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Use of Good Agricultural Practices among Cassava Farmers in Southwest, Nigeria

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Abstract

The study assessed the adoption of good agricultural practices by arable crop farmers in Southwest, Nigeria. Specifically, the study describes the farmers' awareness of good agricultural practices; ascertains the good agricultural practices arable crop farmers have adopted and identifies the constraints farmers face in adopting GAPs. A multi-stage sampling procedure was used to select 300 respondents for the study. Data were collected through a structured interview schedule. 91.5% of the respondents knew about crop rotation. The majority 86.5% of farmers adopted one or more good agricultural practices. The proportion of the respondents that adopted practices like planting improved cassava varieties, and usage of pesticides approved by NAFDAC and recommended by the ADP extension agent. Among the constraints the respondents faced in adopting good agricultural practices, an increase in the cost of production and management requirements ranked highest. Most farmers were aware of various good agricultural practices and have also adopted one or more of the listed good ones. Agricultural Development Projects should encourage the formation and promotion of farmers' groups, as it enhances information sharing about good agricultural practices, and thus favours the ease of adoption of good agricultural practices.

Keywords: Good agricultural practices, Cassava Farmers

Introduction

Agriculture plays several roles in Nigeria's economy, including feeding the country's expanding population, providing sufficient raw materials for the expanding industrial sector, creating jobs, earning foreign exchange, and creating a market for industrial sector output (Omodero, 2021). However, Nigeria's agricultural sector has underperformed and has seen a significant fall during the last 40 years due to the large income generated by the oil boom. Despite this sharp downturn, the country's principal source of raw materials for its agro-based industries and most of its non-oil export revenue still come from agriculture (Ossai et al., 2023).

Wajim (2020) asserted that more than seventy percent of the Nigerian population depends on agriculture (directly or indirectly). At 206 million in 2020. Nigeria's population is predicted to surpass 401 million by 2050, surpassing the United States as the third most populous country in the world (UN DESA, 2019c).

Good Agricultural Practices (GAPs) are designed to ensure the production of high-quality products safe from biological (microbial contamination), chemical (heavy metals, pesticides), and physical (dirt, soil particles) residues or impurities without endangering the environment or the safety of the workers (Saravanakumar, 2021). A wide range of tasks are covered by GAPs, including conservation agriculture, maintaining soil fertility, managing irrigation and water resources, managing crops, restoring degraded land, producing, and caring for animals, managing integrated pest and fertilizer systems, achieving premium pricing, maintaining a sustainable supply chain, and satisfying importing nations' procurement requirements (Olaniyi, 2023).

By lowering greenhouse gas emissions and environmental degradation, GAP has the potential to increase land use efficiency. Restricting the conversion of ecologically sensitive sites can also lessen agricultural encroachment onto wooded territory (Nziguheba et al., 2022). Enhancing agricultural productivity requires a strong foundation in agricultural information. For agricultural development, farmers must be dynamic; they must be prone to change, leaving behind old, ineffective technologies and adopting new ones (Jayne & Sanchez, 2021). There is currently a gap between yields that farmers can obtain using current extension strategies on improved technologies, about 6.5 times when compared to traditional methods (Donkoh et al., 2019). This gap can be covered if farmers are dynamic, and prone to change, leaving behind old ineffective technologies and adopting new ones (Jayne & Sanchez, 2021).

Adoption of good agricultural practices necessitates substantial farmer effort, tangible incentives, and national and local government backing as well as public-private partnerships. However, adopting appropriate agricultural techniques in response to incentive schemes is not a black-or-white choice. Adoption is contingent upon several variables, including the program's terms and incentives, the farmers' economic and cultural traits, and their environment. Trends in the agricultural market have an impact on producers' choices as well. (Barnes et al., 2019). This research aimed to ascertain the use of good agricultural practices among cassava farmers. The specific objectives of this research were to:

- i. describe the farmers' awareness of good agricultural practices;
- ii. ascertain the good agricultural practices cassava farmers have adopted;
- iii. identify the constraints faced by cassava farmers in adopting good agricultural practices.

Methodology

The study was carried out in Southwest, Nigeria. The area lies between longitude 2 0 31 ' and 6 0 00 ' East and Latitude 6 0 21 ' and 8 0 37 ' N. The population of the study consisted of all cassava farmers. A multi-stage sampling procedure was used for this study. In the first stage, three states (Ondo, Oyo, and Ogun) were purposefully selected from the six Southwestern states because of their dominance of cassava production. The second stage, a proportionate selection: 20% of the available local government area from each of the selected states: Akure North, Owo, Irele, and Ondo East LGAs were selected for Ondo State; Ogbomoso South, Ogbomoso North; Saki;

Oyo West; Lagelu; Ibarapa East; and Ido LGAs were selected for Oyo State; and Abeokuta North, Odeda, Ijebu-Ode, and Yewa North were selected for Ogun State. In the third stage, a random selection of one (1) community from each LGA. In the fourth stage, twenty (20) cassava farmers were selected randomly from each community selected for each state. Three hundred (300) selected cassava farmers represented the sample size.

The awareness was measured on a 2-point Likert-type scale, farmers were asked to indicate if they were aware of the listed good agricultural practices by ticking aware (1) and not aware (0). The adoption was measured on a 2-point Likert-type scale, farmers were asked to indicate if they have adopted any of the listed good agricultural practices, by ticking yes (1) and no (0). The frequency distribution table, percentage, mean score, and graphical representation were used to achieve the research objectives.

