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Gender and Educational Differences in the Agricultural Information Needs of Plantain Farmers in Ikenne Local Government Area of Ogun State, Nigeria

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Abstract

One way to address challenges faced by plantain farmers is by identifying their agricultural information needs. This study investigated gender and educational differences in the agricultural information needs of plantain farmers in Ikenne LGA of Ogun State, Nigeria. It found that the agricultural information needs of plantain farmers statistically significantly differed according to gender and education. Agricultural information needs differed according to stages such as preparation, planting, post-planting, harvesting, post-harvesting. Agricultural information was needed most in the preparation stage (mean=2.71). Plantain farmers' information needs ranged from good soil selection (mean=2.86) through to marketing (mean=2.20) of the produce. The study recommended that any information provided by the extension worker in a particular community should be based on the identified information needs of the farmers within that community.

Keywords: Gender, Education, Information Needs, Plantain Farmers, Farm Stages,

Introduction

Plantain farmers' poor knowledge and inability to adopt new agricultural technologies affect their productivity (Elum and Tigiri, 2018). Therefore, agricultural information is needed to bring about a change in the way plantain farming is done as well as in other dimensions of plantain production. The inadequate knowledge of improved practices contributes to low plantain production in Nigeria (Akinyemi *et al* 2010). Providing agricultural information makes technical know-how accessible to the rural farmers as well as increases their knowledge about production, processing, transportation and other marketing dimensions of agriculture (Okwu and Iorkaa, 2011). Provision of relevant agricultural information should start with the analysis of the farmers' agricultural information needs. This is because the information needs of plantain farmers are based on their specific farming activities. Their agricultural information needs encompass innovations, advice, techniques, skills, technologies and regulations on environmentally safe practices.

The specific agricultural information needs of farmers must be considered in order to overcome their decision-making constraints. One way to overcome decision-making constraints among farmers is to provide them with relevant agricultural information that could improve their knowledge (FAO, 2015). Relevant agricultural information are often provided to farmers especially the rural farmers through formal or informal education. Plantain farmers need formal or informal education to understand any agricultural information they receive from extension services so as to make decisions whether or not it can be utilised. Agricultural information received from extension services should impact both gender since the male and female plantain farmers face similar decision-making constraints. Gender of the farmer is considered in division of

labour, planning of crops, accessing of credit and extension services as well as productivity. The productive capacity of female farmers in the Nigerian agricultural sector is placed lower than the male even though they make up three quarters of the workforce (FMARD, 2016; Olakojo, 2017). Looking at the critical role that agricultural information plays in ensuring productivity, one would wonder if there is any difference in the agricultural information needs of male and female farmers. One would also wonder if there is any difference in the agricultural information needs is attributable to the education of plantain farmers.

Statement of Problem

Plantain Farming in Nigeria is challenging because of an outdated land tenure system that constrains access to land (about 1.8 ha/farming household), very low level of irrigation development (less than 1 percent of cropped land under irrigation), inadequate storage facilities and poor access to market (*FAO*, 2017). The plantain farmers face challenges like unfavorable weather conditions, pests, diseases, technological advancement, infrastructure, bureaucracy, exploitation by middlemen and market conditions that are beyond their control and a lack of financial capacity that limits them to a subsistence level of production. The persistence of these challenges could be attributed to the inability of extension services to meet the agricultural information needs of the plantain farmers. Not only is this situation complicated by differences in the agricultural information needs of both the male and female gender but also the educational background of plantain farmers. The rationale for focusing on gender and education among other demographic characteristics like age, family size, marital status, is attributable to their research and development significance in meeting the agricultural needs of farmers, world over. Research on demographic characteristics of farmers has been conducted in different parts of the world but their results cannot be generalised. There exists a potential gap in adopting the results of these researches in the context of the Nigerian plantain farmers. Addressing this research gap will have practical benefits as well as inform future policy objectives in the provision of extension services to farmers in the rural communities. It would contribute empirical evidence on the gender and educational differences in agricultural information needs of farmers in rural communities.

The Aim and Objectives of the Study

The aim of the study was to find out if there were gender and educational differences in the agricultural information needs of plantain farmers in Ikenne Local Government Area of Ogun state, Nigeria. The objectives were to:

1. describe some demographic characteristics of the plantain farmers
2. determine the agricultural information needs at the stages of planting preparation, planting, post-planting, harvesting and post-harvesting

Research Questions

The research questions asked include

1. What are the demographic characteristics of plantain farmers?
2. What agricultural information do plantain farmers need at the stages of planting preparation, planting, post-planting, harvesting and post harvesting stage?

