

Utilization of Information on Post-Harvest Technology by Agro-Based Women Entrepreneurs in Abia State, Nigeria

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Abstract

This study was designed to investigate the utilization of the beneficial Post-Harvest Technology (PHT) information by Agro-based Women Entrepreneurs (AWE) in Abia State, Nigeria. The purpose of the study was, therefore, to find out the factors influencing the use of the PHT information by the AWE and proffer suggestions for improving utilization of PHT by the women for effective agro-based entrepreneurship in the study area. Data were collected from a sample of 264 women from a population of 2,358 registered AWE in the state with the aid of a well-structured questionnaire. The collected data were analysed with relevant descriptive and inferential statistics. The results showed that both the younger aged (20-45 years) and older aged (≥ 46 years) agro-based women entrepreneurs in the state utilized the same PHT information with no significant difference ($P \geq 0.05$) in all the mean responses of the two groups of women after hypotheses testing. The highly utilized PHT information were those on consumer choice, food packaging, storage of agricultural products, handling of agricultural produce, post-harvest loss prevention and preservation of harvested crops while the PHT information that had low extent of utilization included: value addition/ processing, quality standards, commodity distribution, marketing regulations and PHT credit facilities. The respondents further agreed that the use of the local language in the delivery of PHT information, establishment of more community libraries and information centres, regular visits by extension and information agents, regular training workshops and more radio and television programmes and/or channels dedicated to PHT information would improve the utilization of PHT information by AWE in the state. The study recommended that librarians and information scientists should not only collaborate with other professionals and stakeholders (governmental and non-governmental) to provide relevant information material assistance to AWE but should also repackaging PHT information in the forms that will enhance their optimal utilization by the AWE and also bring the information nearer to the AWE for effective agro-based entrepreneurship in Abia State and areas with similar culture and agro ecology.

Keywords

Information Utilization, Post-harvest Technology, Agro-based Women Entrepreneurs, Abia State

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State Chapter

Introduction

Effective utilization of improved Post-Harvest Technology (PHT) information has the potential of enhancing the productivity of Agro-based Women Entrepreneurs (AWE) in Abia State, Nigeria for sustainable food security and effective business performances.

According to Food and Agriculture Organization of the United Nations, about one-third of all food produced in the world is lost or wasted. In vastly food-insecure areas such as Sub-Saharan Africa which include Abia State, Nigeria, about 52% of fruits and vegetables, 44% of roots and tubers, and 20% of all grains are lost between harvest

and consumption. There is also substantial degradation in nutritive content, quality, associated incomes, reduced financial value and public health. Given this precarious situation and an expected world population increase from 7.6 to 9.8 billion by 2050, rapid resource depletion and a changing climate, food and post-harvest loss reduction need to be at the centre of strategies for sustainable development. As the global community strives to achieve the Sustainable Development Goals (SDGs) of eliminating poverty and hunger by 2030, improved post-harvest technology (PHT) has the potential to eliminate loss of food and nutrition requirements of 48 million people in Sub-Saharan Africa; the region most at risk of food and nutrition insecurity (FAO, 2017).

In agriculture, PHT is about the practices that are applied to agricultural commodities between harvest and consumption in order to prevent post-harvest losses, control the quality, process and increase value to the agricultural products to meet the consumers' food and nutritional requirements. According to Ukpabi & Nwosu, (2013), PHT stimulates agricultural production by preventing post-harvest losses, improves nutrition, adds value to agricultural commodities, opens new marketing opportunities and generates new jobs. PHT is aimed at keeping commodities in an acceptable state from harvest until it reaches the consumers as many agricultural commodities are transported in their perishable state. PHT is also aimed at minimizing losses at the least possible cost.

In Nigeria, efforts were made by the government of the federation to revive the agricultural sector in line with the SDGs of United Nations. Some of these efforts are evident in the initiation of advanced scientific research approaches for the production of improved varieties of agricultural commodities, PHTs, agricultural information transfer and substantial employment for her teeming population. Women comprise nearly half of the world's workforce and supply the

main financial support for 30 percent of the world's homes (Al-Hadad, 2015) mainly through growing of crops, post-harvest value addition and marketing. Women make essential contributions to agriculture and allied activities in developing countries, but their roles regionally differ significantly and are changing rapidly in some areas (Babuet *al.*, 2014). According to Nwosuet *al.* (2014), women can be considered as adult female persons in Nigeria. In most cases, women entrepreneurs differ in their extent of utilization of available post-harvest technology (PHT) information from information services and other sources.

Understanding the reasons behind such diversity and women entrepreneurs' current level of utilization of PHT information is of paramount importance as entrepreneurship development among women may aid to increase their decision making status in the family and society as a whole, and also enhances their personal capabilities (Prabha, 2009 and Guillén, 2013). Agro-based entrepreneurship involves the micro, medium and large scale production and selling of agricultural products in the hope of making profit (Ukpabi & Ukpabi, 2022).

Oladele (1999) opined that the efficiency of any technologies produced and disseminated rests on effective communication which is the vital process of information dissemination. Ayanyemi (2006), Bates (2012) and Adio *et al.* (2016) describe information as a vital resource for individual growth and for reducing the user's level of uncertainty. Bitso (2012) describes information source as the medium by which information is stored or conveyed. As put by Ukpabi & Ukpabi (2022), PHT information is the message or part of agricultural information that is concerned with the knowledge about how to preserve, conserve, store, add value, control quality, process and reduce loss of agricultural commodities. PHT information has the capability to enhance the business performances of people in agro-

based entrepreneurship. PHT information sources are the channels and or containers that possess information about the science and technology that are applied to agricultural produce from harvest to consumption: for preservation, conservation, processing, storage, value addition, quality control and utilisation for meeting consumers food and nutritional needs. These PHT information sources include libraries, information officers, agricultural extension agents, mass media, family members, friends and group meetings (Ukpabi & Ukpabi, 2022).

