

ACCESSIBILITY OF POST-HARVEST TECHNOLOGY INFORMATION FOR IMPROVED CROP PRODUCTIVITY BY FARMERS IN ABIA STATE

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Abstract

Agriculture is the source of livelihood of most rural farmers and as such Post-harvest technology information is important to rural farmers as it will equip them with the knowledge on how to increase agricultural products, reduce food wastage, and increase nutritional value of raw materials which in effect contribute to food security. This study is examined the accessibility of post-harvest technology information for improved crop productivity by farmers in Abia State. Descriptive survey design was adopted with a population of 450,000 registered rural farmers from the 17 local government. Out of this number 400 were purposively sampled from different agricultural zones in the state. Farmers who have planted crops in their farm for the period under investigation. Data were generated using a structured questionnaire which were analyzed using simple percentage, frequency counts and mean. The findings shows that rural farmers have needs for post-harvest technology information; that Farmers who are registered with Abia ADP do not make adequate use of post-harvest technology information in the state due to their level of education and lack of awareness. Factors for accessibility of post-harvest technology information were identified as, non-availability of radio set, poor knowledge of time to tune in to relevant TV and radio, lack of mobile phones for easy communication, inability to read printed materials, unwillingness by extension agents in the teaching of post-harvest technology and scarcity of post-harvest technology information in some locations. Among others, the study recommend that regular Sensitization programmes to rural farmers should be conducted as many farmers are not always aware of information regarding the post-harvest technology and government to regularly engage farmers in meetings or create forum where discussions can be held on how to improve agricultural practices.

Keywords: Accessibility, post-harvest technology, information, farmers, crop production

Introduction

Agriculture is the mainstay of many developing countries considering its enormous benefit to the economic growth of individuals and the nations at large. It is therefore important that farmers should be aware of the new technologies in agriculture to enable them improve on their method of farming as well increase in agricultural products. Agricultural information is the central element of advanced agriculture system, as well the fundamental and essential promoter for agriculture development, helping for the betterment of the rural dwellers. Agricultural innovation is important to farmer as the knowledge of new invention will help to



increase agricultural products and reduce loss. For farmers to improve on their farming methods as well increase farm products, they need to be equipped with skills that will help in increased yields, reduce loss. This can only be achieved with the new technology in farming process. Farmers need information in many aspects of farming and even when the information are provided, many find it hard to access these information and thereby continue to encounter challenges in farming process. The dissemination of agricultural information is very vital to agricultural productivity of farmers because it is through this means that they can learn innovations which can improve their productivity. To enhance the production and productivity of agriculture, farmers should have access to well organized, relevant information and proper agricultural information. Access to information is a vital tool for empowering individuals to make informed decision and take prudent action for community development.

Post-harvest technologies are contributor to income and standard of living of farmers. Post-harvest technologies refers to the various techniques, methods and technologies used to preserve, process and package agricultural products after they have been harvested. Post-harvest technology according to Pelemo, et.al. (2020), post-harvest technology is defined as inter-disciplinary science and methods applied to agricultural products after harvesting for the purpose of preservation, conservation, quality control/enhancement, processing, packaging, storage, distribution, marketing and utilization to meet the food and nutritional requirements of consumers in relation to their needs. The main goal is to extend the shelf life of the harvested products and maintain their quality and nutritional value. Farmers require knowledge on the new method of processing and preserving the agricultural products harvested so as to make gain in what they produce. Knowledge on post-harvest technology will help a lot in reducing waste and at the same time open many options needed by farmers to either market their products or store in a condition that will make harvested products retain their quality and value. Post-harvest technology plays an important role in maintaining and enhancing the quality and safety of food products. Utilization is as important as availability. It is when information is available that users can utilize the information. In crop production, farmers need information on the types and best practices of planting crops to get a bumper harvest. Even when it is harvested, many may not know how to preserve, store, improve on the quality of crop yield, add value and market their products. It therefore becomes necessary that post-harvest technology information should be made available for great production of crops.