Research Hypothesis

H_0 There are no significant gender differences in the agricultural information needs of plantain farmers

H_0 There are no significant educational differences in the agricultural information needs of plantain farmers

Literature Review

Plantain products have remained one of the few food products driving the Nigerian economy in the last few years. It is important in the diet of many Nigerian families (Okoruwa, Sowunmi, Ogundele and Omigie, 2014) and serves as a handy food in the kitchen as well as a raw material for many popular delicacies and snacks (Aina, Ajiola, Bappah, Ibrahim and Musa, 2012). Plantain farming has been a significant economic activity for income generation for both large

scale and small scale farmers (Idumah et al, 2016). It is common among people living in rural communities. Plantations of plantain offer lucrative farm products that provide a viable prospect for the socio-economic development of rural communities. Plantain is produced in large quantities in the rural communities of Edo, Delta, Ogun and Ondo states. Other producing states are Rivers State, Cross River, Imo, Anambra, Lagos, Kwara, Benue, Plateau, Kogi, Abia and Enugu (Map of world, 2016). Plantain farming has a strong grip on the Nation's economy. Nigeria is ranked among the 20 important plantain producing and consuming countries in the world (FAO, 2017). The annual production of plantain in Nigeria surpasses 2.5 million metric tons (Ayanwale, Fatunbi and Ojo, 2018).

Since plantain farming has such a strong grip on the Nation's economy; it deserves to be supported with relevant information to sustain its level of production. Inadequate provision of information through extension services reduces the production and marketing of plantain (Ayanwale et al., 2016). Information has long gained recognition as the fifth factor of production and its value in ensuring the sustenance of the present level of agricultural productivity in Nigeria cannot be overemphasised. Information consists of processed data that has meaning to the user, and is of value for decision making. The value of a piece of information comes from the potential gains or losses derived from its use in a particular decision making process. This is particularly true of an information-dependent sector like the agriculture. Agricultural information is a vital resource used by farmers to make the best use of other resources at their disposal for agricultural production. The same way a physician cannot make the right prescription except the right diagnosis is first and foremost made, the agricultural information expert cannot provide the relevant information to the farmer if certain issues are not straightened out. One of such issues is identifying the required information or information need.

The information need is often understood as an individual's or a group's desire to locate and obtain information to satisfy a conscious or unconscious need. The best form of information to provide to a farmer is not the general information but need-based information. Studies have shown that farmers' information needs include quantity, timing of inputs and activities such as appropriate soil type, improved seedlings for maximum yield, credit availability, quantity of fertilizer, application timing, disease awareness, disease prevention and control, information relevant to harvesting stage, storage methods and marketing information. The female farmers have high agricultural information needs especially in areas of insecticide, fertilizer, improved variety of crops and farm implements (Okwu and Umoru, 2009). Most farmers need agricultural information on their product markets, government schemes like subsidies, credits, transportation, fertilizer and seed availability as well as new crop innovations (Bachhav, 2012). In other words, finding out the exact information a particular farmer needs at a material time is the starting point in the process of providing relevant information. Plantain farming, like most other crop planting has seasons and stages. It follows a cycle and the information that will be relevant at one stage of the cycle might not be immediately relevant at the next stage.

Agricultural information needs of plantain farmers cover various stages such as the planting preparation, planting, post-planting, harvesting and post harvesting stages. The agricultural information needs of plantain farmers at the planting preparation stage include weather/climate information. Weather, climate change and agriculture are inextricably linked. The effect of climate change is greatly felt in the plantain production because these crops fare differently under different weather conditions. It is globally acknowledged that severe changes in climate pose serious environmental threats (Samuel, Oyedeji and Akerele, 2017). The agricultural production system in Nigeria is predominantly rain-fed. The rain-fed system is vulnerable to seasonal changes which affects the output of farmers who depend on this system for agricultural production. There are some crops that thrive when there is plenty rainfall. An example is rice. There are others that do not do so well when rainfall is much, beans is one of such. Hence, extreme rainfall patterns and/or variability becomes a critical production risk (Olayide, Tetteh and Popoola, 2016). The climatic factors that can influence the growth and yield of crops include temperature, rainfall, light, relative humidity and wind (Enete, 2010; 2014). Providing timely weather/ climate information to farmers will go a long way in assisting them in making informed decisions that will

in turn impact positively on their financial returns. Based on such information, the farmer will be able to make a decision to channel his efforts and finances towards such crops that will do better under a predicted weather. Climate prediction information therefore becomes useful for farmers in their decision regarding which crops to plant within a particular growing season. Climate information includes information on drought, heat, air waves, rainfall etc.

