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Fadama Vegetable Farmers Attitude and Utilization of Organic Farming Practices in Akwa-Ibom State, Nigeria

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Abstract

The study sought to examine Fadama farmers' attitudes towards organic farming practices and the subsequent level of utilization of such practices in Akwa Ibom State, Nigeria. Relevant data were obtained from 120 vegetable farmers, selected through a multi-stage sampling procedure from a sample frame of participants in the Fadama-Additional Funding (AF) programme in the State. A set of pre-tested and validated questionnaires was used to elicit relevant information. Respondents were requested to respond to a set of 19 attitudinal statements and 17 organic practices with the aid of relevant Likert-type criteria. Collated data were analyzed with the aid of descriptive statistics, and results indicated that an average proportion of respondents (55%) were found to possess a high, positive, and favorable attitude towards organic farming practices. The general belief is that organic agriculture contributes to safe and healthy diets and improves soil structure. It was also revealed that an average proportion of respondents regularly utilized animal manure ($\bar{x}$ = 3.74), crop residues ($\bar{x}$ = 3.66), and reduced/minimum tillage ($\bar{x}$ = 3.52) on their farmlands. It is concluded that farmers possess a high propensity to go green, and they should be encouraged in this endeavor by Fadama facilitators and extension agents.

Keywords: Akwa Ibom State, Attitude, Fadama III-AF, Organic farming, Utilization, Vegetable farmers.

1. Introduction

One of the Sustainable Development Goals (SDGs) established by the United Nations is to achieve a World free of hunger by 2030. Unfortunately, recent trends suggest that the World is moving further away from the target set in SDG 2 to eradicate hunger completely(Akpan et al ., 2024). In 2023, the issue of food insecurity worsened, with approximately 282 million individuals' worldwide experiencing acute hunger. This figure represents an increase of 24 million compared to the statistics from 2022, as reported by the Global Report on Food Crises/Food Security Information Network (GRFC/FSIN) in 2024. An often overlooked but crucial aspect of promoting food security worldwide in a sustainable manner is to support smallholder farmers, who contribute about one-third of the global food supply. Within this demographic are some of the poorest, most food-insecure, and most vulnerable individuals in the world, who are farthest from achieving the objectives outlined in SDG 1 and SDG 2 (Woodhill, Hasnain, and Griffith, 2020).

Small-scale producers play a crucial role in growing and processing a variety of nutritionally rich foods for local markets and rural communities. By shortening supply chains and reducing wastage, they contribute to ensuring food security for all while minimizing environmental damage. Supporting these producers in sustainable agricultural practices is essential for promoting food security and mitigating environmental degradation. An important aspect of sustainable agriculture is organic farming (OF), which focuses on natural and economically viable farming methods. By avoiding synthetic pesticides, chemical fertilizers, and GMOs, organic farming helps maintain a healthy environment and supports sustainable agriculture practices. A concerted effort towards sustainable agriculture, including a strong emphasis on organic farming, can lead to a more secure and environmentally friendly food system.

Organic farming plays a crucial role in achieving various sustainable agricultural objectives, particularly in terms of improving human health, preserving the environment, and promoting eco-friendly economic practices. This is especially important in developing countries where small-scale farming is a vital part of the economy

(Udousung et al., 2018a; Umoh et al., 2018). One agricultural sub-sector that stands to benefit greatly from the adoption of improved practices and can provide significant advantages to small-scale farmers is vegetable production (Udousung et al., 2019; Edet et al., 2025). Vegetables are a staple in diets worldwide and have seen a significant increase in global production, surpassing even cereals in terms of trade value (Okonta et al., 2023, Akpan et al., 2023).

Vegetables play a crucial role in providing essential nutrients to humans at an affordable cost. They are rich sources of protein, vitamins, and minerals necessary for body development and repair. Additionally, vegetables complement main cereals, root, and tuber crops in the country (Oluwasusi, 2014). Smallholder farmers utilize a combination of traditional, modern, and scientific agricultural practices to produce these nutritious vegetables.

Government intervention programs aimed at improving the lives of the impoverished consistently prioritize the implementation of inclusive practices in their initiatives. The Third National Fadama Development Project (NFDP III) and its successor, the Fadama III-Additional Financing (Fadama-AF) project have continued this trend by introducing various activities and innovations to benefit vegetable farmers. This is achieved through ongoing capacity building, provision of necessary inputs, and other relevant activities. Furthermore, the promotion of organic vegetable practices and their associated benefits, as highlighted by Mbah et al (2020) and Fanu et al (2024) among others, remains a key focus of these programs.