Utilization of post-harvest technology information by agro-based women entrepreneurs refers to the use or converting into action the accessed and understood post-harvest technology messages in performing their agricultural businesses. Therefore, it is the ability of the PHT information users to identify available information sources and use the information contained therein to solve problem, make decision and reduce uncertainties. The proper identification and utilization of appropriate PHT information is considered *sine qua non* to the effective planning and decision making in post-harvest agricultural entrepreneurship. According to Emasaelu, (2014), information utilization refers to the application and adequate use of information resources identified and acquired by information consumer to solve problem and make decision. Unfortunately, many women in agri-businesses in Sub-Saharan Africa are known to rely on indigenous knowledge as a major source of information, and this local knowledge has not adequately helped to prevent post-harvest losses and add value to agricultural produce. Proper utilization of improved PHT information by the agro-based women entrepreneurs in Abia State can therefore substantially increase their effectiveness in agro-based entrepreneurship.

Therefore, as new PHT Information from different information sources (electronic,

prints and other sources) emerge, it is wise to assess how effectively the information is utilized by those that need them, particularly the agro-based women entrepreneurship (AWE) in Abia State.

Objectives of the Study

The purpose of this study is to examine the utilization of Post Harvest Technology (PHT) information by agro-based women entrepreneurs in Abia State. Specifically the study intends to:

1. Determine the extent of utilization of the PHT information by agro-based women entrepreneurship (AWE) in Abia state
2. Ascertain the factors that influence the utilization of PHT information by agro-based women entrepreneurship (AWE)
3. Provide useful recommendations for effective information service delivery to younger (20-45 years) and older aged (≥ 46 years) agro-based women entrepreneurs in Abia State, Nigeria.

Statement of the Problem

In Abia State, Nigeria, the substantial decrease in food quality reduced financial value and heavy losses of agricultural produce after bumper harvests in an era when agricultural research scientists have conceived and developed improved post-harvest technologies that ought to address these problems is distressing. While much post-harvest technology (PHT) information are made available by these research scientists and other information providers through different information sources, the need to assess the extent of utilization of the information by the prevalent agro-based women entrepreneurs in the state for proper integration into their agro-based entrepreneurship becomes essential.

The effect of not using the PHT information by these women could cause poor planning and wrong decision making in their

agricultural businesses. It could contribute to the inconsistent product quality and supply, loss of agricultural commodities and inadequate intermediaries to develop relationship between vendors, purchasers and any other value chain partners. The agro-based women entrepreneurs in Abia State may be devastatingly using only indigenous knowledge in their agro-based entrepreneurship instead of the improved post-harvest technologies.

Though, some authors like Amaechi & Oyemike (2015), Gebre-Selassie (2001), Umali & Dina (1994), Dauduet *al.* (2009), Odini (2014) and Adetimehin *et al.* (2018) have dealt with local agricultural information, none of these publications specifically gave attention to the utilization of PHT information by Abia State agro-based women entrepreneurs for effective agro-based entrepreneurship. Therefore, to fill this knowledge gap, there is an urgent need to identify the extent utilization of the PHT information by women for effective agro-based entrepreneurship in Abia State.

Literature Review

Information Utilization

According to Ntui & Udah, (2015), information utilization is the practical and maximum use of the needed, identified and acquired information by the consumers for decision making, solving a problem or achieving a set goal. Utilization of information refers to the use or converting into action the accessed and understood messages to perform businesses. According to Emasaelu (2014), information utilization means the adequate application of the knowledge gained from the information resources or materials identified and acquired by the user in order to solve a problem. Nnadozie (2008) insists that adequate utilization of information resources enhances job performance and gives way for healthy decision making. Information utilization is making use of the information retrieved from its source. The value and

impact of information utilization refers to the new conditions that are re-established after the information has been used. The role of information includes ability to take appropriate actions, make sensible decisions and it increases the capacity to see things more broadly and become resolute. The consumption of information is objectifying the information received into operational knowledge (Abdulsalamiet *al.*, 2015). Uhegbu (2007) (in Buhari, 2016) establishes that demand for information and its use are products of factors such as research, job performance, examination, leisure/recreation, problem solving, awareness and education. Going by the argument above, the agro-based women entrepreneurs are expected to utilize post-harvest technology information for enhancing their agro businesses.

According to Umeh & Chukwu, (2015) generation of these agricultural research technologies are meaningful only when they are accessed and utilized even at the farm level. It is therefore assumed that quality of business, reduced food wastages, quality food assurance, creation of jobs and effective marketing systems in agro and allied industries depend to some extent on use of available post-harvest technology information. How well and effective people make use of the information and services available to them determines how successful their businesses could be. Therefore the use of information in any community brings about success and progress to those that use the information. Information utilization or use is behaviour, and it is essential to understand the factors that influence it (Abdulsalamiet *al.*, 2015).

Factors that Influence Utilization of Information

Issa (2002) in (Abdulsalami *et al.*, 2015) lists the factors that influence information use as the quality of information, the availability, the accessibility and ease of use of the materials as related to information system,

while others include educational level and professional orientation of the users' status. Ford (2003) and Adejo, (2020) advocate that availability, accessibility and quality are principal factors that determine the utilization of particular information.

Post- Harvest Technology (PHT) in Agriculture

Post-harvest technology (PHT) according to Karl (2016) is the science and technique applied to agricultural produces after harvest for processing, preservation, conservation, quality control, packaging, storage, distribution, buying and selling and utilisation to provide the nutritional and the food requirement of the consumers in regards to their needs. According to Ukpabi & Nwosu, (2013), PHT is a catalyst that stimulates agricultural production by preventing post-harvest losses, improves nutrition, adds value to agricultural produce, opens new marketing opportunities and generates new jobs.