Once the farmer decides on what crop he wants to plant, the next step is gathering information for soil selection. Soil is that unconsolidated mineral or organic materials on the earth surface on which plants are grown. It is a complex body composed of five major components: mineral matter, organic matters, water, air or gases and organisms (FAO, 2015). It is unarguably a key element in agriculture without which, we cannot grow plants. Scholars like Bareja (2011) argue that the information on soil type and site selection is very vital to the performance of farming activity. Soil selection involves using information to choose the right geographical location that matches the soil requirements of a particular crop. The soil requirement of a particular crop includes such specific characteristics as soil type, depth of the soil, organic matter content, soil texture, and soil fertility level. Other land features such as elevation, slop and terrain are also part of the factors a farmer needs to consider in his soil selection. In addition to soil selection, the site/location also needs to be given serious consideration. In choosing the plantain farm site, access to supplies, equipment, skilled labour and market are some of the key factors to be considered. Possible occurrence of flood, drought, and volcanic eruption should also form part of the considerations when choosing a plantain farm site.

In addition, plantain farmers need information on sucker selection. Sucker selection is a very important aspect of plantain farming, because choosing the right plantain sucker is critical to getting the desired outcomes in terms of harvest (Okwu and Umoru, 2009). Unfortunately, many plantain farmers do not have the information needed to select good suckers. Many of them are unaware that the quality of the suckers you plant will determine the harvest you will get at the end of the day. Many are unaware that selecting plantain suckers from a disease infested field can result in poor quality of harvested crops. This is where the role of the agriculture information expert comes in. Therefore, timely disseminating relevant agricultural information to the farmers will help them avoid the risk associated with problematic or disease infested plantain suckers. Growing strong and health crops requires good quality plantain suckers that can either be bought from trusted sources or produced by the farmer. The selected plantain suckers must contain living, healthy tissue in order to grow.

Selection of good quality plantain suckers can obviously be used to improve the quality of crop (Bachhav, 2012). There are several diseases that are transmitted via the plantain suckers. If plantain suckers from an infested field are used to grow the next crop, these will immediately cause serious problems. Sucker selection should thus start by obtaining plantain suckers from healthy plants. The small, shriveled plantain suckers contain less nutrition and should be removed to ensure the growth of stronger and healthier plantain suckers. Although sucker selection is mainly aimed at obtaining healthier plants, it can also be used to maintain and improve the quality of the crop variety. Some plants may have characteristics that are more suitable than those of other plants. Farmers can observe these characteristics during the growing season and mark the preferred plants with a ribbon or with a stick. At the harvest, the suckers of these plants can be reserved for growing in the next season. In this way, the farmer slowly improves the quality of his plant variety, and by extension, the overall productivity. The selection of the plantain suckers may be based on characteristics such as the size of the plant, color or size of fruits, number of stocks per plant among others. Selection can also aim at keeping suckers of plants that suffered less attacks by insects or diseases.

Information on available agricultural credit facilities is very critical to rural farmers especially in Nigeria because it helps to guarantee and sustain agricultural growth. Agricultural credit facilities could be funds borrowed by individuals, farm business and others for use in producing, storing, processing and marketing crops and livestock products. This includes all loans and credit advances granted to borrowers to finance and service production activities relating to agriculture, fisheries and forestry. The credit could

take the form of loans, where a lender (banks, credit union and farm credit schemes) gives money or property to a borrower and the borrower agrees to return the property or repay the money, usually with interest at some future time. Lack of agricultural credit is seen as a major militating factor against agricultural production and development in Nigeria (Akinbode, 2013). Most of the Nigerian farmers, both subsistent and commercial farmers, rely on external sources of finance to be able to meet the requirements in terms of the cost of labour. The federal government realising this need has established some credit schemes through collaboration between the Central Bank of Nigeria (CBN) and the Federal Ministry of Agriculture and Rural Development (FMAandRD). These include Agricultural Credit Guarantee Scheme (ACGS) and Agricultural Credit Support Scheme (ACSS). In 2016, the World Bank approved a $200million credit to support the Nigerian government in her efforts to enhance the agricultural productivity of small and medium scale farmers in the country (World Bank, 2017). Approximately 60,000 individuals were to benefit from this credit, 35% of whom were expected to be women. Unfortunately, not many of the farmers were aware of this credit facility (Ayanwale, Oluwole and Ojo, 2016). A good number of them did not know whether or not they qualified to apply or how to go about applying for it. These farmers need to know that the easiest way to access these credit facilities is through cooperative societies. They can easily gain information from cooperative societies on specific details such as condition for accessing, maximum amount that can be accessed, interest rate and payback period of the credit facility.

