This could be due to some factors or challenges encountered in the dissemination process. Even with the many sources of marketing information present, the desired impact on producers has not been really achieved. Thus, the sources of marketing information available need to be analyzed to identify and determine those that are most effective. The pertinent questions arising from this background include (i) what are the sources of agricultural marketing information available to rice producers in Benue State, Nigeria, (ii) what is the level of utilization of available marketing information among rice producers in the study area, and (iii) what factors determine the utilization of marketing information in the study area?. It is hypothesized that selected socio-economic variables have no significant influence on the probability of utilization of marketing information in production.

The broad objective of this study, therefore, is to analyze marketing information among rice producers in Benue State, Nigeria. The specific objectives of the study are to:

- I. analyse marketing information accessibility among rice producers in Benue State, Nigeria;
- II. identify sources of marketing information available to rice producers in Benue State, Nigeria;
- III. assess the utilization of marketing information by rice producers in Benue State, Nigeria;
- IV. determine the factors that influence the utilization of marketing information in Benue State, Nigeria; and
- V. identify problems associated with accessing marketing information by rice producers in Benue State, Nigeria.

The null hypothesis that selected socio-economic variables have no significant influence on the utilization of marketing information among rice producers in Benue State, Nigeria, was tested.

## **2. LITERATURE REVIEWS**

### **2.1 Marketing Information**

One of the basic problems faced by producers operating different enterprises borders on the issue of gathering valid and reliable marketing information that will enable them to manage smoothly the changes occurring in the market. The pre-requisite for an enterprise to survive in the market requires that all marketing decisions be handled within a frame work of decision support system, which regulates the flow of marketing information. Apparently, the need for gathering and managing marketing information by producers has become necessary, especially considering the fact that the volume of information is increasing geometrically due to improvement in the development of information technology.

According to [22], marketing information is a concept “which is likely to include details of potential market channels, payment requirement, packaging, quality and a host of other information required by a producer to make successful sale. Marketing information involves

the provision of information on marketing channels, buyers and quality standards [23]. Marketing information is therefore concerned with the establishment and maintenance of contact between the actors in marketing, as well as ensuring that the produce being marketed are of required standard. According to [24], marketing information can be classified into broad groups viz: market information and post-harvest management information. In order words, market information and post-harvest management information are sub-sets of marketing information.

Market information is involved with the collection of information on market prices on regular basis and in some cases, quantity of widely traded agricultural products for rural assembly market, wholesale and retail markets, and appropriate dissemination of this information on a timely and regular basis through various media to farmers, traders, government officials, policy makers and consumers [22].

According to [22], there are two basic types of market information – current and historical market information. Current market information refers to information which is up to date as possible. Market information must be accessed timely in order to facilitate bargaining and provide benefit of spatial arbitration. Thus, in this case, current market information is needed. Historical market information on the other hand, is information compiled over time that may take several years. Historical information can be used for production planning and storage decision among others.

Recent years have seen an increased interest in market information service [25]. Efficient market information provision can be shown to have positive benefit for farmers, traders and policy makers. Up to date market information enables farmers to negotiate with traders. Well analyzed historical information helps farmers make decision about the viability of inter-seasonal storage. Market information can also be used by planners to help monitor food availability and to identify shortages [26].

Market information enable farmers take decision about what to grow, when to harvest, which market produce should be sent to and whether or not to store products [24]. Recent Information and Communication Technology (ICT) development in developing countries such as the expansion in the use of cell phones have opened up the possibility for more speedy transmission of information. However, it is essential that the information transmitted is accurate. The problem of transmitting reliable information on a sustainable basis is a major problem faced by market information system [25].

If farmers are to effectively use market information, they need to be able to fully understand it. For example, they need to understand the qualities to which quoted prices refer and the cost of transferring produce from their farms to the relevant market. Extension workers need to be in a position to advice farmers on this. The message received must be meaningful for the information receiver to generate knowledge from it before it can be effectively used to make marketing decision. Knowledge and information are therefore important factors for increasing agricultural production as well as improving market distribution [27].

