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Post-Harvest Technology Information Awareness of Agro-Based Women Entrepreneurs in Abia State, Nigeria

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Abstract

The quantities of agricultural commodities wasted during the post-harvest handling, storage, processing, packaging, distribution and marketing are considered unacceptably high in Abia State, Nigeria. Though 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 yet, there are 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 improved post-harvest technologies that ought to address these problems. This study was conducted therefore, to identify the extent of awareness of post-harvest technology information by agro-based women entrepreneurs in Abia State, Nigeria. Data were collected from a sample of 264 respondents drawn from a population of 2358 agro-based women entrepreneurs who were registered with Abia State Agricultural Development Programme as at 2017 with the aid of a well- structured questionnaire. The collected data were analysed with descriptive and inferential statistics to find the mean responses, standard deviations and t- calculated values of the two groups of women (younger aged (20- 45 years) and older aged (≥ 46 years) agro-based women entrepreneurs). The results showed that there is moderate extent of awareness of PHT information amongst these women and it was recorded majorly from their awareness of the internet, information officers, extension agents, family members and peers with the awareness of PHT information from community libraries and reading of books rated low. It also showed that there is no significant difference ($P \geq 0.05$) in all mean responses of the two groups of women after hypothesis testing. The study recommended that librarians and information scientists should enhance PHT information sensitization through the use of internet platforms and indigenous language.

Keywords: Information Awareness, Post-harvest Technology, Agro-based Women Entrepreneurs, Abia State

Introduction

Awareness of the existence of information on any improved Post-Harvest technology (PHT) is considered a key element to the proper access to such improved technology. This information awareness on any subject matter is knowing or being conscious of the existence of such information (Muhammad, et al. 2022) for its use in order to solve problems, take decisions or reduce uncertainties on the subject matter (Adio et al., 2016). Oladele (1999) opined that the efficiency of technologies produced and utilised rests on awareness level of their availability and effective communication via information sources. This forms a vital

process of information dissemination. Furthermore, Ayanyemi (2006), Bates (2012) and Adio et al. (2016) described information as a vital resource for some individual or group growth.

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. According to Food and Agriculture Organization of the United Nations (FAO, 2017), about one-third of all food crops produced in the world is lost or wasted. In vastly food-insecure areas such as Sub-Saharan Africa (SSA), Abia State Nigeria inclusive, about 52% of fruits and vegetables, 44% of roots and tubers, and 20% of grains are lost between harvest and consumption. This waste in SSA may be attributed to low extent of awareness of the availability of improved post-harvest technology information to the end-users who include the agro-based women entrepreneurs (AWE).

Abia State, Nigeria is a largely agrarian state that has a widespread of agro-based women entrepreneurs that require information on improved post-harvest technologies to enhance their agricultural businesses for economic growth of the state (Ukpabi & Ukpabi, 2022). The role of women in post-harvest activities such as marketing and processing of agricultural commodities has been recognized globally (Kaslong *et al.*, 2020). Women's participation in agricultural enterprises in Nigeria, therefore, cannot be overemphasized (Rahaman, 2008). Sullivan (2017) stated that agricultural entrepreneurship as the process of increased wealth creation through value addition to agricultural produce for man's uses is useful for the transitioning economies. This increased wealth creation is brought about by men and women who take risks in order to ensure value addition to products and services for profit making (Ukpabi & Ukpabi, 2022). The level of the awareness of PHT information by these persons can affect their level of access to the PHT information for optimal entrepreneurship. Women can play substantial roles by their effective and proficient involvement in agricultural entrepreneurial activities. Vijayakumar and Naresh (2013) identified agro-based women entrepreneurs as those who can take the lead in organised agricultural businesses or industries that provide food and employment for others. These women are considered confident, innovative, creative and able to achieve self-economic liberation in collaboration or individually.

In order to succeed, agro-based women entrepreneurs in Abia State who are in post-harvest businesses must be aware of the available improved post-harvest technology information and their sources. However, these agro-based women entrepreneurs differ in their level of awareness of the improved post-harvest technology information from librarians, information officers, extension officers and other sources of information. Understanding their current level of awareness of improved post-harvest technology information is paramount if good access to the information is to be achieved. As identified by Aguolu & Aguolu (2002) and Lee et al. (2015), accessibility to information resource cannot always be guaranteed by only its availability but also by both availability and awareness. While much improved post-harvest technology information are made available by the research scientists and other information providers, through different media, assessment of the extent of awareness of the improved post-harvest technology information by both young and older Abia State agro-based women entrepreneurs for the effectiveness of their various businesses becomes very

imperative. Librarians, information officers, extension officers in addition to other stakeholders ought to have specific roles in the effective and robust post-harvest information sensitization and dissemination. To this end, the specific objective of this study was to assess the extent of awareness of post-harvest technology information amongst younger aged (20 – 45 years) and older aged (≥ 46 years) agro-based women entrepreneurs for effective agro-based entrepreneurship in Abia State, Nigeria.