Agro-based entrepreneurship

Entrepreneurship is the vibrant process of increased wealth creation. It is the process through which innovation drives economic growth. Ukpabi & Ukpabi, (2022) describe an entrepreneur to be an individual who has the capacity to identify and make concrete assessment of business opportunities in the environment, mobilizes resources to make the best of the business opportunities and initiate correct actions for success and profit. Agro-entrepreneurship according to Sullivan (2017) relates to marketing and producing various agricultural products, as well as agricultural inputs. Most smallholder farmers produce food for their families, but at the same time, almost all smallholders sell a portion of their produce into various markets and that level of market sales is growing. Agri-entrepreneurship is a means of identifying value-added activities that increase efficiency and employment opportunities in agricultural sector.

Singh (2014) and Wilkinson (2009) describe agricultural business (agribusiness) as important to global food supplies and developing economies. An entrepreneur's success is judged by his or her ability to generate profit related to the business's break-even point (Miskin& Rose, 2015).

According to Pettinger, (2014), some impediments to agro-entrepreneurship include volatile prices and product supplies, low and unpredictable earnings, and intensive farming with environmental costs. However, getting agricultural products from remote rural areas into larger markets has its challenges. These comprised the inadequate intermediaries to develop relations between vendors, purchasers and contract systems. It also includes inconsistent product quality and supply of products because of poor infrastructure (Parmigiani and Rivera-Santos, 2015).

Agro-based Women Entrepreneurs

Women agri entrepreneurs self-finance their businesses and are more risk averse than their male entrepreneurs (Hampel-Milagrosa, 2014). Quinay (2013) suggests that empowering women entrepreneurs has three components: education, policy, and a social network. In order to succeed, women entrepreneurs need access to information and communication technology (ICT) and assistance in identifying markets and finding distribution channels (Vossenber, 2013). According to Stupnytska *et al.* (2014), women face challenges in obtaining credit for their businesses and approximately 70% of women entrepreneurs in developing countries receive inadequate funding for their businesses. According to Sullivan, (2017), it is often hard for the agri-entrepreneur to meet with the experts or extension services that can provide guidance in developing their businesses. With the argument above, it seems that Women Agro-based Entrepreneurs (WAE) may be constrained in their efforts to access and use available PHT information for effective businesses. Aina,

(2008) observes that lack of effective service delivery of information is the missing link between research and sustained production. Hence, a wide gap between available information and a balanced utilization of the information. AWE are women who are technically competent, innovative and planners of tomorrow that steer their farms and/or allied agricultural businesses through the stages of enterprise development from establishment and survival to rapid growth and maturity.

Methodology

Study Area Description

The study was conducted in Abia State, Nigeria. The state has a sizeable number of agro-based women entrepreneurs and a national agricultural research institute that is noteworthy in post-harvest technology (PHT) research and documentation. Abia is a state in the south eastern part of Nigeria. Politically, it has three senatorial zones and seventeen Local Government Areas. The three senatorial zones of Abia State comprised Abia South Senatorial Zone having six local government areas, Abia Central Senatorial Zone having six local government areas, and Abia North Senatorial Zone having five local government areas. Abia State lies between Longitudes 0445' and 0607' North and Latitude 07°00 and 08°10 East, and in the rainforest zone of Nigeria (Ukejeet *et al.*, 2017). Geographically, Abia State, which is predominantly Igbo (Ibo) speaking occupies about 6,320 square kilometers, is bounded to the north and northeast by the states of Anambra, Enugu, and Ebonyi. To the west of Abia State is Imo State, to the east and southeast are Cross River State and Akwa Ibom State, and to the south is Rivers State. The southern part of the state lies within the Niger Delta region of Nigeria. With its low-lying tropical rain forest, the southern portion gets heavy rainfall of about 2,400 millimetres per year and the rainfall is normally intense between the months of April through October. The rest of the State is

moderately high plain and wooded savannah (Dale, 2010).

In Abia State, the agricultural workforce (about 70% of the population) engage in small and medium scale farming, retail and petty trading of agricultural commodities (Kanu *et al.*, 2017). The state has three (3) agricultural zones, which are; Umuahia, Aba and Ohafia zones respectively. With its adequate seasonal rainfall, Abia State has arable land that produces staple food crops like yams, taro, tannia, maize, sweet potato, rice, bananas, and cassava. Tree crops and vegetables are equally produced in large quantities. Pigs, sheep, goats, and poultry are amongst the livestock in the state (Dale, 2010). Abia State has a good number of women involved in agro-based enterprises who require relevant information to enhance their enterprises. Though these women are mainly Igbo speaking, they possess also appreciable fluency in English language. The state has 2,358 registered agro-based women entrepreneurs (Abia State Agricultural Development Programme, 2017).

Research Design

Descriptive research design which this study adopted allowed the collection of data needed for analysis from the sample of this study and the opinion of the sample was representative of the entire target population. The target population was made up of 2358 registered agro-based women entrepreneurs and they were grouped into younger (20-45 years) and older (≥ 46 years) agro-based women entrepreneurs (AWE) in Abia State.

Sample Size and Sampling Techniques

The sample size of the study was made up of 264 agro-based women entrepreneurs that included 132 young (aged 20-45 years) AWE and 132 older (aged ≥ 46 years) AWE drawn from the population of 2358 registered agro-based women entrepreneurs across Abia State using a disproportionate stratified simple random sampling technique due to

unequal number of local government areas in the state senatorial zones. Disproportionate stratified simple random sampling technique was used to select two Local Government Areas each from the three senatorial zones in the first stage of selection. In the second stage of sampling, purposive sampling technique was used in the selection of two electoral wards each from the six selected Local Government Areas due to the heavy presence of agro-based entrepreneurship in these localities. Finally, disproportionate stratified simple random sampling technique was used to stratify the number of the younger and older AWE in each of the selected wards due to unequal number of agro-based women entrepreneurs who were registered with the Abia State Agricultural Development Programme (ADP) in the selected wards. Thus, from each electoral ward (stratum), 11 registered younger (aged 20-45 years) AWE and 11 registered older (aged ≥ 46 years) AWE were randomly selected respectively to form a total of 264 AWE for this study.