## **2.2 Sources of Agricultural Marketing Information**

[28] viewed sources as an institution or individual that initiates or brings about a message. Most agricultural information is generated from research institutes and from government agencies. Marketing information can only be communicated effectively to achieve its goal if the sources are reliable. The characteristics of a good information source are relevance,

timeliness, accuracy, cost effectiveness, reliability, usability, exhaustiveness and aggregation level.

Agricultural marketing information gets to the farmers from various sources. The source by which the information gets to the farmer is considered most important in this research, and not where the information is generated from. This is because what the farmer will consider as a source of information is only a channel of information. The use of source of marketing information and channel of marketing information is therefore use interchangeably in this research.

Farmers need to have knowledge on the prevailing prices in the market for their decision making on choice of commodity to cultivate. In addition to this, they would also require information on transportation cost to various main markets [29]. Farmers also needs to have knowledge on the cost of production, the understanding and use of market information and the prevailing prices in areas near them and distant places to help them in decision making about the quantity of the crops to cultivate and the most profitable places to sell their produce and how to preserve their products after harvest [26].

Sources of agricultural information to farmers include radio, television, extension agents, newspapers, neighbors and farmers' organization [30]. [31] identified sources of agricultural information to include traders, farmers, radio, brokers, extension agents, newspapers, transporters, telephone and field-days. Traders and other farmers were, however, the major sources of information to farmers. Telephone calls and field-days are reported to be the most reliable or credible sources of information to farmers [29]. This is obviously because phone calls are usually between people who have known themselves, and built confidence in themselves over time.

[32] identified the following as sources of marketing information to farmers: family members/friends/neighbors, radio, traders, extension officers, local government representatives, newspapers, religious organization, bill-boards/posters and politicians. [33] classified the sources of information to farmers into personal communication channels and mass media channels. Interpersonal channels include extension agents, contact farmers, opinion leaders, friends and relatives, while mass media channels include radio, television, newspapers, film shows, bulletins and handbills.

Several authors [34,35] have identified sources of marketing information to farmers to be radio, television, mobile phones, internet, family, friends and fellow farmers, extension agents, farmers' organization and newspapers. Knowledge of these information sources facilitates the distribution and marketing of agricultural products. Information sources differ from one place to another.

### **2.3 Importance of Agricultural Marketing Information**

Marketing information systems play an important role in agro industrialization and food supply chains with the advancement in information and communication technology. Marketing information includes all the dates, in terms of facts, opinion, view, guidelines and policies which are necessary to make vital marketing decisions.

The major reason for providing marketing information to farmers is to grant them an opportunity to know the current market prices and available market for their products, and provide them with the requisite knowledge required to handle their products after harvest

[24]. [30] identified the following as areas where farmers utilize marketing information: the choice of agricultural enterprise, post-harvest management and marketing of the harvested products.

Some of the most important uses of marketing information are helping farmers locate where to sell their produce, how to reduce marketing cost and informing them about cost associated with accessing high price markets. Then the benefits of marketing information also includes, helping farmers in decision making: whether to store or not, whether to grow or produce out of season, whether the prices they are offered are in line with market prices, whether to produce new/other crops [36].

According to [22], marketing information can facilitate efficient allocation of productive resources, help to improve the bargaining position of farmers with traders, reduces transaction costs, decreases entry barrier to both production and trade, and can bring shifts in cropping patterns (to higher value crops). Farmers and traders benefit from improved spatial distribution due to market information.

Farmers require marketing information to decide which crop to produce, and in which quantity [32,37]. The information available to farmers is essential in deciding what crops to cultivate or animals to rear [31].

Farmers' decision to use marketing information and what they use the information for is very important, as it has an influence in their production pattern. It provides farmers with the knowledge required to profitably sell their products, when the products should be sold. Providers of such information will also know what to expect from the recipients of the messages, as the utilization of the information will reflect the information needs of the farmers. Where information is not utilized by farmers, it is obvious that the farmers do not need such information, and re-enforcement to areas of greater need can be done.

## **2.4 Challenges of Agricultural Marketing Information**

According to [22], the problems related to the market data collection process are attributed to whether market data collectors get adequate income, incentives, and have adequate facilities. Therefore, high turnover of trained and/or experienced market data collectors is one of the problems facing market data collection. Delays in transmitting, processing and disseminating market data can make information outdated [24]. In spite of increased availability of information and communication facilities these days, communication of marketing information is still a major challenge. This is because some government offices do not have the improved communication facilities probably due to problems of affordability, power supply or maintenance. Unsuitable information presentation times or mismatching the presentation day/times with those convenient to the potential users is also one of the problem areas related to market information dissemination [31].

