

## E-extension Advisory Services: A Strategy in Maximizing Service Delivery in Postharvest Management of Food Crops in Nigeria: A Review

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### SUMMARY

Postharvest losses are a significant constraint in agricultural sector in Nigeria despite the tireless efforts from Government, stakeholders and research institute saddled with mandate of postharvest, losses in food crops still results in economic losses and food insecurity for a fast growing population in Nigeria. E-extension services have been identified as a potential solution to reducing postharvest losses. E-extension advisory services have been identified as a potential strategy for maximizing service delivery in postharvest management. This article aimed to consider the potential of e-extension advisory services in improving postharvest management practices among food crop actors in Nigeria.

### INTRODUCTION

Nigeria is the largest producer of food crops in West Africa, accounting for over 70% of the region's total production (Federal Ministry of Agriculture and Rural Development, 2020). However, postharvest losses remain a significant challenge, resulting in economic losses and food insecurity (Adebayo & Adekunle, 2020). Postharvest losses refer to the reduction in quality and quantity after harvesting, resulting from poor handling, storage, and transportation practices (Food and Agriculture Organization, 2019). Postharvest losses are a significant constraint to food crop production in Nigeria, resulting in economic losses and food insecurity as affirmed by (Adeoye et al., 2015). On the other hand, agricultural extension have played significant role in the linkage of innovation and information to farmers on agricultural practices. Agricultural extension is an indispensable aspect to agricultural development in Nigeria. It plays a strategic role in bringing various stakeholders in agricultural development together such as researchers and extension agents to clientele's in order to bridge the gap between farmers and innovations. Specifically, it links together, scientists and researchers working on different aspects of agricultural breakthroughs and the farmers on the field who implements the various research findings to improve the production and processing activities of agricultural produce. However, insurgency, insecurity have been a bottleneck to agricultural extension smooth service delivery to clientele, this and many more reasons gave birth to the initiative of e-extension for reaching larger clientele via cyber space.

### E-extension Advisory Service

The extension advisory service have transform from the customary practices of physical visit and field demonstration into a revolutionary digital practices, giving birth to what is known as e- extension advisory services. E-extension advisory services (EAS) refer to the use of electronic(cyber extension) such as mobile phones, television, radio, computers, internet, social media, Whatsapp, X-handle, telegram and other digital means to deliver extension services to clientele. E-extension services have been identified as a potential solution to reducing postharvest losses among farmers. A study by Adebooye and Farinde (2015) found that e-extension services significantly reduced postharvest losses among fruit and vegetable farmers in Nigeria. Similarly, a study by Oladele and Oladejo (2017) found that e-extension services improved the knowledge and skills of fish farmers in Nigeria.

### E-extension Scheme in Nigeria

Nigeria Government have initiated schemes on e-extension which have strengthened e-extension service delivery, they include, the national farmers' helpline, the growth enhancement support scheme, Sasakawa Africa fund for extension education and State-level e-extension programs.

- National Farmers Help line (NFHL) is an e-extension approach established in 2014 by the National Agricultural Extension Research and Liaison Services (NAERLS) Nigeria, to increase productivity for sustainable agricultural development.

- Growth Enhancement Support Scheme (GESS), The Nigerian government introduced the Growth Enhancement Support Scheme (GESS) in 2012, providing government-subsidized farm inputs to farmers via GSM phones. The scheme uses E-wallets for efficient distribution and purchase, ensuring farmers access to fertilizer and seeds at half the cost.
- Sasakawa Africa Fund for Extension Education (SAFE) this scheme promotes e-extension through capacity building of extension agents on the utilization of various digital platforms to reach their clientele.
- State-level e-extension programs (SLEP) several Nigerian states such as (Nasarawa, Niger, Bauchi and Kaduna) have developed their own e-extension platforms tailored to local need and challenges ranging from innovation and harvest of challenges relating postharvest handling.