At the post-planting stage, plantain farmers need information on fertilizer. Fertilizer, from the perspective of agriculture, may be described as the artificial soil nutrients used by farmers to enhance maximum agricultural yields. Fertilizer helps restore loosed soil nutrients. Scholars like Oso and Ayodele (2014) argued that farmers were aware of the benefits of the application of fertilizer in causing high yield and improving crops. They pointed out that one constraint to the application of fertilizer was attributable to its availability when needed. To this end, it is important that plantain farmers get information on availability of fertilizer, the precise location to get it, how they can apply for it and the cost per bag or ton as the case may be. Also, information on how to apply the fertilizer, the quantity per acre as well as when to apply it would all be helpful to the plantain farmers.

Nigerian plantain farmers also need information on disease prevention and control. A good number of plantain farmers have no idea on how to prevent or control diseases in their farms. The few that have heard about the use of disinfectants may not know much about dilution rate. Crops suffer from diseases that farmers sometimes find difficult to cope with. Control of crop diseases begin with correct diagnosis of the problem. Disease outbreaks can cause significant economic damage to farms and crops. Thus, the plantain farmer has a duty to prevent crops from getting infested with disease, and should they get infested, it is his/her duty also to take measures to control the spread of such diseases. The plantain farmers need information on cultural methods of crop disease control like sanitation, crop rotation, host eradication and improvement of crop environment.

Another stage during which the plantain farmers need information is during harvesting. Harvesting refers to the act of removing a crop from where it was growing and moving it to a more secured location for processing, consumption or storage. Harvest losses have a number of causes such as rough handling, harvesting at maturity, lack of processing, contamination, high temperature and humidity (Adeniji, Tenkouano, Ezurike, Ariyo and Vroh-Bi, 2010; Akinyemi, Aiyelagbe and Aykeampong, 2010). Farmers need information on harvesting methods and techniques. Ayanwale, Fatunbi and Ojo (2016) suggested that plantain growers associations should be equipped with adequate information on agronomical practices that would reduce loss using the mass media. Many farmers have access to radio through aired programmes on modern agronomical practices would help plantain farmers know exactly when to harvest their plantain to prevent quick ripening and reduce losses. In addition, disseminating information to plantain farmers using mass media would ensure proper handling thus reducing losses. Furthermore, innovative techniques of harvesting and technology available for harvesting are key areas of information need.

The gap in plantain farmers' information needs result in losses when poorly addressed at post-harvest stage. Reduction in post-harvest loss can be achieved through the identification and provision of the right information to farmers. Farmers' information needs regarding post-harvest in plantain farming revolves

round timely harvesting, proper handling, processing options, storage facilities and transportation. At this stage, product storage information offers the opportunity to reduce food losses and increase farmers' income. Plantain farmers need information on how best to store their farm produce in a way that loss will be minimised. Post-harvest losses for plantains have a number of causes including rough handling, harvesting at maturity just before the fruit ripens, lack of processing options, contamination from spoiled fruits and inadequate storage and transportation (Adeniji et al., 2010). Rough handling and transportation often cause splitting, scuffing and other types of damage to plantain. Also, high temperature and humidity shorten the shell life of plantain leading to increased rot and waste (Akinyemi et al, 2010).

At the post-harvest stage, effective product marketing information is also needed by the plantain farmers. At this stage, farmers are very passionate about the sale of their farm produce. This is because after harvesting, the next thing on the plantain farmer's mind is how to sell his/her produce in order to improve his quality of life and that of his family. Therefore, information on areas/places where the demand/price for plantain farm product is high would be highly valued. In addition to information on demand, plantain farmers also need information on transportation to prospective markets. Rural plantain farmers do not have direct market access or direct participation. Their marketing options are primarily limited to sale for local consumption (Akinyemi et al., 2010). They face an absence of large scale collectors putting them at a disadvantage. There are many intermediaries in the marketing process of plantain in Nigeria (Adeoye et al, 2013). Women play a significant role in marketing of plantain, regulating the quantity and price as well as permitting of new entrants to the sale (Dzomeku et al 2011).