Financially buoyant traders and marketers are more likely to have access to sources of marketing information [37]. Such marketers may wish to make themselves exclusive beneficiaries of such marketing information, so as to take advantage of ignorant farmers and manipulate the prices of agricultural products. They therefore oppose, or try to impede the free flow of marketing information meant to serve all farmers and traders. In some cases, they give misleading prices deliberately, to render the credibility of the marketing service questionable [24]. Beyond this, extreme actions have included attacking price notice boards at some markets [23].



Weak farmers' organizations in many developing countries due to poor management, lack of marketing skills, distrust among the members, particularly with the management bodies, are problems that hinder effective use of marketing information [35]. Poor access roads, transportation system, electric power, telecommunication and storage facilities as well as prevalence of natural and man-made shocks are contributing negatively to the provision of marketing information to farmers [24].

Poverty can affect farmers negatively in terms of the ability to access and use marketing information effectively. Small-scale producers are not only constrained in having access to marketing information but also lack the capacity to use the information effectively [37]. Those households with low economic resources, production and marketable surplus are short of money for accessing marketing information. Their motivation for obtaining any marketing information is very weak so that the frequency of visiting market place as well as the information seeking tendency from other people are very much limited. Secondly, shortage of finance is one of the problems responsible for the farmers not being able to turn the received information into action. The limited capacity of farmers is also explained by shortage of know-how to take practical steps. Therefore, small-scale producers generally require more than information alone. They have to be supported with appropriate capacity building interventions [32].

### **3. METHODOLOGIES**

#### **3.1 The Study Area**

Benue State is one of the 36 states of Nigeria located in the North-Central part of Nigeria. The State has 23 Local Government Areas, and its Headquarters is Makurdi. Located between Longitudes 60 35'E and 100E and between Latitudes 60 30'N and 80 10'N. The State has abundant land estimated to be 5.09 million hectares. This represents 5.4 percent of the national land mass. Arable land in the State is estimated to be 3.8 million hectares [38]. This State is predominantly rural with an estimated 75 percent of the population engaged in rain-fed subsistence agriculture. The state is made up of 413,159 farm families [39] and a population of 4,219,244 people [38]. These farm families are mainly rural. Farming is the major occupation of Benue State indigenes. Popularly known as the "Food Basket" of the Nation, the State has a lot of land resources. For example cereal crops like rice, sorghum and millet are produced in abundance. Roots and tubers produced include yams, cassava, cocoyam and sweet potato. Oil seed crops include pigeon pea, soybeans and groundnuts, while tree crops include citrus, mango, oil palm, guava, cashew, cocoa and *Avengia spp.*

#### **3.2 Sampling Technique**

The population for this study is the entire rice producers in Benue State. Since it was impractical to study the entire population, a sample of the population was taken for the study. All the 13 council wards in Otukpo Local Government Area of Benue State were selected for the study. From each of the council wards, one community that typifies the State in rice production was selected using a random sampling technique. Finally, from each community, 10 households were drawn for the study using a random sampling technique. A total of 130 peasant farmers were selected for the study using the randomized sampling design.

### 3.3 Data Collection

Data for this study were obtained mainly from primary sources. Primary source of information were obtained using a structured questionnaire, copies of which were administered to the 130 rice producers selected for the study.

### 3.4 Analytical Technique

Data for the study was analyzed using both descriptive and inferential statistics. Specific objectives i, ii, iii and v were analysed using descriptive statistics such as mean, percentages and frequency distribution. Specific objective iv was analyzed using a logit regression model. The null hypothesis was tested using the Logit regression result.

### 3.5 Model Specification

In order to determine the factors influencing marketing information utilization among farmers who had access to available marketing information in the study area, the Binary Logistic Regression that was used is specified below:

$$Z = \log [P/1-P] = \log Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \mu$$

Where Z = probability of utilization of agricultural marketing information accessed  
 $\beta$  = regression coefficient explaining changes caused in Z by changes in the independent variables.