Result and Discussion

Farmers' awareness of good agricultural practices

Table 1 shows that the majority (91.5% and 92.7%) of the farmers were aware of crop rotation and clearing their plots between January and March respectively. The proportion of the respondents who were aware of mulching and application of mineral fertilizer NPK15:15:15 was 88.6% and 86.4% respectively. Also, they were aware of the application of approved herbicides in recommended dosage and frequency before planting (92.5%), choosing improved cassava varieties for planting (96.7%), usage of pesticides approved by NAFDAC and recommended by ADP extension agents (84.5%), Usage of the tractor to plough and harrow (78.5%) and harvesting cassava roots 10months after planting when the soil is moist (88.2%). The result further revealed that the proportion of the respondents aware of first weeding between April and May 3 to 4 weeks after planting (90.8%) and selling in the farmer group for better sales (82.6%). This result is consistent with the findings of Ikuerowo & Tehinloju (2021) that arable crop farmers are aware of organic practices.

Table 1: Farmers' awareness of good agricultural practices

Good agricultural practices	Awareness (%)
Choosing a sunny plot of land with well-drained loamy soil	97.1
Choosing improved cassava varieties	96.7
Making heaps or mounds early when the rain starts	96.5
Planting one cutting per heap	96.1
Planting when rain starts in March or April	94.8
Clearing the plot between January and March	92.7
Application of approved herbicides in recommended dosage	92.5
Using the field where I grew maize, beans, and cowpea last year	91.5
First weeding between April and May 3 to 4 weeks after planting	90.8
Leaving the residues on the side of the heaps to dry after clearing	88.6
Second manual weeding 7 to 8 weeks after planting between September and October	88.5
Harvesting cassava roots 10 months after planting when the soil is moist	88.2
Applying mineral fertilizer NPK 15-15-15 at the recommended rate	86.4
Measuring plot with measuring tapes	86.3
Wearing appropriate personal protective equipment	85.5
Usage of pesticides approved by NAFDAC and recommended by ADP extension agents	84.5
Cautious storage, use of pesticides, and recycling of used packing material out of children 's reach	84.3
Selling in farmers' group for better sales	82.6
Usage of herbicides when young crickets appear on the field	81.0
Usage of tractor to plough and harrow	78.5

Source: Field survey, 2022

Good agricultural practices adopted by cassava farmers

Table 2 shows that more than 77% of farmers that cultivated cassava adopted one or more GAPs good agricultural practices. The proportion of the respondents that adopted planting improved cassava varieties, crop rotation, and usage of pesticides approved by NAFDAC and recommended by the ADP extension agent was 86.5 percent. Farmers that adopted timed weeding and application of mineral fertilizer NPK 15-15-15 at the recommended rate were 81.2% and 82.9% respectively. The result further revealed the proportion of the respondents that adopted harvesting cassava roots 10 months after planting when the soil was moist (78.2%).

Table 2: Good agricultural practices adopted by cassava farmers

Good agricultural practices	Adoption (%)
Choosing a sunny plot of land with well-drained loamy soil	87.6
Leaving the residues on the side of the heaps to dry after clearing	87.1
Application of approved herbicides in recommended dosage	87.1
Measuring plot with measuring tapes	87.1
Using the field where I grew maize, beans, and cowpea last year	86.5
Usage of pesticides approved by NAFDAC and recommended by ADP extension agents	86.5
Wearing appropriate personal protective equipment	86.5
Making heaps or mounds early when the rain starts	86.5
Choosing improved cassava varieties	86.5
First weeding between April and May 3 to 4 weeks after planting	84.7
Planting when rain starts in March or April	84.1
Planting one cutting per heap	84.1
Usage of herbicides when young crickets appear on the field	83.5
Applying mineral fertilizer NPK 15-15-15 at the recommended rate	82.9
Harvesting cassava roots 10 months after planting when the soil is moist	82.5
Clearing the plot between January and March	82.4
Second manual weeding 7 to 8 weeks after planting between September and October	81.2
Cautious storage, use of pesticides, and recycling of used packing material out of children 's reach	80.3
Usage of tractor to plough and harrow	78.5
Selling in farmers' group for better sales	74.6

Source: Field survey, 2022

Constraints faced by cassava farmers in the adoption of good agricultural practices

Table 3 shows that among the constraints faced by the respondents in the adoption of good agricultural practices, an increase in the cost of production occupied first rank followed by increased labour and management requirements second rank, lack of knowledge of good agricultural practices third rank, lack of marketing facilities fourth rank, lack of technical support from experts fifth rank and decline in crop productivity sixth rank, respectively. Lack of awareness of good agricultural practices programme ranked seventh while Inadequate physical facilities in the market ranked eighth.

Table 3: Constraints faced by cassava farmers in adoption of good agricultural practices

Constraints	Percentage (%)
Increase in cost of production	78.0
Increased labour and management requirements	75.0
Lack of knowledge of good agricultural practices	72.0
Lack of marketing facilities	68.0
Lack of technical support from experts	55.0
Decline in crop productivity	45.0
Lack of awareness of good agricultural practices programme	39.0
Inadequate physical facilities in the market	35.0

Source: Field survey, 2022

Conclusion and recommendations

Most farmers were aware of various good agricultural practices and have also adopted one or more of the listed good agricultural practices. The farmers perceive that the adoption of good agricultural practices has increased their cost of production and management requirements. The Agricultural Development Project should encourage the formation and promotion of farmers' groups, as it enhances information sharing about good agricultural practices, and thus favours the ease of adoption of good agricultural practices. It also recommends collaboration between the government and private sectors, to promote the implementation and benefits of good agricultural practices through the various sensitisation programs.

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