Therefore proper handling, storage, and processing techniques help preserve the fresh nutritional value of food. Post-harvest technology is essential aspect of agro-based entrepreneurship, as it involves the use of various techniques and methods to preserve and process farm produce after harvesting, to ensure their availability, quality and safety for human consumption. Nigeria in recent time is facing great challenge in agriculture production due to menace of terrorists. People no longer go to farm to plant or even harvest farm products already planted. Some who may have planted may also have difficulty in storing the products harvested which in effect have affected the growth of agricultural products. Post-harvest technologies will in no small measure help in preservation, packaging, storing and marketing of these products and as such reduce losses from farmers. Even with the Federal government concern in agricultural development in Nigeria, there is still low output in agricultural product which has great impact on the income of farmers as well create scarcity and at the same time reduce the quantity of the product in the nation.

Information on the right method of processing, preserving, storing and marketing becomes imperative for agricultural development. Therefore accessibility of post-harvest

technology information by farmers is therefore paramount for the success of farm produce. Information is vital indispensable source for the development of individual and the society at large. Farmers need information that will make them relevant and better equipped with the new technology for improved farming. Lack of agricultural information to farmers have caused great damage to the general production of farm product. Provision of access to post-harvest technology is apt as this will reduce loss but improve the process of farm produce. The ease with which post-harvest technology information are accessed determines the usability of the information for application of skills needed for processes in post-harvest farming. The success of every farmer is not on how well he applies the method of farming but on the production output and how the farmer is able to process, preserve and store the farm product for maximum gain. Access to post-harvest technology will equip farmers with skills needed for value chain. Creating access to post-harvest technology information will encourage farmers expand their farming and explore more ways to increase food production. Post-harvest technology is vital in minimizing loss in farm products. Post-harvest technology helps to revolutionize the farming process as farmers will have knowledge in modern ways of preserving farm products.

Accessibility of post-harvest technology information by farmers is therefore paramount for the success of farm production. Farmers need to be aware of the various post-harvest technologies available, their benefits and how to apply them to their farming practices. The knowledge will enable farmers to reduce post-harvest losses, increase value of their products and ultimately increase their income. It is based on this that the researchers are examining the extent to which farmers in Abia state are accessing information on post-harvest technology.

Statement of the Problem

The roles of post-harvest technology in agricultural production cannot be over-emphasized. This is because it enhances production and reduces losses in agricultural products. Nigeria as a nation is faced with problem of food security. There is still scarcity in food products and many farmers are still crying of losses in income, infestation of farm produce, poor market sales and lack of support for local farmers by government. However, demand for agricultural products continue to rise due to increase in population growth and farmers are still looking for methods to adopt to enable them meet with the demand. Inasmuch as farmers are provided with all the necessary information needed for effective post-harvest technology, they still find it difficult to implement the proper information in order to improve crop productivity. Could it be that the information farmer needed for these improvement are not adequate, or could it also be that the farmers are not willing to implement the right information in order to achieve the targeted goal. It is based on this that the researchers are carrying out this study on the accessibility of post-harvest technology information by farmers in Abia State, Nigeria.

Purpose of the Study

The study is generally on the accessibility of post-harvest technology information by farmers in Abia State. Specifically the study is guided by the following objectives:

1. Identify the post-harvest technology needs of farmers in Abia State, Nigeria
2. Identify the access channels of post-harvest technology for farmers in Abia State, Nigeria
3. Determine the factors affecting accessibility of post-harvest technology information by



- farmers in Abia State, Nigeria
4. Suggest ways of enhancing accessibility of post-harvest technology information by farmers in Abia State, Nigeria.

Research Questions

The following research questions will guide the study:

1. What are the post-harvest technology information needs of farmers in Abia State, Nigeria?
2. What are the access channels of post-harvest technology information for farmers in Abia State, Nigeria?
3. What are the factors militating the access of post-harvest technology information by farmers in Abia State, Nigeria?
4. What are the ways of enhancing access to post-harvest technology information for farmers in Abia State, Nigeria?