Utilization of Marketing information accessed = 1;

Non-utilization of Marketing information accessed = 0

$X_1$  = Age (in years) of the respondents

$X_2$  = Rice product sales in Naira

$X_3$  = 1 if print information sources are important; 0 otherwise

$X_4$  = 1 if extension information sources are important; 0 otherwise

$X_5$  = 1 if other rice producers' information sources are important; 0 otherwise

$X_6$  = Formal education (in years); Primary = 6; Secondary =12; Diploma 14; HND =16; B.sc =17; M.sc =19; PhD = 22

$X_7$  = 1 if employed outside rice enterprise; 0 otherwise

$X_8$  = Farm size of respondents (in hectares)

$X_9$  = 1 if electronic information sources are important; 0 otherwise

$\mu$  = Error term

## 4. RESULTS AND DISCUSSION

### 4.1 Marketing Information Accessibility

The result in Table 1 shows that majority of the respondents (69.23%) had access to marketing information while 30.77% of the respondents had no access to marketing information. This result suggests that agricultural marketing information is accessed by a high proportion of the respondents.

**Table 1. Percentage distribution of respondents by marketing information accessibility**

| <b>Access to information</b> | <b>Frequency</b> | <b>Percentage</b> |
|------------------------------|------------------|-------------------|
| Access                       | 90               | 69.23             |
| No Access                    | 40               | 30.77             |
| <b>Total</b>                 | <b>130</b>       | <b>100</b>        |

Source: Field Survey, 2012

## 4.2 Sources of Marketing Information

The most common sources of information as shown in Table 2 are other rice producers (53.85%), friends/family (28.46%), extension agents (27.69%) and radio (24.62%). This result suggests that informal marketing information sources (other rice producers) are the most readily available sources of agricultural marketing information among the respondents. The implication of the foregoing results is that enough efforts have not been put in the area of formal marketing information sources (print and electronic media) as far as carrying out the function of information generation and delivery to rural farmers is concerned. This can be attributed to the high cost implication of these (formal) sources of marketing information relative to the informal sources of marketing information.

Extensions agents meet some members of the farmers' groups who then pass on the information to the others in the groups who are absent during meeting. Extension agents meet the farmers in the groups for group meetings or workshop. This could explain its wide use next to other rice producers as sources of marketing information among the respondents.

**Table 2. Percentage distribution of respondents by sources of marketing information**

| <b>Sources of information</b> | <b>*Frequency</b> | <b>*Percentage</b> |
|-------------------------------|-------------------|--------------------|
| Newspaper                     | 14                | 10.77              |
| Radio                         | 32                | 24.62              |
| Television                    | 7                 | 5.38               |
| Friends/Family                | 37                | 28.46              |
| Internet                      | 5                 | 3.85               |
| Mobile Phone                  | 9                 | 6.92               |
| Extension Agents              | 36                | 27.69              |
| Other Rice Producers          | 70                | 53.85              |

Source: Field Survey, 2012

\*Multiple Responses

## 4.3 Utilization of Marketing Information

The result in Table 3 shows that majority of the respondents (65.38%) did not utilize available marketing information, while 34.62% of the respondents utilized available marketing information. This result suggests that agricultural marketing information is not utilized by a high proportion of the respondents, implying that these farmers cannot make any meaningful impact in rice production since they do not utilize the needed and necessary rice marketing information that can enhance their productivity, and hence profitability of rice production. Their inability to utilize marketing information can be attributed partly to shortage

of technical know-how to take practical steps in utilizing the marketing information, and partly to shortage of finance, which limits their capacity to turn the received information into action. Moreover, the source of information, to a large extent, determines the usefulness of the information, and hence its utilization. This becomes obvious here noting the fact that the major source of marketing information among the respondents is other rural rice producers who may not have access to very useful marketing information, thereby limiting their utilization by the farmers.