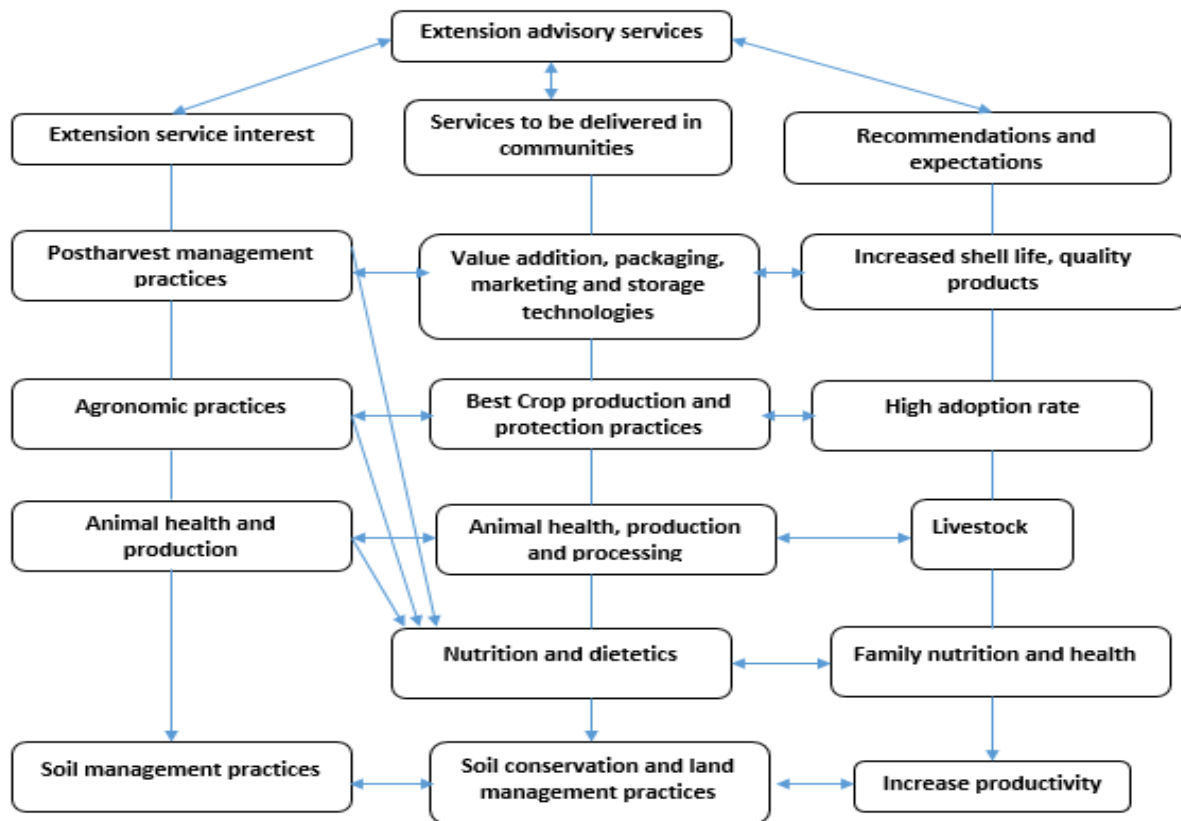


Figure 1: Structural chart of specialized extension service

Source: Adopted and modifies from Deji. et al., (2021)

### Illustrational Chart of extension advisory service in Nigeria

#### Advantages of e-extension Advisory Service

The optimistic believe that e-extension would have advantages over the conventional extension remain topmost. These advantages included:

#### Advantages

- Increased access to information: E-extension services can provide farmers with access to a wealth of information on good agronomic practices, best practices on postharvest management, new technologies, and market trends.
- Improved efficiency: E-extension services can help farmers to improve their efficiency by providing them with tools and resources to manage their farms and postharvest activities more effectively.
- Enhanced decision-making: E-extension services can provide farmers with the information they need to make informed decisions about their farms.
- Increased productivity: E-extension services can help farmers to increase their productivity by providing them with access to new technologies and best practices.
- Cost-effective: E-extension services can be more cost-effective than traditional extension services, as they can reach a larger number of farmers at a lower cost.

### Limitations/Challenges

There are some perceived challenges that could hamper the smooth running of e-extension. These challenges are either infrastructural or human created. These include:

- Limited internet penetration: Many rural areas in Nigeria lack reliable internet access, making it difficult for farmers to access e-extension services.
- Digital literacy: Many farmers in Nigeria may not have the necessary digital literacy skills to effectively use e-extension services.
- Language barriers: E-extension services may not be available in local languages, creating a barrier for farmers who do not speak English.
- Limited access to technology: Many farmers in Nigeria may not have access to the technology needed to access e-extension services, such as smartphones or computers.
- Power supply: Many rural areas in Nigeria experience frequent power outages, making it difficult for farmers to access e-extension services.
- Infrastructural challenges included erratic power supply; cost of equipment and e-facilities; and poor network coverage.
- Human challenges included lack of expertise; low level of farmers' literacy which could affect their access to information online. Similar challenges were perceived in the use of phone applications. These included irregular power supply and erratic mobile internet connectivity.

### Future Prospects and Opportunities e-extension Service

There are verse prospect of e-extension, especially as digitalization is emergence

- Increased adoption of new technologies: E-extension services can help to increase the adoption of new technologies among farmers in Nigeria.
- Improved food security: E-extension services can help to improve food security in Nigeria by providing farmers with the information and resources they need to increase their productivity.
- Increased income: E-extension services can help farmers to increase their income by providing them with access to new markets and better prices for their products.
- Enhanced competitiveness: E-extension services can help farmers in Nigeria to become more competitive in the global market by providing them with access to new technologies and best practices.
- Improved sustainability: E-extension services can help farmers in Nigeria to adopt more sustainable agricultural practices, which can help to improve the environment and ensure the long-term sustainability of agricultural production.

### CONCLUSION

The utilization of E-extension services can play a significant role in the postharvest subsector given the numerous advantages. However, there is a need to be proactive in addressing the challenges to effectively harness the inherent potential of e-extension. The study recommended the integration of e-extension services into existing extension services to enhance their effectiveness and the provision of training and capacity-building programs for extension agents and farmers on the use of e-extension services.

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