Literature Review

Accessibility as considered here refers to the ability to access and benefit from some system of products. Information is meaningful when it meets the needs of the user and any information that is not accessible to a user is not information until it gets to the right user at the right time and for the right purpose. Emasealu (2018) states that accessibility to information is receiving messages related to users' need from different sources and dissemination methods such as mass media. Litman (2017) remarks that accessibility denotes the ease of reaching information, goods, activities, services and terminuses, which in sum are called opportunities.

Similarly, Umehali and Arisukwu (2019), posit that accessibility is the degree of ease with which it is possible to reach a certain location from the other. Timely access to available information sources are indispensable to teaching and research in critical areas of life. Therefore information however, should be available, sufficient and as much as possible researchable to information users (Onifade & Popoola, 2015). Accessibility of post-harvest technology information should be made available to farmers by librarians who are more exposed to information search and the method for enhancing information accessibility and utilization. Philip in Okonkwo (2022) avers that accessibility is characterized as broad quality of an asset that is committable, operable or usable upon request to play out its assigned or required capacities. Access to information is vital driver of effective decision making, problem solving and development of scholarship all of which culminate to both individual and societal wellbeing

Post-harvest technology can be viewed as an extra mile activity of a farmer in order to preserve his/her product after harvest for another farming season. Post-harvest Technology information is an important farm activity that exposes the farmers to the gains in farming. Kari(2016) opines post-harvest technology as the science and technique applied to agricultural products after harvest as processing, preservation, conservation, quality control, packaging, storage, distribution, buying and selling and utilization to provide the nutritional and food requirement of the consumers with regards to their needs. Ukpabi and Nwosu (2013) see post-harvest technology as 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. They emphasized that post-harvest technology includes the technologies for reducing post-harvest loss, product quality assurance, quality control and value addition to agricultural products. it also includes pre-cooling, refrigerated storage and

transportation, drying and dry storage, controlled atmosphere storage, improved packaging and unitization, regulated ripening, growth-regulating chemicals and technologies Mathewson (2007) states that value addition in agriculture involve the transformation of a raw agricultural commodity into a finished product in processing, cooling, drying, extracting, packaging or any other type of process that distinguishes the product from original raw commodity such as; Garri, Biscuits, Sausages. This is a worthy venture because it brings higher returns from the investment, creates wider opportunities to open new markets and prolong the producer's marketing season, along the ability to create thorough understanding for the farm.

Information has enabled man to perform tasks and other routine activities effectively. To Ukpabi (2019), information has been defined in various perspectives by various authors. Adanran, Issa and Bakare (2016) assert that information is meaningful communication symbols transferred between two points in human communication or machine networks. Information is increased in knowledge obtained by the recipient by matching the proper data element to variables of problems. Igwela and Opara (2020) view information as a unique and unavoidable attribute for sustainable development and self-education in all its totality. Most of human intellectual achievement in civilization and growth are attributed to information materials made available usually through library and information services or other information centres. It can therefore be said that information made available in a consistent and specific manner produces a professional or skilled man. It polishes and refines potentials for practice. Post-harvest technology information is as important as the product needed by the society. Post-harvest technology information will help in developing the hidden potentials of farmers who may find it difficult to produce in large quantity. Post-harvest technology information is needed in improvement of farm storage and preservation. Therefore access to this information is vital and as such, information managers are expected to make available the necessary access tools required to make access to post-harvest information easy and accessible.

Methodology

Descriptive survey research was adopted for this study. The population of the study was four hundred and fifty thousand farmers across Abia state who registered with Abia State Agricultural Development Programme (ADP), zonal office, Umuahia in 2023/2024. The researchers purposively chose four hundred (400) farmers 120 male and 280 females from the 17 local government areas in Abia State who are registered with ADP and have farms already planted with crops. The instrument used for data collection was a structured questionnaire which was administered to the respondents with the help of research assistants from the LGAs who were educated on what to do. Two weeks was used for the distribution and collection of the instrument. After which, 384 copies were duly completed and found usable showing a response rate of 96% which is reasonable. The data collected for this study were analyzed using simple percentage, frequency counts and mean.