Data Collection and Statistical Analysis

The instrument for data collection for this study was a structured questionnaire. The instrument was titled Post-harvest Technology Information Questionnaire (PHTIQ) and it was designed in clusters. The four-point ratings of Very High Extent (VHE), High Extent (HE), Low Extent (LE), Very Low Extent (VLE) for cluster 1, and Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD) for clusters 2 and 3 were used with values of 4, 3, 2, 1 respectively. These are as applicable to the responses of the research questions [To what extent is the PHT information utilized by younger (20- 45 years) and older (≥ 46 years) AWE for effective agro-based entrepreneurship in Abia State?], [What are the factors that influence the utilization of PHT information by younger (20- 45 years) and older (≥ 46 years) AWE for effective agro-based entrepreneurship in Abia State?] and [What are the ways of

improving utilization of PHT information among younger (20- 45 years) and older (≥ 46 years) AWE for effective agro-based entrepreneurship in Abia State?]

The collected data were analysed using descriptive statistics such as mean and standard deviation to address the research questions while the corresponding hypotheses were tested using t- test. The various four-point ratings which were used to measure the responses from the respondents were ascribed the values of 4,3,2,1 accordingly. Hence, the Mean Point was $(4+3+2+1) \div 4 = 2.5$ and the decision rule was $2.5 + 0.05 = 2.55$. The use of the four point ratings as supported by Agbarevo & Mazza, (2018) and Mazza, (2019) was to include the four extreme options because a specific user opinion is essential in this study. This, therefore, makes the four point ratings most ideal for this study. This implies that the mean responses of ≥ 2.55 were regarded as "high responses" and "agreed" while 2.50 to 2.54 were regarded as "moderate yet agreed" and below 2.50 were regarded as "low responses or disagreed"

Results and Discussion

Utilization of post-harvest technology information by Respondents

Results on utilization of PHT Information by respondents are presented in Table 1. The result showed that there is low extent of utilization of the PHT Information by the younger (20 -45 years) and older (≥ 46 years) women agro-based entrepreneurs in the study area, for effective agro-based entrepreneurship in Abia State as indicated by their pooled mean 2.47 and 2.45 respectively. Although, information on post-harvest loss prevention of agricultural produce (2.72 & 2.67), preservation of harvested crops (2.65 & 2.73), food packaging (2.65 & 2.75), handling of agricultural produce (2.77 & 2.62), storage of agricultural products (2.94 & 2.67) and consumer choice (2.73 & 2.70) are utilized to

a high extent, by the younger (20 -45 years) and older (≥ 46 years) AWE for effective agro-based entrepreneurship in Abia State, the rest of the PHT Information studied are less utilized PHT information by the younger (20 -45 years) and older (≥ 46 years) AWE for effective agro-based entrepreneurship in Abia State. These include PHT Information on conservation of agricultural commodities (2.23 & 2.27), value addition and processing of food (2.37 & 2.23), processing/ value addition to non-food agricultural produce (2.21 & 2.14), quality standards of agricultural produce (2.38 & 2.42), distribution of agricultural commodities (2.18 & 2.26), marketing regulations of agricultural commodities (2.36 & 2.43), PHT training (2.39 & 2.37), PHT empowerment programme (2.33 & 2.37), PHT credit facilities and capacity building (2.16 & 2.37)

and PHT exhibitions (2.34 & 2.21). Meanwhile, PHT Information on quality control (2.58 and 2.54) indicated a varying moderate utilization by the younger (20 - 45 years) and older (≥ 46 years) AWE respectively for effective agro-based entrepreneurship in Abia State. These responses from the respondents therefore, revealed that there is low extent of utilization of the PHT information by AWE for effective agro-based entrepreneurship in Abia State. These findings, therefore, imply that there could be other factors that determine the utilization of information besides general accessibility to the information as opined by Unegbuet *al.* (2017). Onyenachi, (2016), also suggested that information repackaging can enhance utilization of information by its end users.

Table 1: Mean responses of younger and older AWE on the extent of PHT information utilized by AWE for effective agro-based entrepreneurship in Abia State

Item No	Item Statement	Younger AWE		Older AWE		Decision
		$\bar{X}_1$	SD	$\bar{X}_2$	SD	
1	Post-harvest loss prevention of agricultural produce	2.72	0.65	2.67	0.63	HE
2	Preservation of harvested crops	2.65	0.63	2.73	0.65	HE
3	Conservation of agricultural commodities	2.23	0.49	2.27	0.51	LE
4	Quality control of foods	2.58*	0.61	2.54	0.59	ME
5	Value addition/ processing of food	2.37	0.54	2.23	0.49	LE
6	Processing /value addition to non-food agricultural produce	2.21	0.49	2.14	0.46	LE
7	Food packaging	2.65	0.63	2.75	0.68	HE
8	Handling of agricultural produce	2.77	0.66	2.62	0.62	HE
9	Storage of agricultural products	2.94	0.71	2.67	0.63	HE
10	Quality standards of agricultural produce	2.38	0.54	2.42	0.56	LE
11	Consumer choice	2.73	0.65	2.70	0.64	HE
12	distribution of agricultural commodities	2.18	0.47	2.26	0.50	LE
13	Marketing regulations of agricultural commodities	2.36	0.54	2.43	0.56	LE
14	PHT training	2.39	0.55	2.37	0.54	LE
15	PHT empowerment programmes	2.33	0.53	2.37	0.54	LE
16	PHT credit facilities and capacity building	2.16	0.47	2.32	0.53	LE
17	PHT exhibitions	2.34	0.53	2.21	0.49	LE
	Pooled mean	2.47	0.57	2.45	0.57	LE

Source: Field survey, 2018. N= 264; ME = Moderate Extent; HE = High Extent; LE= Low Extent; *= varied weighted mean; PHT=Post-Harvest Technology; AWE = Agro-based Women Entrepreneurs

The result of the t-calculated 0.29 in the t-test analysis of the two groups of the respondents in Table 2 showed that there is no significant difference ($p \geq 0.05$) between

the mean responses of younger and older AWE on the extent of utilization of PHT information for effective agro-based entrepreneurship in Abia State.