Methodology

The study used a cross-sectional survey research design. The study population was drawn from the OGADEP list of farmers in Ikenne local government area of Ogun State. The study sample was selected in four stages. At the first stage, cluster sampling was used to group the farmers according to the major crops cultivated. Purposive sampling was used in the second stage to select plantain because it was a common cultivated crop among the farmers. Plantain farming appeared attractive to the farmers because it can be cultivated along with other crops and requires relatively low inputs like fertilizer and labour. At the third stage, three rural communities; Ilishan, Irolu and Ijesha were purposely selected because these were notable plantain producing communities. At the fourth stage, a purposive sample of 250 plantain farmers were selected from OGADEP list of farmers in these communities. These plantain farmers were identified with the assistance of extension agents and key informant members. They received informal training, and regular context specific information from extension agents. Unstructured interviews with 18 participants and a questionnaire were used to collect data from the sample between 2018 and 2019. The return rate was 99.2%. Data collected was coded and analysed with the aid of the IBM Statistical Product and Service Solution Version 21 to generate descriptive and inferential statistics. Descriptive statistics such as frequency count and percentage were used to present findings on demographics and level of agricultural information needs. Inferential statistics from the independent samples Mann-Whitney U and Kruskal-Wallis tests were used to present the gender and educational differences in the agricultural information needs of plantain farmers.

Findings

Demographic Characteristics of the Plantain Farmers

This research question examines the demographic characteristics of the responding plantain farmers. Table 1 presents demographic characteristics of the responding plantain farmers in Ilishan, Irolun and Ijesha communities in Ikenne LGA of Ogun State, Nigeria. It shows that 50% of the respondents were male and 50% were female. About 27.6% of the respondents were below the age of 30 years. This implies that these respondents were within the youthful age. Majority of the respondents had formal education as 60.8% of them attained primary and secondary educational level while 26.4% attained the tertiary education. The table also shows that many plantain farmers in the communities operated at a small scale. Only 5.6% of the plantain farmers cultivated above nine hectares of farmland.

Table 1: Demographic characteristics of respondents

Classification		Frequency	Percentage
Gender	Male	131	52.4
	Female	119	47.6
Age	30 and below	69	27.6
	31-40	60	24
	41-50	57	22.8
	51+	64	25.6
Educational background and level	Primary School	52	18
	Secondary School	60	24
	Technical Education	42	19.6
	Tertiary Education	66	26.4
	No Education	30	12
Size of farm (hectares)	Less than one	72	28.8
	One to three	68	27.2
	Three to six	55	22
	Six to nine	41	16.4
	Above nine	14	5.6

Plantain Farmers' Agricultural Information Needs at the Stages of Planting Preparation, Planting, Post-Planting, Harvesting and Post Harvesting Stage

This question attempts to identify various agricultural information needs of the plantain farmers at the planting preparation, planting, post-planting, harvesting and post-harvesting stages.

Table 2: **Agricultural information needs of plantain farmers at various stages**

Stages	Agricultural information needs	Mean	Mean
Preparation	Good soil for planting	2.86	2.71
	Farm credit facilities	2.6	
	Good sucker plants	2.67	
Planting	Sucker treatment	2.4	2.40
	Timely weather/climate	2.41	
	Planting depth/spacing	2.44	
Post-planting	Fertilizer application	2.76	2.67
	Weeding	2.38	
	Disease and pest control	2.32	
Harvesting	Harvest	2.33	2.35
	Preserve products	2.32	
	Store products	2.4	
Post-harvesting	Effective marketing	2.2	2.70
	Transportation	3.02	
	Product pricing	2.86	

Table 2 shows that some of the specific agricultural information needs of plantain farmers at the planting preparation stage includes information on good soil for planting (mean=2.86), farm credit facilities (mean=2.60) and good sucker plants (mean=2.67). At the planting stage, the specific agricultural information needs of farmers include information on sucker treatment (mean=2.40), timely weather or climate (mean=2.41) and planting depth/spacing (mean=2.44). For the post-planting stage, the specific agricultural information needs of plantain farmers were fertilizer application (mean=2.76), weeding (mean=2.38) and disease and pest control (mean=2.87). The table also shows that at the harvesting stage, the specific agricultural information needs of plantain farmers were harvest methods (mean=2.33), preservation of products (mean=2.32) and storage of products (mean=2.4). And at the post-harvesting stage the specific agricultural information needs of plantain farmers were effective marketing (mean=2.20), transportation (mean=3.02) and product pricing (mean=2.86). The plantain farmers had their highest agricultural information need at the preparation stage with a mean score of 2.71. The planting, post-planting and harvesting stages had means scores of 2.40, 2.67 and 2.35 respectively. The post-harvesting stage is the second highest stage of agricultural information need with a mean score of 2.7.