Table 1: Level of Education

Qualification	Frequency	Percentage
Post-Secondary	188	47%
Post-Basic Education	158	39.5%
Basic Education	54	13.5%
Not Educated	0	0%



The above presentation in the Table shows that majority of the farmers are literate as none is shown to be below basic education.

Table 2: Gender

Gender	Frequency	Percentage
Male	120	30%
Female	280	70%

Table 2 indicates that 120(30%) of the respondents are male while 280(70%) of them are female. This shows that female farmers are greater and more engaged in farming than male.

Table 3: Age Distribution

Age	Frequency	Percentage
20-39	102	25.5%
40-59	148	37%
60-69	112	28%
70-79	38	9.5%

The presentation above shows that majority of the farmers fall at the age range of 30-69 as only 38(9.5%) respondents were at the range of 70-79. The result may be that they are old and weak and may not have the strength to actively engage in farming. The age range of 40-59, 148(37%) was rated highest, followed by 60-69, 112(28%) and 20-39, 102 (25.2%) respectively.

Table 4: Post-harvest information technology information needs of farmers in Abia State

S/N	Information Needs of Farmers	SA	A	D	SD	Mean (X) Scores	Decision
1	Preservation of harvested crop	214	118	52	12	3.4	A
2	Conservation of agricultural commodity	268	83	37	9	3.54	A
3	Post-harvest loss prevention of agricultural products	222	95	64	16	3.32	A
4	Food packaging	253	74	50	20	3.41	A
5	Quality standards of agricultural products	315	45	22	15	3.66	A
6	Post-harvest training of farmers	349	25	15	8	3.80	A
7	Processing of agricultural Produce	265	66	50	16	3.46	A
8	Storage of agricultural produce	255	79	45	18	3.44	A
9	Post-harvest empowerment Programme	262	72	46	17	3.46	A
	Grand Mean					3.54	
Criterion Mean		2.50					

Source: Field Survey Data, 2024

The grand mean responses on post-harvest technology information needs of farmers in Abia State were found to be 3.54. The value is higher than the criterion mean of 2.50, measured on a 4-point scale. It can therefore be inferred that farmers in Abia State need the post-harvest technology information as listed for successful operation of their farming process and business in the state. It is important therefore that Librarians and other Information providers know that access to post-harvest technology information is based on how they are able to meet the information needs of these farmers in the state.

Table 5: Access Channels of Post harvest technology information by farmers in Abia State

SN	Medium	Mean	Decision
1	Friends	2.89	A
2	From the Church	2.77	A
3	Town Hall Meeting	2.80	A
4	Agriculture Extension Officer	2.90	A
5	Town Crier	2.48	R
6	Workshop	2.32	R
7	Radio	3.00	A
8	Social Media Platform	3.37	A
9	Television	3.05	A
	Grand Mean	2.84	A

Criterion mean 2.50

Out of the nine items on the table, 2 items, Town crier (2.48) and Workshop (2.32) were rejected as decision. This showed that the media used in accessing post-harvest technology information are through friends (2.89), church (2.77), Town hall meetings (2.80), Extension officers (2.90), radio (3.00), social media platforms (3.37) and television (3.05). The result showed that there are channels available for the provision of post-harvest information but discovered that should have been the one to reach them is rejected. This may be as a result of personnel to carry out the assignment. Therefore, there should be improved channels for better accessibility of post-harvest technology information for better and quality agricultural products.

Table 6: Factors affecting the accessibility of post-harvest technology information by farmers in Abia State.