Table 2: t-test analysis of the mean responses of younger and older AWE on the extent of utilization of PHT information for effective agro-based entrepreneurship

Variables	N	Mean	SD	Df	Standard Error	t _{cal}	t _{tab}	P-value	Remarks
Young AWE	132	2.47	0.57	262	0.07	0.29	1.97	0.76	Accepted Ho
Older AWE	132	2.45	0.57						

Field survey, 2018; PHT=Post-Harvest Technology; AWE= Agro-based Women Entrepreneurs

Factors that influence the utilization of post-harvest technology information by the Respondents

The results on the factors that influence the utilization of PHT information by AWE for effective agro-based entrepreneurship in Abia State are shown in Table 3. Factors such as PHT information are not available in my local language (2.65 & 2.73), there is no-regular follow-up by the extension agents and other information officers (2.73 & 2.67), inadequate incentives by government and NGOs (2.78 & 2.74), high cost of PHT information sources (2.81 & 2.74), inadequate skills to exploit PHT information sources (2.77 & 2.72) and availability of time to access and utilize PHT information (2.74 & 2.67) are agreed generally by the younger (20 - 45 years) and older (≥ 46 years) AWE to influence their utilization of PHT information for effective agro-based entrepreneurship in Abia State as indicated by their respective means. However, factors such as PHT information is against my religious and cultural belief (2.16 & 2.32), PHT information has no effect on my agro-business performance (2.37 & 2.43), unavailability of information source on PHT in my locality (2.37 & 2.32) and easy access to and understandable PHT information (2.38 &

2.32) were disagreed by the younger (20 - 45 years) and older (≥ 46 years) AWE to influence their utilization of PHT information for effective agro-based entrepreneurship in Abia State as indicated by their respective means.

These results further agree with the findings of Yaseen (2016) in rural Pakistan, that the performance of extension staff and other professionals are not always encouraging in regards to regular follow-ups and visits. The result adds to the findings of Odini (2014) in Kenya, that the use of existing information sources and systems that provided rural women with information was constrained by a number of factors which included ignorance of the availability of information sources, language barrier, and lack of time to access information. In similar vein, a study with literate women in Imo State, Nigeria, done by Amaechi and Oyemike (2015) found out that the challenges affecting effective utilization of agricultural information by these women include: lack of awareness of agricultural extension services, irregular power supply that prevent people from listening to news, lack of access to information and communication technology facilities as well as non-existence of community library services.

Table 3: Mean responses of younger and older AWE on the factors that influence the utilization of PHT information by AWE for effective agro-based entrepreneurship

Item No	Item Statement	Younger AWE		Older AWE		Decision
		$\bar{X}_1$	SD	$\bar{X}_2$	SD	
1	PHT information is against my religious and cultural beliefs	2.16	0.47	2.32	0.53	Disagreed
2	The PHT information are not available in my local language	2.65	0.63	2.73	0.65	Agreed
3	There is no regular follow-up by the extension agents and other officers	2.73	0.65	2.67	0.63	Agreed
4	Inadequate incentives by government and NGO's	2.78	0.67	2.74	0.66	Agreed
5	The PHT information has no effect on my agro-business performance	2.37	0.54	2.43	0.56	Disagreed
6	Unavailability of information sources on PHT in my locality	2.36	0.54	2.27	0.51	Disagreed
7	High cost of PHT information sources	2.81	0.68	2.74	0.66	Agreed
8	Inadequate skills to exploit PHT information Sources	2.77	0.66	2.72	0.65	Agreed
9	Availability of time to access and utilize PHT information	2.74	0.66	2.67	0.63	Agreed
10	Easy access to and understandable PHT information	2.38	0.54	2.32	0.52	Disagree
	Pooled mean	2.58	0.61	2.56	0.60	Agreed

Source: Field survey, 2018. N= 264; PHT=Post-Harvest Technology; AWE=Women Agro-based Entrepreneurs

The result of the t – calculated (0.27) in the t-test analysis on mean responses of younger (20 – 45 years) and older (≥ 46 years) AWE in Table 4 showed no significant difference ($p \geq 0.05$) between the mean responses of the

two groups of respondents on the factors that influence the utilization of PHT Information for effective agro-based entrepreneurship in Abia State.

Table 4: t-test analysis of the mean responses of younger and older AWE on the factors that influence utilization of PHT information for effective agro-based entrepreneurship

Variables	N	Mean	SD	Df	Standard Error	t_{cal}	t_{tab}	P-value	Remarks
Young AWE	132	2.58	0.61	262	0.08	0.27	1.97	0.79	Accepted Ho
Older AWE	132	2.56	0.61						

Source: Field survey, 2018; PHT=Post-Harvest Technology; AWE=Agro-based Women Entrepreneurs

