



POST-HARVEST TECHNOLOGY INFORMATION AWARENESS AND NEEDS OF AGRO-BASED WOMEN ENTREPRENEURS IN ABIA STATE, NIGERIA

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Abstract

This study assessed the extent of awareness of post-harvest technology information and identified the post-harvest technology information needs of 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 Information on PHT empowerment programmes and quality standards of agricultural produce are the most needed by both the younger aged (20-45 years) and older aged (≥ 46 years) agro-based women entrepreneurs with no significant difference ($P \geq 0.05$) in all mean responses of the two groups of women after hypotheses testing. The recorded moderate extent of awareness of PHT information amongst these women came from internet, information officers, extension agents, family members and peers with the awareness of PHT information from community libraries and reading of books rated low.

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

Introduction

In agriculture, improved Post-Harvest Technology (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. As the global community strives to achieve the Sustainable Development Goals (SDGs) of eliminating poverty and hunger by 2030, improved 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 Nigeria, efforts are made by the government of the federation to revive and stimulate 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 teaming men and women. The needs for post-harvest technology information exist among the teaming young and older women who are involved in agro-based entrepreneurship for the effectiveness of their business ventures in Abia State, Nigeria. Women Agro-based Entrepreneurs 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. A woman agro-based entrepreneur needs wide varieties of information that include availability of agricultural support services, Government regulations, harvest and supply chain managements, disease outbreaks, adaptation of postharvest technologies and value addition, wages rates, and so on. The content of the information services needs to reflect their diverse circumstances and livelihoods (Heritiaina, 2018). According to Amaechi and Oyemike (2015), the type of agricultural information needed by literate women in rural areas are wholesale and retail spots for agricultural goods, as well as, the prices of goods and services. Al-Hadad (2015) identified that women comprise nearly half of the world's workforce and also supply the financial support for 30 percent of the world's homes 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 differ significantly by region and are changing rapidly in some areas (Babu *et al.*, 2014). The role of these women in the production and marketing of agricultural commodities has been recognized globally (Kaslonget *et al.*, 2020) and their participations in meeting the tasks of agricultural production and enterprise in Nigeria cannot also be overstated as some women perform many domestic and

industrial tasks in agriculture that include agricultural entrepreneurship (Rahaman, 2008). Agricultural entrepreneurship being the process of increased wealth creation in the areas of growing of crops, rearing of animals and adding value to agricultural produce for man's immediate and industrial uses has become very vibrant especially for the transitioning economies (Sullivan, 2017). This increased wealth creation is spawned by persons or entrepreneurs (men and women) who take risks in terms of time and duty to add value to some products or services in order to make profits and their post-harvest technology information awareness directly affects the level of their ability to use the information for optimal entrepreneurship.

In Abia State, Nigeria, the observed substantial decrease in food quality and heavy losses of agricultural produce after plenteous harvests in an era when agricultural research scientists have conceived improved post-harvest technology information that ought to address these problems is disturbing. Quinay (2013) suggests that empowering women entrepreneurs has three components: education, policy, and a social network. In order to succeed, women entrepreneurs in post-harvest technology businesses must be aware of the improved post-harvest technology information, gain access to information communication technology (ICT) and assistance in identifying markets and finding distribution channels (Vossenbergh, 2013). In most cases, women in agro-based entrepreneurship who are meant to benefit tremendously from these improved PHT differ in their information needs and in their level of awareness of available post-harvest technology (PHT) information from extension agents, information officers, librarians and other sources. Understanding the reasons behind such diversity, their information needs, and AWE's current level of awareness of PHT information is of paramount importance. While much post-harvest technology (PHT) information are made available by these research scientists and other information providers, through different information sources, proper assessments to knowing the awareness level of PHT information as well as the actual PHT information needs of the numerous local women agro-based entrepreneurs for proper integration of the PHT information into their agro-based entrepreneurship for the effectiveness of their various businesses becomes imperative. This has the implication for a robust information repackaging and linguistic consideration in PHT Information provision and delivery by the librarians, information officers, extension agents and other stakeholders. As identified by Aguolu and Aguolu (2002) and Lee *et al.* (2015), accessibility to information resource cannot always be guaranteed by only its availability, rather, by both availability and awareness. Therefore, the specific objectives of this study were to assess the extent of awareness of PHT information by younger (20 -