The spread and subsequent acceptance of agricultural technologies have been proven to be effective methods for increasing farm productivity and reducing poverty among small-scale farmers (Udousung et al., 2015a, Udousung et al., 2015b). Various studies, as indicated by Nkeme et al. (2018) and Zulqarnain et al. (2020), have highlighted the complexities and challenges involved in the adoption and dissemination of technology in agriculture, which can impact farmers' attitudes towards embracing new technologies. It is crucial to recognize that the response of farmers, whether they accept or reject technologies, plays a significant role in the development of agricultural technologies (Udousung et al., 2018b; Joshua et al., 2020). Ultimately, the attitudes and knowledge of smallholder farmers towards their agricultural practices influence their decision-making processes (Kidane and Zwane, 2022).

The common belief is that people's actions are a reflection of their attitudes. According to Pantakar (2020), this belief is often utilized by advertising and marketing companies to influence behavior. Attitudes, when shaped effectively, can indeed impact behavior and lead to desired outcomes. However, research in social psychology, as noted by Chaiklin (2011), has shown that attitudes and behavior do not always align perfectly. In some cases, there may be a significant discrepancy between intent and actual behavior (Zhou and Ding, 2022). It is in light of this discrepancy that the current study was initiated, aiming to explore the attitudes of Fadama vegetable farmers towards a certain agricultural practice (organic farming) and their subsequent adoption of said practices in Akwa Ibom State, Nigeria.

2. Methodology

The study was conducted in Akwa Ibom State, located in the southern region of Nigeria. A multi-stage sampling procedure was used to select 120 respondents from a sample frame of Fadama vegetable farmers affiliated to 65 Fadama User Groups (FUGs) affiliated to 42 Fadama Community Associations (FCAs) in 16 of the 20 Local Government Areas (LGAs) participating in the programme in Akwa Ibom State. Data analyses were with the aid of frequency counts, percentages and mean counts as well as likert scaling. Farmers' attitude towards organic agriculture was evaluated using a 4-point rating scale of; Strongly Agreed (4), Agreed (3), Disagreed (2) and Strongly Disagreed (1) and consisted of nineteen (19) attitude statements; while utilization of organic practices consisted of 12 organic farming practices which were measured with the aid of a four-point Likert continuum of: Not practiced (1), Practiced but discontinued (2) Practiced- Selected Season (3) and Practiced every season (4).

3. Results and Discussion

3.1. Attitude of Respondents towards Organic Farming

Major attitudinal dispositions of respondents, as indicated in Table 1 were "Organic agriculture contributes to safe and healthy diets" ($\overline{x}$ = 3.89; rank= 1); (ii) "Organic agriculture improves soil formation and composition" and ($\overline{x}$ = 3.62; rank= 2); and (iii) "Organic agriculture protects farmers' health" ($\overline{x}$ = 3.61; rank= 3).

Table 1. Attitude of respondents towards organic farming practices (N=120).

Attitude Statements	Strongly Agreed (SA)		Agreed (A)		Strongly Disagreed (SD)		Disagreed (D)		Mean *	Rank
	F	%	F	%	F	%	F	%		
Farmers earn more money from organic farming since they use less inputs.	20	16.7	64	53.3	6	5.0	30	25.0	2.62	14th
The environment is not polluted and degraded with chemicals.	18	15	70	58.3	5	4.2	27	22.5	2.65	13th
Food produced organically is safe and of high quality with the absence of chemical residues.	60	50	48	40	4	3.3	8	6.7	3.33	4th
Oxides of carbon and other harmful substances are not released into the atmosphere.	22	18.3	58	48.3	8	6.7	32	26.7	2.58	15th
OF builds soil quality and organic matter content.	42	35	50	41.7	16	13.3	12	10	3.02	11th
OF enhances the health of the natural environment	44	36.7	57	47.5	13	10.8	6	5.0	3.15	6th
OF increases agricultural efficiency, yield and output.	25	16.7	55	45.8	5	4.2	35	29.2	2.58	16th
With OF, there is food for all, at the right time, quantity and price (food security).	6	5	37	30.8	4	3.3	73	60.8	2.11	18th
OF encourages retention of Carbon in the soil.	14	11.7	84	70	8	6.7	14	11.7	2.82	12th
OF promotes agricultural sustainability.	38	31.7	60	50	9	7.5	13	10.8	3.03	9th
There is a high demand for organic products.	2	1.7	49	40.8	16	13.3	53	44.2	2.41	17th
OF protects farmers' health.	90	75	20	16.7	3	2.5	7	5.8	3.61	3rd
OF is a source of productive labour and employment.	30	25	80	66.7	6	5	4	3.3	3.13	7th
OF contributes to safe and healthy diets.	85	70.8	25	20.8	6	5	4	3.3	3.89	1st
OF improves soil formation and composition.	82	68.3	33	27.5	2	1.7	3	2.5	3.62	2nd
Ground water is safe for drinking since chemicals are not leached into it.	40	33.3	60	50	10	8.3	10	8.3	3.08	8th
OF encourages the existence of different beneficial organisms in the soil.	20	16.7	90	75	2	1.7	8	6.7	3.02	10th
OF minimizes air pollution.	33	27.5	81	67.5	5	4.2	1	0.8	3.22	5th
There is ready market for organic products only. (Market niche).	1	0.8	50	41.7	9	7.5	60	50.0	1.93	19th