Ways of improving utilization of PHT information by the Respondents

The findings on ways of improving utilization of PHT information among AWE for effective agro-based entrepreneurship in Abia State as shown in Table 5 and as indicated from the responses of the respondents, revealed that the ways of improving utilization of PHT information among AWE for effective agro-based entrepreneurship in Abia State are

through the use of local languages in the delivery of PHT information (2.64 & 2.69), regular visit and follow-up by extension agents (2.95 & 2.85), creation of more active agro-based women cooperative groups (2.72 & 2.67), provision of adequate incentives by government and NGO for the integration of PHT into agro-businesses (2.65 & 2.73), regular training workshops by Research Institutes on PHT (2.73 & 2.70), provision of

subsidies on agro-based information sources (2.77 & 2.84), establishment of community libraries and more information centres closer to the people (2.63 & 2.65), introduction of more agricultural programmes on radio and television channels (2.77 & 2.82), and creation of radio and television channels dedicated for PHT information in Abia State (3.02 & 2.99). This revelation is as indicated by the pooled means of 2.76 and 2.77 of the two groups of respondents younger (20 - 45 years) and older (≥ 46 years) AWE respectively. Understandingly, these results add to the submissions of Nwokocha and Chimah (2016) and Majumder (2016) that establishment of community libraries would help information seekers. In addition to the establishment of these community libraries that might assist the AWE, Uzuegbu and Uzuegbu (2013) specifically stated that modern information sources for community information provision include: academic institutions, agricultural research institutes, the internet, government ministries and parastatals, non-governmental agencies,

churches, mosques, industries and mass media. It is important to mention that Stupnytska *et al.*, (2014) noted that women face challenges in obtaining credit for their businesses and approximately 70% of women entrepreneurs in developing countries receive inadequate funding for their businesses. Therefore, non-provision of adequate credit facilities to the AWE in Abia State (which is in a developing country) might be contributory to the poor utilization of some of the accessed PHT information. Also, these results agree with Popoola (2008) and Ntui & Udah (2015) that citizen's or consumer's use of freely accessed information is prerequisite to their informed decision making in their areas of interest and that the public sector must provide, in a rational and efficient way, essential services that meet citizens' needs, economic growth opportunities, and facilitate citizen involvement and participation in public policy development to promote the participation and welfare of all people

Table 5: Mean responses of younger and older AWE on the ways of improving utilization of PHT information among AWE for effective agro-based entrepreneurship in Abia State

Item No	Item Statement	Younger AWE		Older AWE		Decision
		$\bar{X}_1$	SD	$\bar{X}_2$	SD	
1	Use of local languages in the delivery of PHT information	2.64	0.62	2.69	0.64	Agreed
2	Regular visit and follow-up by extension agents	2.95	0.72	2.87	0.69	Agreed
3	Creation of more active agro-based women cooperative groups	2.72	0.65	2.67	0.63	Agreed
4	Provision of adequate incentives by Government and NGO for the integration of PHT into agro-businesses	2.65	0.63	2.73	0.65	Agreed
5	Regular Training Workshops By Research Institute on PHT	2.73	0.65	2.70	0.64	Agreed
6	Provision of subsidies on agro-based information sources	2.77	0.66	2.84	0.68	Agreed
7	Establishment of rural libraries and more information centres closer to the people	2.63	0.62	2.65	0.63	Agreed
8	Introduction of more agricultural programmes on radio and television channels	2.77	0.66	2.82	0.68	Agreed
9	Creation of radio and television channels dedicated to PHT information in Abia State	3.02	0.74	2.99	0.73	Agreed
	Pooled mean	2.76	0.66	2.77	0.66	Agreed

Source: Field survey, 2018. N= 264; PHT=Post-Harvest Technology; AWE= Agro-based Women Entrepreneurs

Conclusion and Recommendation

The study established that there is somewhat low extent of use of PHT information by the younger (20 - 45 years) and older (≥ 46 years) agro-based women entrepreneurs for effective entrepreneurship in Abia State and that the factors that influence the utilization of PHT information by AWE for effective agro-based entrepreneurship in Abia State are the non-availability of PHT information in local language, lack of regular follow-up by the extension agents and other officers, and inadequate incentives by government and NGO. Unavailability of information sources on PHT, inadequate skills to exploit PHT information sources, non-availability of time to access and utilize PHT information are the factors that influence the utilization of PHT information by AWE for effective agro-based entrepreneurship in Abia State. The study showed that, there is no significant difference between the mean responses of younger and older AWE on the factors that influence the utilization of PHT Information for effective agro-based entrepreneurship in Abia State.

Further inference made from the study was that the ways of improving utilization of PHT information among AWE for effective agro-based entrepreneurship in Abia State are through the use of local languages in the delivery of PHT information, regular visit and follow-up by extension and information agents, creation of more active agro-based women cooperative groups, provision of adequate incentives by government and NGO for the integration of PHT into agro-businesses. It also concluded that regular training workshops by research institute on PHT, provision of subsidies on agro-based information sources, establishment of community libraries and more information centres closer to the people, introduction of more agricultural programmes on radio and television channels, and creation of radio and television channels dedicated for PHT information in Abia State are the ways of improving accessibility and utilization of PHT

information among AWE for effective agro-based entrepreneurship in Abia State

The study therefore recommended that the establishment of more community libraries and information centres, in order to bring authenticated information nearer to the AWE, should be encouraged. The librarians and information scientists should increase their effort in information repackaging in local languages and other relevant areas for dissemination via social media and other communication platforms in order to meet the PHT information needs of the ever busy AWE for effective agro-based entrepreneurship. Also, the librarians, information officers and agricultural extension agents should collaborate to provide relevant and understandable PHT information to AWE for effective agro-based entrepreneurship in Abia State and areas with similar culture and agro ecology.