45years) and older aged (≥ 46 years) agro-based women entrepreneurs and to identify their PHT information needs 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 0445' and 0607' North and Latitude 0700 and 08'10 East, and in the rainforest zone of Nigeria (Ukejeet *al.*, 2017). Geographically, Abia State, which occupies about 6,320 square kilometres, 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 (Kanuet *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, cocoyam, maize, sweet potato, rice, plantains, 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 enterprise. The state has 2,358 registered agro-based women entrepreneurs (Abia State Agricultural Development Programme ADP, 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 2,358 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 zone. The three senatorial zones of Abia State were studied. They comprised Abia South having six local government areas, Abia Central having six local government areas, and Abia North having five local government areas. Senatorial Zones and 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 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.

Instrument for Data Collection

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 four clusters. It had a four-point rating of Very High Extent (VHE), High Extent (HE), Low Extent (LE), Very Low Extent (VLE) for clusters 1 and 2, while Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD) for clusters 3 and 4 as applicable to the response of the research questions.

Data Collection and Statistical Analysis

The collected data were analysed using descriptive statistics such as mean and standard deviation to address the four research questions while the corresponding hypotheses were tested using t- statistics. The four-point ratings Very High Extent (4), High Extent (3), Low Extent (2), Very Low Extent (1), and

while Strongly Agree (4), Agree (3), Disagree (2), Strongly Disagree (1) were used to measure the responses from the respondents with the values of 4,3,2,1 accordingly. Hence, the Mean Point was $(4+3+2+1) \div 4 = 2.5$ and the decision rule was $2.5 + 0.05 = 2.55$. The use of the four point ratings as supported by Agbarevo and 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

Extent of Awareness of Post-Harvest Technology Information by the Respondents

The results on Table 1 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 2 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

Table 1: Mean responses of younger and older AWE on the extent of awareness

Item No	Item Statement	Younger WAE		Older WAE		Decision
		$\bar{M}$	SD	$\bar{M}$	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 Village meetings	2.76	0.66	2.82	0.68	HE
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

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 2: 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

Post-harvest Technology Information Needs of the Respondents

Results on the PHT information needs of younger (20-45 years) and older (≥ 46 years) AWE with respective pooled means of 2.85 and 2.69 are presented in Table 3. It was identified from this study that the younger (20- 45 years) and older (≥ 46 years) AWE agreed strongly that information on post-harvest loss prevention of agricultural produce (3.02 & 2.85), preservation of harvested crops (2.71 & 2.57), conservation of agricultural commodities (2.89 & 2.73), quality control of foods (3.08 & 2.93), value addition/ processing of food (3.01 & 2.53), processing / value addition to non-food agricultural produce (2.97 & 2.72), food packaging (2.91 & 2.51), handling of agricultural produce (2.86 & 2.61), storage of agricultural products (2.52 & 2.58), quality standards of agricultural produce (3.01 & 3.14), consumer choice (2.76 & 2.66), distribution of agricultural commodities (2.52 & 2.53), marketing regulations of agricultural commodities (2.82 & 2.64), PHT training (2.71 & 2.51), PHT empowerment programmes (3.23 & 2.92), PHT credit facilities (2.85 & 2.69) and PHT exhibitions (2.54 & 2.68) are the PHT information needs of AWE for effective agro-based entrepreneurship in Abia State.

Although, younger and older agro-based women entrepreneurs have varied weighted means in their responses on the need for post-harvest technology information on items 5,7,9,12,14 and 17 respectively, they generally agreed that the items studied are also PHT information needs. The younger AWE agreed to a moderate extent that storage of agricultural products (2.52 & 2.58), distribution of agricultural commodities (2.52 & 2.53), and PHT exhibitions (2.54 & 2.68) are PHT information needs of AWE for effective agro-based entrepreneurship in Abia State, while, the older AWE agreed moderately that value addition/ processing of food (3.01 & 2.53), distribution of agricultural commodities (2.52 & 2.53), and PHT