**Table 3. Percentage Distribution of Respondents by Utilization of Marketing Information**

| Variable                             | Frequency  | Percentage |
|--------------------------------------|------------|------------|
| <b>i. Utilization of information</b> |            |            |
| Utilize                              | 45         | 34.62      |
| Did not Utilize                      | 85         | 65.38      |
| <b>ii. Membership of Cooperative</b> |            |            |
| Member                               | 43         | 33.08      |
| Non-member                           | 87         | 66.92      |
| <b>Total</b>                         | <b>130</b> | <b>100</b> |

*Source: Field Survey, 2012*

The results in Table 3 also show that majority of the respondents (66.92%) were not members of cooperative society. This implies that the individual peasant farmers in the study area might have had the disadvantages of not having the privilege of having their marketing information needs satisfied by the cooperative society, which has a higher bargaining power and comparative advantage over individual farmers. Farmer organization such as the cooperative society could be of help to member farmers in accessing more useful marketing information as well as assisting them in the utilization of marketing information effectively. However, such assistance is not feasible in the case of these farmers due to their non-enrolment into the membership of the organization. This fact also may have limited their utilization of available of marketing information.

[41] observed that the greater the extent to which the various farmers' cooperative societies as groups satisfy the needs of their members, the more the farmers get involved with the groups. [42] reported that farmers who did not subscribe to the membership of cooperative societies had to contend with the disadvantages of limited access to extension services, reliance on middlemen for marketing (who also dictate the price) of their produce, high cost of input and lack of opportunity to share experience and ideas.

#### **4.4 Level of Marketing Information Utilization**

The result of the level of marketing information utilization among the respondents is presented in Table 4. The result shows that the level of marketing information utilization (from the listed information sources) among the respondents is generally low (73.33%) to medium (86.67%). However, while the level of marketing information utilization among the respondents is high (51.11%) for other rice producers' information sources, it is low for print media (Newspaper [20%]) and very low for electronic media (television [8.89%], internet [6.67%], mobile phone [4.44%]) except for radio (15.56%), which recorded low utilization.

**Table 4. Percentage distribution of respondents by level of marketing information utilization**

| Sources          | Very low |       | Low |       | Medium |       | High |       | Very high |       | Total |       |
|------------------|----------|-------|-----|-------|--------|-------|------|-------|-----------|-------|-------|-------|
|                  | N        | %     | N   | %     | N      | %     | N    | %     | N         | %     | N     | %     |
| Newspaper        | 2        | 4.44  | 9   | 20.00 | 4      | 8.89  | 0    | 0     | 0         | 0     | 15    | 33.33 |
| Radio            | 3        | 6.67  | 7   | 15.56 | 6      | 13.33 | 1    | 2.22  | 0         | 0     | 17    | 37.78 |
| Television       | 4        | 8.89  | 2   | 4.44  | 0      | 0     | 0    | 0     | 0         | 0     | 6     | 13.33 |
| Friends/Family   | 3        | 6.67  | 6   | 13.33 | 13     | 28.89 | 0    | 0     | 0         | 0     | 22    | 48.89 |
| Internet         | 3        | 6.67  | 1   | 2.22  | 0      | 0     | 0    | 0     | 0         | 0     | 4     | 8.89  |
| Mobile Phones    | 2        | 4.44  | 2   | 4.44  | 1      | 2.22  | 0    | 0     | 0         | 0     | 5     | 11.11 |
| Extension agents | 5        | 11.11 | 6   | 13.33 | 7      | 15.56 | 4    | 8.89  | 0         | 0     | 22    | 48.89 |
| Rice producers   | 2        | 4.44  | 0   | 0     | 8      | 17.78 | 23   | 51.11 | 12        | 26.67 | 45    | 100   |
| <b>Total</b>     | 24       | 53.33 | 33  | 73.33 | 39     | 86.67 | 28   | 62.22 | 12        | 26.67 | 136   | 302*  |

Source: Field Survey, 2012

\*Multiple Responses

Generally, only rice producers recorded 100% utilization as a source of marketing information among the respondents, suggesting that all the respondents who utilized marketing information in the study area got their marketing information from other rice producers. The high utilization of other rice producers as a source of marketing information can be attributed to easy access to this marketing information source among the respondents. Furthermore, other rice producers as a source of marketing information probably provide more timely marketing information to the farmers and have less cost implication compared to the other listed marketing information sources. This is not unconnected with the fact that enough efforts have not been put in the area of formal marketing information sources (print and electronic media) as far as carrying out the function of market information generation and delivery to the rural farmers is concerned.