S/N	Item Statement	SA	A	D	SD	X	Remark
1	Non Availability of radio set	132	120	112	33	2.88	A
2	Poor Knowledge of time to tune in for relevant television and radio programme	122	178	72	25	3	A
3	Lack of mobile phone for easy communication	114	183	50	50	2.91	A
4	Inability to read printed materials	118	134	89	56	2.79	A
5	unwillingness by extension agents to teach on Post-harvest technology	83	207	66	41	2.84	A
6	Poor Steady power supply to connect to electrical gadgets	45	57	149	2	0.17	R
7	Scarcity of post-harvest technology information in some locations	118	132	81	66	2.76	A
	Grand Mean					2.74	

Criterion Mean 2.50



The grand mean response of the farmers on the factors that affects accessibility of post-harvest technology information by farmers in Abia State was 2.74 which is higher than the criterion mean of 2.50 on a 4-point scale. Out of the list of (7) item statements bordering on the factors of accessibility of post-harvest technology information by farmers, the result showed that farmers in Abia State had mean responses greater than the criterion mean in items 1,2,3,4,5, and 7. Proving that the respondents accepted that; non-availability of radio set, poor knowledge of time to tune in to relevant TV and radio programs, lack of mobile phones for easy communication, inability to read printed materials, unwillingness by extension agents in the teaching of post-harvest technology and scarcity of post-harvest technology information in some locations were factors that affected the easy access to post-harvest technology information by farmers in Abia State. Only one item, that is, poor steady power supply to connect to electrical gadgets was rejected. This may as result of alternative power supply provided to enable then connect their gadgets.

Table 6: The mean responses on the solution to factors of accessibility of post-harvest technology information by Farmers in Abia State.

S/N	Item Statement	SA	A	D	SD	X	Remarks
1	Provision of Radio set	131	118	116	31	2.88	A
2	Having knowledge of time to tune to Relevant television and radio program	115	193	64	24	3.01	A
3	Ownership of mobile phone	114	183	50	50	2.91	A
4	Ability to read printed materials	133	120	107	37	2.88	A
5	Willingness of extension agents to teach farmers on post-harvest technology	97	141	103	56	2.71	A
6	Steady power to connect electrical gadgets	38	73	180	105	2.11	R
7	Sensitization on the need for post-harvest technology information in rural locations	205	142	36	14	3.35	A
	Grand Mean					2.77	A
	Criterion Mean					2.50	

The table above shows the mean response of farmers on solution to accessibility of post-harvest technology information. A grand mean of 2.77 which shows higher rate than the criterion mean of 2.50 on a 4-point scale was achieved. From the rating, all the items except item 6 (steady power to connect electrical gadgets was rejected) were all accepted. This indicated a positive response to adoption of the above solutions to accessibility to post-harvest technology information. Therefore, Librarian should assist in the provision of these items so as to increase the willingness and access to post-harvest technology information for value chain, qualitative output, processing, storage and preservation of farm produce.

Discussion of Findings

Farmers who are registered with Abia ADP acknowledged that they make adequate use of post-harvest technology information in the state. This suggests that farmers in Abia state share similar needs of post-harvest technology information in order to enhance and increase productivity. Ukpabi (2019) examined the accessibility and utilization of post-harvest

technology information by women for effective agro-based entrepreneurship in Abia state, supports this finding by indicating the need for information on post-harvest. This discovery aligns with the findings of Ofem et.al. (2011), who discovered that yam farmers expressed a strong desire to learn about proper yam storage methods. Furthermore, Emmanuel (2019) study on women's participation in post-harvest processing of maize using indigenous technologies supports these findings by highlighting the high demand for information on product quality control, storage, value addition through processing, packaging, marketing and product distribution among women farmers in Kogi state, Nigeria for maize farming business.