References

- Abia State Agricultural Development Programme, (2017). *Official Annual Report, 2017*. Umuahia, Nigeria: Abia State Agricultural Development Programme.
- Abdulsalami, L.T., Nwachukwu, V.N., & Salami, F. P. (2015). Information sourcing and utilization among market women in Samaru Market Zaria, Nigeria. *International Journal of Economics, Commerce and Management*, 3 (9), 611-626.
- Adetimehin, O. D., Okunlola, J. O., & Owolabi, K. E. (2018). Utilization of agricultural information and knowledge for improved production of Rice by Farmers in Ondo State, Nigeria. *Journal of Rural Social Sciences*, 33 (1), 76–100.
- Adejo, A. A. (2020). Factors mitigating the utilization of information resources and services in Nigeria French Language village library, Badagry. *International Journal of Library and Information Science*. 12(2) 56-63. Retrieved from <http://www.academicjournals.org/IJLIS>
- Adio, E. O., Abu, Y., Yusuf, S. k., & Nansoh, S. (2016). Use of agricultural services by farmers

- for improved productivity in Kwara State. *Library Philosophy and Practice (ejournal)*. 1456. Retrieved from <http://digitalcommons.unl.edu/libphilprac/1456>
- Agbarevo, M. N. B. & Mazza, M. (2018). Effect of national special programme on food security on farmers' income from yam production in South-East, Nigeria. *International Journal of Applied Research and Technology*, 7(7), 3-8.
- Aina, L. O. (2008). Information for successful agriculture. *World Libraries*, 2 (1). Retrieved from [http://www.lib.org/volozonol/aira.2\(1\).shtml](http://www.lib.org/volozonol/aira.2(1).shtml).
- Al-Hadad, N. F. A. A. (2015). *Working women and their rights in the workplace: International human rights and its impact on Libyan law*. Oxford: Ashgate Publishing.
- Amaechi, N. M. and Oyemike, V. O. (2015). Utilization of agricultural information among literate women in Ihiagwa Autonomous Community Owerri, Nigeria. *Journal of Information and Knowledge Management*, 6 (1), 41-50.
- Ayanyemi, O. O. (2006). The Role of Information in Enhancing the Status of Women in Developing Countries. *Nigerbiblos* (1&2) 151-170.
- Babu, S., Gajanan, S. N., & Sanyal, P. (2014). Food security, poverty and nutrition policy analysis: Statistical methods and applications. London, UK: Academic Press.
- Bates, M. J. (2012). Fundamental forms of information. *Journal of American Society for Information Science and Technology*, 57 (8), 1033-1045.
- Bitso, C. (2012). An Analysis of the Information Behaviour of Geography Teacher in a Developing African Country- Lesotho. Review of International Geographical Education Online. 2(2). Pp 193-218.
- Buhari, G. I. (2016). Library information resources and services utilization as correlates of creativity of senior administrative staff of polytechnics in South West, Nigeria. *Library Philosophy and Practice (e-journal)*. 1400. Retrieved from <http://digitalcommons.unl.edu/libphilprac/1400>
- Dale, H. H. (Ed.). (2010). Abia. In *Encyclopaedia Britannica*, 15th ed. Chicago, Illinois: Encyclopaedia Britannica.
- Dauda, S., Chado, S. S., & Igbashal, A. A. (2009). Agricultural information sources utilized by farmers in Benue State, Nigeria. *Publication of Faculty of Agriculture, Nasarawa State University, Keffi*, 5(1), 39-48. Retrieved from <http://www.patnsukjournal.net/currentissue>
- Emesaelu, H. E. 2014. "Information needs, accessibility and utilization of library information resources as determinants of psychological well-being of prison inmates in Nigeria". PhD, University of Ibadan, Ibadan, Nigeria.
- Food and Agricultural Organization (FAO). (2017). *FAO assesses food security in Africa*. Retrieved from <http://sdg.iisd.org/news/fao-2017>.
- Ford, J. A. R. (2003) *Industry and research association, information provision to users*. London: Gleeve Brigtey
- Gebre-Selassie, S. (2001). *The development of integrated management information system for agricultural extension institutions of developing countries: The case of Oromia Agricultural Development Bureau of Ethiopia*. Retrieved from http://www.future-agricultures.org/pdf%20files/SG_paper_1.pdf
- Guillén, M.F. (2013). *Women entrepreneurs: Inspiring stories from emerging economies and developing countries*. Abingdon, UK: Routledge.
- Hampel-Milagrosa, A. (2014). *Micro and small enterprise upgrading in the Philippines: The role of the entrepreneur, enterprise, networks and business environment*. Deutsches Institut für Entwicklungspolitik, Bonn, Germany. Retrieved from http://www.die-gdi.de/uploads/media/Studies_86_neu.pdf.
- Issa, A. O. (2000). *The information needs of rural dwellers and information provision to rural dweller in Kwara State*. Retrieved from www.unilorin.edu.ng/publications/issa/Dr.20/issa205.doc.on.
- Kanu, R. U., Obioma, Q. N. & Mazza, M. (2017). Comparison of youth farmers'