Giving farmers access to a variety of information sources, which are accessible, affordable, relevant and reliable is the ultimate aim of providing agricultural information services [43]. To the extent that expenditures for information sources are a measure of information gathering and selection from among information products, rice producers' information acquisitions are consistent with the assertion of [44] that there is little demand for expensive information products. Also, the observed pattern of information acquisition seems consistent with the proposition that producers no longer subscribe to an information source whose net value (gross value less cost) has been assessed as inadequate [10].

#### 4.5 Determinants of Marketing Information Utilization

The results in Table 5 show that at 5% level of significance, the hypothesis that the specified (selected) explanatory variables have no significant influence on the probability of rice farmers' utilization of marketing information is rejected as a result of the significant change in -2 Log likelihood, suggesting that there was a significant cause and effect relationship between the probability of rice farmers' utilization of marketing information and the selected explanatory variables. The Cox & Snell R square (coefficient of determination) is 0.657. This indicates that 65.7% variation in the probability of rice farmers' utilization of marketing information is accounted for by variations in the selected explanatory variables, suggesting that the model has explanatory power on the changes in the probability of rice farmers' utilization of marketing information. The Nagelkerke R square (adjusted R<sup>2</sup>) also supported the claim with a value of 0.760 or 76%. This implies that the selected explanatory variables

explain the behavior of the probability of rice farmers' utilization of marketing information at 76% level of confidence.

The results in Table 5 further show that farm sales had a significant and positive influence on the probability of rice farmers' utilization of marketing information. This suggests that the probability to utilize marketing information by rice farmers in the study area increased as their farm income increased. It can be inferred from this that farm producers often use information that they perceive is useful to increase their expected income. The implication of this is that ability to generate sales from farm produce is a critical factor that imparts on the farmers the desire to utilize more useful marketing information in order to increase their expected income. This finding confirms the report of [12] that farm producers often use information to minimize their risk exposure or increase their expected income. When faced with a choice of information sources, producers are expected to select those sources that yield the highest marginal benefits.

The results in Table 5 also show that the probability of utilization of marketing information increased with age. Since producers generally become more risk-averse with age, this parameter estimate suggests that more useful and better marketing information is probably sought for to diminish risk. This is because older producers are expected to have more time to develop a satisfactory marketing information system. Likewise they accumulate many years of experience which partly substitute for external marketing information.

Other rice producers as a source of marketing information had a positive and statistically significant effect on the probability of rice producers' utilization of marketing information. The high significance of other rice producers as a source of marketing information can be attributed to easy access to this marketing information source among the respondents. Furthermore, other rice producers as a source of marketing information probably provide more timely marketing information to the farmers and have less cost implication compared to the other listed marketing information sources.

The probability of utilization of marketing information among the rice producers increased with education. This suggests that education raises producers' knowledge and awareness of the complexity of the marketing system and of the need for utilization of useful marketing information and hence leads them to demand and use more accurate and reliable information.

The probability of utilization of marketing information among the rice producers in the study area decreased with off-farm employment. This is because part-time employment outside the rice enterprise is likely to constrain producers' available time for seeking information and lead to lower utilization of marketing information. Producers with off-farm employment have lower perceptions of their marketing information adequacy and hence lower utilization of useful marketing information. This suggests that off-farm employment raises producers' opportunity cost of time and their subsequent demand for more useful information.

**Table 5. Determinants of marketing information utilization**

| <b>Variables</b>      | <b>B</b> | <b>S.E.</b> | <b>Wald</b> | <b>Exp(B)</b> |
|-----------------------|----------|-------------|-------------|---------------|
| Age                   | 0.061    | 0.031       | 3.872*      | 0.969         |
| Sales                 | 0.014    | 0.003       | 18.055*     | 1.014         |
| Print media           | 0.691    | 0.779       | 0.786       | 1.995         |
| Extension             | 1.398    | 2.618       | 0.285       | 4.046         |
| Other maize producers | 3.533    | 2.057       | 2.950*      | 0.632         |
| Education             | 2.878    | 1.372       | 4.410*      | 0.407         |
| Off-farm employment   | -1.467   | 0.922       | 2.532*      | 0.627         |
| Farm size             | 2.267    | 1.342       | 2.854*      | 1.306         |
| Electronic media      | -0.403   | 0.882       | 0.208       | 0.669         |
| Constant              | -41.395  | 10.389      | 15.876      | 0.000         |
| -2 Log likelihood     |          |             |             | 50.322*       |
| Cox & Snell R square  |          |             |             | 0.564         |
| Nagelkerke R square   |          |             |             | 0.790         |

Source: Field Survey, 2012

\*Wald statistic is significant at 5% level.