H_0 There are no significant gender differences in the agricultural information needs of plantain farmers

Table 3: Gender distribution of agricultural information needs of plantain farmers

Agricultural information needs	Mean rank		X^2	P Value
	Male	Female	Value	
Storage	184.11	60.97	116.000	0.000
Planting depth and spacing	183.72	61.41	168.000	0.000
Marketing	183.34	61.82	217.000	0.000
Sucker treatment	183.57	61.57	187.000	0.000
Harvest	183.18	62.00	238.000	0.000
Climate/ weather	183.07	62.13	253.000	0.000
Good sucker plants	181.52	63.83	456.000	0.000
Soil for planting	180.14	65.35	636.500	0.000
Pricing	180.14	65.35	636.500	0.000
Fertilizer application	179.92	65.59	665.000	0.000
Credit facilities	179.05	66.55	780.000	0.000
Transportation	178.11	67.58	902.000	0.000
Weeding	178.30	67.37	877.500	0.000
Disease and pest control	175.92	69.99	1,189.000	0.000
Preservation	174.98	71.03	1,312.000	0.000

Table 3 is the Mann-Whitney U test showing that there are gender differences in the distribution of agricultural information needs of plantain farmers. Generally, the agricultural information needs were statistically significantly higher among the male than the female plantain farmers as indicated in the mean ranks. The agricultural information needs on how to store plantain had the highest rank mean score, X^2 (1) = 116.000, p=0.000, with a rank mean score of 184.11 and 60.97 for male and female plantain

farmers respectively. This rank was followed by the agricultural information needs on planting depth and spacing and marketing. On the other hand, preservation was the least ranked agricultural information needed, $X^2(1) = 1, 1312.000, p=0.000$, with rank mean score of 174.98 and 71.03 for male and female plantain farmers respectively. These results imply that there is an overall significant difference in the agricultural information needs of male and female plantain farmers as the P-values are lower than the alpha value of 0.05. Therefore, the hypothesis that there are no significant gender differences in the agricultural information needs of plantain farmers is rejected.

H_0 There are no significant educational differences in the agricultural information needs of plantain farmers.

Table 4: Educational distribution of agricultural information needs of plantain farmers

Agricultural information needs	Mean Ranks					X^2 Value	P Value
	Primary	Secondary	Technical	Tertiary	No education		
Sucker treatment	43.00	153.00	94.73	217.09	43.00	238.543	0.000
Climate/ weather	39.89	156.45	102.00	213.41	37.00	237.062	0.000
Disease and pest control	53.50	138.03	123.44	214.00	17.10	235.413	0.000
Credit facilities	39.00	143.04	115.87	215.00	39.00	234.659	0.000
Harvest	46.00	154.00	91.80	214.95	46.00	229.474	0.000
Storage	54.00	154.38	80.38	214.00	54.00	227.839	0.000
Planting depth and spacing	51.00	154.78	85.83	213.00	51.00	225.209	0.000
Marketing	53.00	153.50	82.08	214.67	53.00	223.899	0.000
Soil for planting	50.50	143.50	96.05	216.23	50.50	223.572	0.000
Pricing	50.50	143.50	96.05	216.23	50.50	223.572	0.000
Transportation	43.00	153.00	118.00	205.50	30.50	223.480	0.000
Fertilizer application	60.50	145.00	101.89	214.32	27.17	221.574	0.000
Good sucker plants	41.00	161.38	105.17	204.00	41.00	221.140	0.000
Weeding	61.57	148.32	100.50	211.45	27.50	212.082	0.000
Preservation	63.56	138.00	108.00	213.68	28.00	210.672	0.000