training (2.71 & 2.51) are PHT information needs of WAE for effective agro-based entrepreneurship in Abia State. Information on PHT empowerment programmes and quality standards of agricultural produce with weighted mean scores of 3.23 and 3.14 are the most needed PHT information by younger and older AWE respectively. The corresponding hypothesis in Table 4 affirmed that, there is no significant difference between the mean responses of younger and older AWE on PHT information needs for effective agro-based Entrepreneurship in Abia State. This report affirmed the report of Odini (2014) that identifying information needs is the first step towards satisfying information needs. Similarly, this report further added to the submission of Amaechi and Oyemike (2015) that agricultural information needed by literate women for effective agricultural businesses included information on agricultural produce, preservation of the agricultural produce, distribution, and marketing prices of the agricultural produce. The result of the t-test analysis of the two groups of the respondents in Table 4 showed that there is no significant difference ($p \geq 0.05$) between the mean responses of younger and older AWE on the PHT information needs for effective agro-based entrepreneurship in Abia State.

Table 3: Mean responses of younger and older AWE on the PHT information needs for effective agro-based entrepreneurship

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	3.02	0.74	2.85	0.69	SA
2	Preservation of harvested crops	2.71	0.65	2.57	0.60	SA
3	Conservation of agricultural commodities	2.89	0.65	2.73	0.65	SA
4	Quality control of foods	3.08	0.75	2.93	0.71	SA
5	Value addition/ processing of food	3.01*	0.73	2.53	0.59	Agreed
6	Processing /value addition to non-food agricultural produce	2.97	0.72	2.72	0.65	SA
7	Food packaging	2.91*	0.71	2.51	0.58	Agreed
8	Handling of agricultural produce	2.86	0.69	2.61	0.62	SA
9	Storage of agricultural products	2.52	0.59	2.58*	0.61	Agreed
10	Quality standards, agricultural produce	3.01	0.73	3.14	0.77	SA
11	Consumer choice	2.76	0.66	2.66	0.63	SA
12	distribution of agricultural commodities	2.52	0.59	2.53	0.59	Agreed

13	Marketing regulations of agricultural commodities	2.82	0.68	2.64	0.62	SA
14	PHT training	2.71*	0.65	2.51	0.58	Agreed
15	PHT empowerment programmes	3.23	0.80	2.92	0.71	SA
16	PHT credit facilities	2.85	0.69	2.69	0.64	SA
17	PHT exhibitions	2.54	0.59	2.68*	0.64	Agreed
	Pooled mean	2.85	0.69	2.69	0.64	Agreed

Source: Field survey, 2018. N= 264; SA= Strongly Agree;*= varied weighted mean; PHT=Post-Harvest Technology; AWE= Agro-based Women Entrepreneurs

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

Variables	N	Mean	SD	Df	Standard Error	t _{cal}	t _{tab}	P-value	Remarks
Young AWE	132	2.85	0.69						
				262	0.08	1.95	1.97	0.05	Accepted Ho
Older AWE	132	2.69	0.64						

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

Conclusion

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.

From the results of the analysis of data collected also, the study established that post-harvest loss prevention of agricultural produce, preservation of harvested crops, conservation of agricultural commodities, quality control of foods, value addition/ processing of food, and processing /value addition to non-food agricultural produce are the PHT information needs of AWE. Furthermore , food packaging, handling of agricultural produce, storage of agricultural products, quality standards, agricultural produce, consumer choice, distribution of agricultural commodities, marketing regulations of agricultural commodities, PHT training, PHT empowerment programmes, PHT credit facilities and PHT exhibitions are the PHT information needs of AWE for effective

agro-based Entrepreneurship in Abia State, Nigeria and that, there is no significant difference between the mean responses of younger and older AWE on PHT information needs for effective agro-based Entrepreneurship in Abia State, Nigeria.

Recommendations

- i. This study therefore recommends that librarians and information scientists should increase their effort in information repackaging in local languages and other relevant awareness strategies for information dissemination. It could be 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.
- ii. It also recommends that regular visits, follow-up and sensitization of new improved PHT information by information officers and extension agents to AWE should be encouraged by the government and other stakeholders for effective agro-based entrepreneurship.

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