- utilization of agricultural farm land in Benue and Abia States, Nigeria. *The Nigerian Agricultural Journal*, 48 (1), 90-95.
- Karl, L.O. (2016). *Importance of postharvest technology*. Retrieved from <http://www.slideshare.net/karl>
- Majumder, K. (2016). Community Information Services through Public Libraries and Information Centres: an experience in West Bengal, India. *Qualitative and Quantitative Methods in Libraries (QQML)* 5: 797-804
- Miskin, V. & Rose, J. (2015). New venture initiation: Factors influencing success. *Journal of Small Business Strategy*, 1, 1–9.
- Nnadozie, C. O. (2008). Use and non-use of information resources by low-ranking industrial employees in Nigeria. *TRIM*, 4 (2), 140-157.
- Ntui, A. I. & Udah, A. E. (2015). Accessibility and Utilization of Library Resources by Teachers in Secondary School in Calabar Education Zone of Cross River State, Nigeria. *Global Journal of Human –Social Science: Arts & Humanities-Psychology*. 15(8)
- Mazza, M. (2019). Effect of national special programme on food security on increased yam production in South East, Nigeria. *International Journal of Applied Research and Technology*, 8(3), 3-8.
- Nwokocha, U. & Chimah, J.N. (2016). Library and Information Services for Rural Community Development in Africa: Problems and Prospects. *Creative Commons Attribution 4.0 International* Licence. <http://creativecommons.org/licenses/by/4.0> 1-13
- Nwosu, M.C., Igwe, K.N. & Emezio, N. A. (2014). Women Artisan's Information Needs, Sources and Seeking Behaviour and the Implication for Empowerment in a Semi- Urban Area in Nigeria. *International Journal of Civic Engagement and Social Change*, 1(4), 36-47
- Odini, S. (2014). Access to and use of agricultural information by small scale women farmers in support of efforts to attain food security in Vihiga County, Kenya. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)*, 5 (2), 80-86.
- Oladele, O. J. (1999). *Analysis of the institutional research – Extension farmers linkage system in South Western Nigerian* (Ph.D. Thesis). University of Ibadan, Nigeria.
- Onyenachi, J. C. (2016). *Bring back the user*. Umuahia, Nigeria: Jopflows Publishers
- Parmigiani, A. & Rivera-Santos, M. (2015). Sourcing for the base of the pyramid: Constructing supply chains to address voids in subsistence markets. *Journal of Operations Management*, 33, 60–70.
- Pettinger, T. (2014). Problems of agriculture – market failure. *Economics Help.org*. Retrieved from <http://www.economicshelp.org/blog/4977/economics/problems-of-agriculture-market-failure/>
- Popoola, S.O. & Okiki, O.C. (2013). Information Availability and Utilization as Determinants of Creativity of Managers in Commercial Banks in Nigeria. *Journal of Information & Knowledge Management*. 3(8): 22-34
- Popoola, S. O. (2008). The use of information sources and services and its effect on the research output of social scientists in Nigeria Universities. *Library Philosophy and Practice (e-journal)* 183. Retrieved from <http://digitalcommons.unl.edu/libphilprac/183>
- Prabha, S. (2009) "Rural Women and Development of Entrepreneurship with special reference to Punjab" in Empowerment of Rural Women in India Kanishka Publishers, New Delhi
- Quinay, E.B. (2013). Current status and attributes of Filipino women entrepreneurs: Basis for an entrepreneurial model. In: *Proceedings of 4th Asia Pacific Business Research Conference*, September 30 - October 1, Bay View Hotel, Singapore. Association for Small Business and Entrepreneurship, USF St Petersburg, Florida. Retrieved from http://www.wbiworldconpro.com/uploads/singapore-conference-2013/management/1380703423_428-Erma.pdf.
- Singh, M.P. (2014). Entrepreneur and economic development: A study of role of various forms of entrepreneurs in economic development. *Global Journal of*

- Multidisciplinary Studies*, 3 (5). Retrieved from <http://www.gjms.co.in/index.php/gjms/article/view/169>
- Stupnytska, A., Koch, K., MacBeath, A., Lawson, S. & Matsui, K. (2014) Giving credit where it is due: how closing the credit gap for women-owned SMEs can drive global growth. Goldman Sachs Global Market Institute, New York. Available at: <http://www.goldmansachs.com/our-thinking/public-policy/gmi-folder/gmi-report-pdf.pdf> (accessed 10th October, 2018).
- Sullivan, P. (2017). *Enabling agri-entrepreneurship and innovation: Empirical evidence and solutions for conflict regions and transitioning economies*. Wallingford, United Kingdom: CAB International.
- Ukeje, B. A., Ogbonna, M. C., Okonkwo, I. I., and Adiele-Ezekiel, C. (2017). Determinants of market orientation among cassava producers in Abia State, Nigeria. *The Nigerian Agricultural Journal*, 48 (1), 214-223.
- Ukpabi, U.J. & Nwosu, K.I. (2013). Yam, Cocoyam and Sweetpotato Production and Postharvest Management. National Root Crops Research Institute (NRCRI), Umuahia. P. 265.
- Ukpabi, A.C. & Ukpabi, U.J. (2022). Post-harvest technology information awareness of Agro-based Women Entrepreneurs in Abia State, Nigeria. *Library Philosophy and Practice* (e-journal) digitalcommons.unl.edu.
- Ukpabi, A.C. & Ukpabi, U. J. (2022). Access to information on post-harvest technology by Agro-based women entrepreneurs in Abia State, Nigeria. *Journal of Applied Agricultural Research*, 10(1), 35-46.
- Umali, L. S. & Dina, L. (1994). Public and private agricultural extension: Beyond traditional frontiers. *World Bank Discussion Papers*, 236, 15-26.
- Uhegbu, A.N. (2007). *The information user: Issues and themes*. Okigwe, Nigeria: Whytem Publishers.
- Umeh, G. N. & Chukwu, V. A. (2015). Adoption differentials and benefits of improved rice production technologies among farmers in Ebonyi State of Nigeria. *Journal of Biology, Agriculture of Healthcare*, 5 (7), 177-82.
- Unegbu, V.E. , Opeola, E.L. & Ladan, M.U. (2017). Library Resources Availability and Accessibility as Determinants of Undergraduates Library Use in Lagos State University, Nigeria. P 1-18. Accessed on 4th October from eprints.covenantuniversity.edu.ng.
- Uzuegbu, C.P. & Uzuegbu, C. I. (2013). Community Information Centre Services: A Prospective Pathway to National Transformation and Development in Nigeria in: *Provision of Library and Information Services to Users in the Era of Globalization* (ed) Issa, A.O. et al., Waltodanny Visual Concept, Lagos. Pp. 1-19.
- Vossenbergh, S. (2013). *Women entrepreneurship promotion in developing countries: What explains the gender gap in entrepreneurship and how to close it*. Working paper no. 2013/08 of MSM Working Paper Series. Maastricht School of Management, Maastricht, Netherlands. Retrieved from <ftp://ftp.repec.org/opt/ReDIF/RePEc/msm/wpaper/MSM-WP2013-08.pdf>
- Wilkinson, J. (2009). The globalization of agribusiness and developing world food systems. *Monthly Review*, 61, 38-49.
- Yaseen, M. (2016). Farmer' Access to Agricultural Information Sources: Evidence from Rural Pakistan. *Journal of Agricultural Chemistry and Environment* (5) 1: 12-19.