Statement of problem

Losses during the post-harvest handling, storage, processing, packaging, distribution and marketing of agricultural commodities are considered unacceptably high in Sub-Saharan Africa. These losses occur majorly after the efforts and expenses of production and harvesting have been made and as such reducing the worth and effort of the producer's work. Most worrisome is that in Abia State, Nigeria, there are 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 improved post-harvest technologies that ought to address these problems. While much post-harvest technology (PHT) information are made available by these research scientists and other information providers through different information sources, there should be proper awareness of their availability for access by the prevalent women agro-based entrepreneurs in the state for proper integration into their agro-based entrepreneurship.

The effect of not being aware of the existence of improved PHT information by these women could cause very low access to the post-harvest technology information. This, would in turn, lead to poor planning and wrong decision making in their post-harvest businesses. Though some authors like Umali & Dina (1994), Gebre-Selassie (2001), Dauda et al. (2009), 0dini (2014), Amaechi & Oyemike (2015) and Adetimehin et al. (2018) have generally dealt with agricultural information with Muhammad et al.(2022) on awareness and use of improved production practices, none of these studies specifically addressed post-harvest technology information awareness by agro-based women entrepreneurs in Abia State, Nigeria.

Research question

The research question that guided the study was what is the extent of awareness of PHT information by younger (20- 45 years) and older (≥ 46 years) WAE for effective agro-based entrepreneurship in Abia State, Nigeria?

Hypothesis

The succeeding hypothesis was tested at 0.05 level of significance; There is no significant difference between the mean responses of younger (20- 45 years) and older (≥ 46 years) WAE on the extent of awareness of PHT information for effective agro-based entrepreneurship in Abia State, Nigeria

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. Abia State lies between Longitudes 04°45′ and 06°07′ North and Latitude 07°00 and 08°10 East, and in the rainforest zone of Nigeria (Ukeje *et al.,* 2017). Geographically, Abia State, which is predominantly Igbo (Ibo) speaking occupies about 6,320 square kilometres, is bounded to the north and northeast by the states of Anambra, Enugu, and Ebonyi (Dale, 2010). 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 zones. The three senatorial zones of Abia State were studied. They 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 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 entrepreneurships 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 a cluster. It had a four-point rating of Very High Extent (VHE), High Extent (HE), Low Extent (LE), Very Low Extent (VLE) as applicable to the response of the research question [What is the extent of awareness of PHT information by younger (20- 45 years) and older (≥ 46 years) WAE 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 question while the corresponding hypothesis was tested using t- statistics. The four-point ratings of Strongly Very High Extent (4), High Extent (3), Low Extent (2), and Very Low Extent (1) were used to measure the responses from the respondents with the values of 4,3,2,1 accordingly. Hence, the Mean Point was (4+3+2+1) ÷ 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 but agreed" and below 2.50 were regarded as "low responses or disagreed"

Results and Discussion

Distribution of the randomly selected Respondents.

The distribution figures of the registered Agro-based Women Entrepreneurs (AWE) in Abia State are shown in Table 1. These agro-based women entrepreneurs who included the

selected 264 respondents used for the study were registered by a relevant Abia State Agricultural Agency (Abia State Agricultural Development Programme, 2017). It is important to mention that though English is the official language of Nigeria, prevalent indigenous Igbo (Ibo) language is the major means of communication amongst the AWE in all the 17 Local Government Areas (LGA) of Abia State.

Table 1: Distribution list of the registered AWE in Abia State

Senatorial Zones	LGA*	Younger women (20-45 years)	Older Women (≥ 46 years)
Abia North	Umunneochi	49	44
	Isuikwuato	47	45
	Bende**	102	109
	Ohafia**	102	110
	Arochukwu	83	80
		383	**383 = 766**
Abia Central	Umuahia North **	118	112
	Umuahia South **	102	102
	Ikwuano	62	70
	Isiala Ngwa South	45	40
	Isiala Ngwa North	40	33
	Osisioma Ngwa	30	32
		397	**389 = 786**
Abia South	Obingwa	46	45
	Aba North **	110	110
	Aba South **	110	112
	Ugwunabo	50	52
	Ukwa East	40	46
	Ukwa West	44	41
		400	**406 = 806**