Table 4 is the result of a Kruskal-Wallis H test showing the educational differences in the distribution of agricultural information needs of plantain farmers. It shows that there were statistically significant educational differences in the distribution of agricultural information needs of plantain farmers with the P-values lower than the alpha value of 0.05. Pairwise comparison show statistical significant differences were found between the agricultural information needs of plantain farmers having primary and no education (p=1.000); technical and secondary (p=.404) on credit facilities; primary and no education (p=1.000) on good soil; primary and no education (p=1.000) on good sucker; primary and no education (p=1.000) on climate/ weather; primary and no education (p=1.000), primary and technical (p=.135), none and technical (p=.278) on planting depth and spacing; none and primary (p=.247), technical and secondary (p=1.000) on disease and pest control; primary and no education (p=1.000) on harvest; primary and no education (p=1.000), primary and technical (p=.599), no

education and technical (p=.937) on storage; primary and no education (p=1.000), primary and technical (p=.405) on effective marketing; no education and primary (p=1.000), technical and secondary (.079) on transportation; primary and no education (p=1.000) on pricing.

Based on mean rank order, their highest agricultural information needs was how to treat plantain suckers, $X^2 = 238.543$, p=0.000, with scores of 43.00: 153.00: 94.73: 217.09: 43.00 for primary, secondary, technical, tertiary and no education respectively. On the other hand, the need for agricultural information on preservation was least ranked, $X^2 = 210.672$, p=0.000, with mean rank scores of 63.56: 138.00: 108.00: 213.68: 28.00 for primary, secondary, technical, tertiary and no education respectively. This implies that education affects the perceptions of plantain farmers on their various agricultural information needs. Their perception differed because the plantain farmers had various levels of education. The farmers with higher level of education considered their agricultural information needs differently from other plantain farmers with less education. Therefore, the hypothesis that there are no significant educational differences in the agricultural information needs of plantain farmers is rejected.

Discussion of Findings

Results of the demographic data revealed that an equal number of male and female respondents participated in the study. It was revealed that above a quarter of the respondents were of youthful age and another quarter was above the age of 51years. Also, it showed that more than half of the total number of the respondents had the attended formal education ranging from primary school and above. This corroborates the finding of Ashaye *et al* (2017), Oso, Olaniyi and Ayodele (2014) as well as Oke, Ogunleye and Kehinde (2019) on the education status of farmers. Oke, Ogunleye and Kehinde (2019) found that 96.6% of plantain farmers had primary education. Oso, Olaniyi and Ayodele (2014) found that 26% and 21.2% among 170 and 146 of the plantain farmers were not educated in Ondo and Ekiti States. The high literacy level indicated by 88% of the plantain farmers with formal education from primary to tertiary level has the tendency of enhancing the utilisation of agricultural information especially when it requires that farmers read labelled products to understand the technology being promoted (Fakeyade *et al*, 2014; Oso, Olaniyi and Ayodele, 2014). Many plantain farmers in the communities operated at a small scale while a few cultivated above nine hectares of farm. This could be because the plantain farmers had limited access to credit facilities to expand, corroborating the view of Mgbenka and Mbah (2016).

Plantain farmers appeared to have several agricultural information needs. Findings reveal that their information needs include credit facilities, planting space, transportation and pricing among others. It was revealed that the plantain farmers in the communities studied indicated that they needed agricultural information on credit facilities (mean=2.60). World Bank had on March 23, 2017 approved a $200 million credit to further support the Nigerian government in her efforts to enhance the agricultural productivity of small and medium scale farmers in the country. It had estimated that approximately 60,000 farmers would benefit from this credit, 35% of whom were expected to be women (World Bank, 2017). The interview revealed that many of the plantain farmers were unaware of the available credit facilities. Many among those that were aware did not know how to go about applying for it. They also did not know whether or not they qualified to apply. These plantain farmers need to know that the easiest way to access these credit facilities is through cooperative society. Thus, information on cooperative society formation is useful to farmers.

Agricultural information was needed by the plantain farmers at all stages. This implies that timely, relevant and accurate information is crucial to the effort of the plantain farmer at every stage of farming. The plantain farmers had the highest agricultural information need at the planting preparation stage (mean=2.71) and this was closely followed by the post harvesting stage (mean=2.7). This implies that the plantain farmers need more information on good soil for planting, plant spacing and good sucker plants. The plantain farmers needed agricultural information on the good soil for planting at the preparation stage (*Mean*=2.86). The information on soil type and site selection is very vital to the performance of any agricultural activity

especially farming (Bareja, 2011). Plantain farming is soil nutrient exhausting, but the intercropping with arable crops on a relatively fertile land as well as the application of fertilizer raises the output (Oso and Ayodele, 2014). Agricultural information on planting space for the plantain suckers was needed at the planting stage (mean=2.44). IITA (2014) recommended a spacing of 3m x 2m for 1hectare and this should contain 1667 plants or a spacing of 2.5m x 2.5m should contain 1600 plants to give the plants the maximum amount of sunlight.