\*Change in -2 Log likelihood is significant at 5% level.

The probability of utilization of marketing information increased with farm size. This is because risk and uncertainty increases with farm size. Such increases in production risk are likely to be somewhat offset by producers' ability to manage risk or their willingness to bear risk as size increases. That is, size is undoubtedly related to producers' past success in managing the operation. Additionally, risk is somewhat minimized by the marketing strategies utilized by larger producers. Since increased diversification and larger size typically require more and better information, larger producers are expected to spend more time developing an information system and thus to have higher adequacy evaluations of their marketing information and hence higher utilization of useful marketing information.

#### 4.6 Problems of Accessing Marketing Information

The results in Table 6 show that the main constraints to accessing marketing information among the respondents include high cost of accessing information (74.62%), unavailability of support facilities (57.69%), untimely receipt of information (40.77%) and unavailability of information sources readily (33.08%). This result suggests that marketing information mobilization constitutes the greatest constraint to marketing information accessibility among the respondents.

This can be attributed short of money for accessing marketing information among the farmers. Consequently, farmers' motivation for obtaining any marketing information becomes very weak such that the frequency of visiting market places as well as the information seeking tendency from other people becomes very much limited. Furthermore, unavailability of support facilities such as poor access roads, poor transportation system, poor electric power supply, poor telecommunication and poor storage facilities as well as prevalence of natural and man-made shocks all contribute negatively to the provision of marketing information to farmers.

To the extent that expenditures for information sources are a measure of information gathering and selection from among information products, rice producers' information acquisitions are consistent with the assertion of [45] that there is little demand for expensive

information products. Also, the observed pattern of information acquisition seems consistent with the proposition that producers no longer subscribe to an information source whose net value (gross value less cost) has been assessed as inadequate [10].

**Table 6. Percentage distribution of respondents by problems of accessing marketing information**

| <b>Problem</b>                                | <b>*Frequency</b> | <b>*Percentage</b> |
|---|-------------------|--------------------|
| High cost of accessing information            | 97                | 74.62              |
| Information sources are not readily available | 43                | 33.08              |
| Information received is not credible          | 19                | 14.62              |
| Information received is irrelevant            | 24                | 18.46              |
| Information received is not timely            | 53                | 40.77              |
| Cultural and traditional constraints          | 10                | 7.69               |
| Unavailability of support facilities          | 75                | 57.69              |
| Communication barriers                        | 23                | 17.69              |

*Source: Field Survey, 2012*

*\*Multiple Responses*

## 5. CONCLUSION

Based on the findings of the study the following conclusions have been drawn:

- I. agricultural marketing information was accessed by a high proportion of the respondents;
- II. other rice producers were the most readily available sources of agricultural marketing information among the respondents;
- III. agricultural marketing information was not utilized by a high proportion of the respondents;
- IV. a larger proportion of the respondents were not members of cooperative society;
- V. the level of marketing information utilization (from the listed information sources) among the respondents was generally low to medium;
- VI. age, sales, other rice producers, education, off-farm employment and farm size had significant influence on farmers' utilization of marketing information;
- VII. the greatest constraint to accessing marketing information among the respondents was high cost of accessing information.

## 6. RECOMMENDATIONS

Extension agency should encourage all rice farmers to subscribe to the various rice farmers groups that abound in the state. This will make information easily accessible to them and enhance information utilization among the farmers.

Extension agents should intensify their efforts so as to spend much time to teach farmers on the areas of needs. Other method of marketing information dissemination such as mass media should be used regularly to disseminate marketing information to rice farmers in such a manner that the farmers will understand the message and information being communicated to them.



Furthermore, stakeholders responsible for the formal information sources (print and electronic media) should double efforts to carry out their function of information generation and delivery to farmers. This will ensure that farmers have access to more useful and needed marketing information from a wide variety of information sources.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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