Grand Total = 2,358

***LGA = Local Government Areas**
****** Randomly Selected Study LGAs**

Extent of awareness of PHT information by the Respondents

The results on Table 2 showed the extent of awareness of post-harvest technology information by the younger (20-45 years) and (≥ 46 years) AWE for effective

entrepreneurship in Abia State. The study revealed that there is moderate extent of awareness of post-harvest technology information by the respondents through radio programmes (2.55 & 2.50), television (2.52 & 2.53) and mobile phones (2.59 & 2.53). This is also indicated by the pooled means of 2.52 and 2.52 of younger (20-45 years) and (≥ 46 years) AWE in Abia State respectively. The results also showed that the high extent of awareness of post-harvest technology information by the respondents are through internet (3.08 & 2.73), contacts with extension agents (2.86 & 3.15), contacts with information officers and public relation officers (2.82 & 2.71), family members, friends and colleagues (2.91 & 3.22), village meetings (2.76 & 2.82) and cooperative meetings (2.65 & 2.62). However, there is less extent of awareness of post-harvest technology information by the respondents through posters, banners and leaflets (2.32 & 2.18), community libraries (2.14 & 2.44), books (2.32 & 2.12), journals (2.41 & 2.34), proceedings (2.23 & 2.12), research annual reports (2.21 & 2.30) and dissertations (2.14 & 2.18). The result of the t-test analysis of the two groups of the respondents in Table 3 showed the calculated t-value of 0.01 was less than the critical t-value of 1.97 when tested at 0.05 level of significance with 262 degree of freedom. This report affirmed that, there is no significant difference between the mean responses of younger and older AWE on the extent of awareness of PHT information for effective agro-based entrepreneurship in Abia State. These findings further stressed the opinion of Aguolu and Aguolu (2002) that accessibility to information resource cannot always be guaranteed by only its availability rather, by both availability and awareness. The implication is that younger and older AWE have same extent of awareness of PHT information for effective agro-based entrepreneurship in Abia State, Nigeria.

Table 2: Mean responses of younger and older AWE on the extent of awareness of PHT information by AWE in Abia State

Item No	Item Statement	Younger WAE		Older WAE		Decision
		$\overline{X_1}$	SD	$\overline{X_2}$	SD	
1	Through Radio programmes I became aware of PHT information	2.55	0.59	2.50	0.58	ME
2	Television exposed me to PHT Information	2.52	0.59	2.53	0.59	ME
3	I became aware of PHT Information via Newspaper , Magazine	2.27	0.51	2.32	0.53	LE
4	I knew about PHT Information through Poster, Banners and leaflets	2.32	0.52	2.18	0.48	LE
5	Through my Mobile Phone, I became aware of PHT Information	2.59	0.61	2.53	0.59	ME
6	My awareness of PHT Information came through Internet	3.08	0.75	2.73	0.65	HE
7	My awareness of PHT Information came via my contacts with Extension Agents	2.86	0.69	3.15	0.77	HE
8	Information officers and public Relation officer made me aware of PHT Information	2.82	0.68	2.71	0.65	HE
9	I got aware of PHT Information from my discussions with Family members, friends and colleagues	2.91	0.71	3.22	0.79	HE
10	I became aware of PHT Information through	2.76	0.66	2.82	0.68	HE

	Village meetings					
11	I became aware of PHT through Community libraries in my locality	2.14	0.46	2.44	0.56	LE
12	Through Cooperative group meetings, I came to know about PHT	2.65	0.63	2.62	0.62	HE
13	I became aware of PHT Information through reading of Books	2.32	0.52	2.12	0.46	LE
14	I am aware of PHT Information from the Journals I read	2.41	0.55	2.34	0.53	LE
15	The Proceedings I read exposed me to PHT Information	2.23	0.49	2.12	0.46	LE
16	I became aware of PHT Information via Research Annual Reports	2.21	0.49	2.30	0.52	LE
17	I am aware of PHT Information through Dissertations	2.14	0.46	2.18	0.48	LE
	Pooled mean	2.52	0.58	2.52	0.58	ME

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

Table 3: t-test analysis of the mean responses of younger and older AWE on the extent of awareness 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	2.52	0.58						
				262	0.07	0.01	1.97	1.00	Accepted Ho
Older AWE	132	2.52	0.58						

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

Conclusion and Recommendation

The study concluded that there is moderate extent of awareness of PHT information by AWE in Abia State and that, there is no significant difference between the mean responses of younger and older AWE on the extent of awareness of PHT information for effective agro-based entrepreneurship in Abia State, Nigeria. However, the studied items with high responses largely seemed to be those where indigenous language is mostly used for communication.

This study therefore recommended that librarians and information scientists should increase their effort in information sensitization using indigenous languages and other relevant awareness strategies for information dissemination. these could be via internet and other

communication platforms in order to meet the PHT information needs of the ever busy AWE for effective agro-based entrepreneurship in Abia State, Nigeria.

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