Agricultural information on transportation (mean=3.02), effective marketing (mean=2.20) and product pricing (mean=2.86) were needed by the plantain farmers at the post-harvest stage in order to maximize profit. These findings are consistent with the views of Oladele (2006) confirming that agricultural information is fundamental to improving marketing and distribution strategies as well as identifying profitable opportunities. Lack of adequate agricultural information due to lack of extension services militates against the marketing of plantain (Ayanwale, Oluwole and Ojo, 2016). Plantain distribution is complex as farmers either harvest and transport the product to nearby markets, allowing small-scale wholesalers, retailer and consumers to purchase directly or trade collectors collect the products from farmers and transport to wholesalers to retailers and finally to consumers (Akinyemi et al, 2010). Hence, the failure to provide needed information at the post-harvest stage could lead to losses that will eventually affect the income.

The results from the Mann-Whitney U test showed that there were statistically significant differences between male and female in terms of agricultural information needs. The agricultural information needs were higher among the male than the female plantain farmers. This implies that the male plantain farmers had more agricultural information needs than the female. This result corroborated the study of Olakojo (2017) that reported a gender difference in favour of male farmers. Other studies reported contrary findings which indicate that the female farmers have more agricultural information needs than the male counterparts (Okwu and Umoru 2009; FAO 2015). The female plantain farmers were believed to have more agricultural information needs because they played significant roles in marketing of plantain products, regulating their quantity and prices as well as permitting new entrants to the sale (Dzomeku et al 2011). Moreover, if the gender difference was mild, this would imply that both male and female farmers faced similar constraints.

There were statistically significant educational differences in the agricultural information needs of these plantain farmers since the P-values were lower than the alpha value of 0.05 as seen in the results of the Kruskal-Wallis H test. Evidence of statistical significant differences could be found in the agricultural information needs among plantain farmers having primary and no education, technical and secondary on credit facilities; primary and no education on good soil; primary and no education on good sucker; primary and no education on climate/ weather; primary and no education, primary and technical, no education and technical on planting depth and spacing; no education and primary on fertilizer application; no education and primary, primary and technical on weeding; no education and primary, technical and secondary on disease and pest control; primary and no education on harvest; no education and primary as well as technical and secondary on preservation; primary and no education, primary and technical, no education and technical on storage; primary and no education, primary and technical, no education and technical on effective marketing; no education and primary, technical and secondary on transportation; primary and no education on pricing.

Also, the agricultural information needs of plantain farmers that had secondary, technical and tertiary were high compared to those who had only primary and no education. This implies that education has an impact on the agricultural information needs of plantain farmers. Acquisition of formal education by plantain farmers is worthwhile as the educated plantain farmers appear more confident than their illiterate counterparts (Mgbenka and Mbah, 2016). The educated plantain farmers would quickly understand and make appropriate use of agricultural information on new farming techniques (Sanusi, Oyedeji and Akerele, 2017) in areas such as fertilizer application, pest management and disease control on their interaction with related information resources that might be introduced to them. This is a potentially important finding as it demonstrates the value of education in meeting agricultural information needs.

Conclusion

This study concludes that addressing their agricultural information needs would lead to the success of the plantain farmers. This is because identifying and timely providing the needed agricultural information would help in addressing any challenges the plantain farmers encounter. These plantain farmers had varying agricultural information needs across the various stages. They had the highest need for agricultural information at the preparation stage. Their agricultural information needs ranged from good soil selection to marketing of the produce. The men and women had different agricultural information needs. Their agricultural information needs also differed according to their education. The study recommends that any extension worker selected to work with or among plantain farmers in a particular community should be an indigene of that community or at least, someone who understands and speaks the language of the people. This is because extension workers are knowledgeable in identifying and disseminating information. It is believed that they would be able to package the right information in the most appropriate way in which it would reach the target group of plantain farmers.

Implication of the Study

Findings from this study imply that agricultural information is needed by the plantain farmers at all stages. However, the male had more agricultural information needs than the female plantain farmers. Education also affected the perceptions of plantain farmers on their various agricultural information needs. Therefore, it is important to take into cognizance these differences in the planning of policy and extension services.

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