As regards to accessibility channels for post-harvest information technology, results showed farmers access post-harvest information through many channels considering their needs and demands. The channels mostly used are radio, television, social media platforms, extension officers. The result showed that the accepted decisions are still relevant to farmers in Abia State and should therefore be improved for better accessibility of post-harvest technology information for better and quality agricultural products. Closely related is the study of Ukpabi and Amarachi (2021) which found the preferred post-harvest technology information sources as radio, television, mobile phones, social media, family members, colleagues, information officers, extension agents, internet, group meetings and research. Furthermore, the respondents in her study area generally agreed that the use of the local language in the delivery of post-harvest technology information, establishment of more community libraries and information centres, regular visits by extension agents, regular training workshops and more radio and television programmes and/or channels dedicated to post-harvest technology information would improve the accessibility and utilization of post-harvest technology information by Women Agricultural Entrepreneurs in Abia state.

The findings on the extent of post-harvest technology information to farmers in Abia State showed that farmers have considerable level of access to information regarding post-harvest technology and that the success of agro-based farming among farmers in Abia state hinges on the extent to which post-harvest technology information is accessible to them. This finding aligns with Adaniran et.al (2016), which highlights the crucial role of access to accurate and reliable information in determining progress in agriculture. Furthermore, this finding is consistent with the findings of Ukpabi and Ukpabi (2023), who establish that farmers in Abia state have high level of access to various PHT information, including information on preserving agricultural produce, adding value to or processing food, handling agricultural produce, storing agricultural produce, distributing agricultural produce, training on PHT, preserving harvested crops, packaging foods and conserving agricultural commodities.

On the issue of factors that influence the accessibility of post-harvest technology information, various factors as non-availability of radio set, poor knowledge of time to tune in for relevant television and radio programmes, lack of mobile phones by farmers, mostly in rural areas, inability to read printed materials, unwillingness of extension agents to teach farmers on how to access post-harvest technology information and irregular power supply that hampers timely and smooth communication. This findings implied that farmers should be sensitized on the need for post-harvest technology information and how they can access these information to increase and improve crop production. Odi (2014) in his study reported that illiteracy, limited knowledge of TV and radio programmes that provide agricultural technology information, the absence of well-trained extension agents are major barriers affecting farmers' access to information sources. In line with this, Agada and Ijeh (2019) identified lack of extension services and low levels of education as factors influencing farmers'



access to improved post-harvest technology information.

However, if all the factors would be checkmated, it means there would be improved crop production and farmers will be fully equipped with the necessary skills needed for post-harvest activities.

Conclusion

Accessibility to post-harvest technology information is an important asset to farmers in Abia state. Many farmers are facing challenges on how to improve their farm products, market their farm products, store them in a secured and pest free environment, and add value to their products. All these would be achieved through access to post-harvest technology information. Farmers in Abia state need information on post-harvest technology so as to be equipped with the skills necessary for improved crop production and other farm practices. Librarians as information providers should as a matter of need extend their services to farmers so as to achieve the Nations' agricultural goal of bumper harvest and food for all. Agriculture is the main stay of economic development and farmers need to grow economically through what they get from farming. With access to post-harvest technology information, farmers will increase yield, add value to farm product, know how to store produce to prevent pests, and at the same time attract revenue from the crops they harvested through good marketing channels.

Recommendations

The study recommends that:

1. Farmers in Abia state should try to engage themselves available for training programmes on post-harvest technology so as to equip themselves with the skill needed to guard against loss during and after harvest of crops.
2. Farmers in Abia state should try to identify the proper post-harvest technology information and make good use of them for effective preservation and improvement of farm practices.
3. Abia farmers should access and utilize post-harvest technology information in order to improve their post-harvest storage in every farming season of the year.
4. Government should make necessary provision with good funding for the training of Abia farmers in post-harvest technology as this will help to reduce loss and at the same time increase farm yield.
5. Sensitization programmes should be regularly conducted as many farmers are not always aware of information regarding the post-harvest technology.
6. Government through agricultural extension agents, empower farmers through trainings, provision of farm needs and pesticides.
7. Government should regularly engage farmers in meetings or forum where discussions can be held on how to improve agricultural practices.

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