Note: *Mean attitude = 3.0.

The results showcased the various benefits of organic farming practices which include improving farmers' health, ensuring food safety and quality, and enhancing soil structure and formation, among others. Respondents pointed out that organic farming plays a crucial role in promoting safe and healthy diets by eliminating chemical residues that can cause serious health issues like cancer. Additionally, farmers are safeguarded from exposure to harmful herbicides and pesticides commonly used in conventional farming methods. The absence of chemicals in organic farming also creates a conducive environment for soil fauna and flora to thrive, ultimately enhancing soil formation and composition. Despite these positive aspects, a few attitudinal statements fell below the cut-off point of 3.0, including assertions that there is a high demand for organic products (mean = 2.41; rank = 17), organic agriculture ensures food security (mean = 2.11; rank = 18), and organic agriculture creates a market niche (mean = 1.93; rank = 19).

The results suggest that organic farming may have limitations due to the relatively low demand for organic products in the study area. Respondents mentioned that organic products are often priced higher than conventionally-produced food items, making them less accessible to the majority of the population, especially given the current economic challenges and low purchasing power in the region. Additionally, consumers who shop at open markets may not see a noticeable difference in the appearance of organically produced vegetables compared to conventionally produce ones. The main distinction lies in the price discrepancies observed in supermarkets, where organic products are often available but not prominently displayed. It is worth noting that Oluwasusi (2014) found a high demand for organic products in certain states in the south-western region of Nigeria.

The results of the study showed that most respondents had a moderate attitude towards the use of organic farming practices in their vegetable production activities. According to Table 2, 50% of the respondents had a positive view of organic farming practices, while 42.5% had a negative attitude. These findings are in line with previous studies by Fanu et al. (2024), Okonta et al. (2023), Zhou and Ding (2022), and Oluwasusi (2014). Oyedele (2018), on the other hand, found that the majority of respondents were unsure about their feelings towards organic farming practices.

Table 2.A summary table of respondents' attitude towards organic farming (N = 120).

Attitude of Respondents	Attitude score*	Frequency	Percent
Positive (Favourable)	> 54	60	50
Neutral	54	9	7.5
Negative (Unfavourable)	< 54	51	42.5

Note: *Mean attitude score = 54.

3.2. Predominant Organic Farming Practices (OFP)

Table 3 indicates organic farming activities practiced by the respondents. The most prevalent OFP activities were: i) "Use of animal manure" ($\overline{x}$ = 3.74); ii) "Use of crop residues" ($\overline{x}$ = 3.66) and; iii) "Reduced/minimum tillage ($\overline{x}$ = 3.52). On a general level, it was revealed that seven (7) of the 12 OFPs scored more than the mean cut-off

point of 3.0 - indicating a moderate level utilization of introduced technologies. Findings revealed that many of the respondents are quite skeptical about the 'much touted potentials', of OFP based on its cumbersome nature and indifference of consumers and customers who refuse to pay higher prices for OF vegetables. Related literature reveals differing results on utilization of introduced OFPs. Mbah et al (2020) reported a high level of utilization of OFP in Imo State, with the major OFPs revealed as mixed cropping, shifting cultivation and crop rotation ; while Obazi et al 2022, in Enugu State; reported a mid-level (51.6%) utilization, with animal manure, farmyard manure and composting as major applications. Owolabi, Ajayi and Akintola, (2018) with reference to Ondo State; reported a similar average utilization level with mixed cropping, minimum tillage, mulching as mainly used OFPs. On the other hand, Fanu et al (2024) revealed a low level of OFP utilization with crop rotation, mulching, application of organic fertilizer in Ekiti State. A similar low utilization trend was reported for Owerri LGA by Egwuonwu and Onyeaka (2020) with animal manure and natural weed control as most predominant. In deference to reported relative differences in the utilization of OFPs in vegetable production, Ibeawuchi et al (2015) asserted that current practices of organic agriculture are a modification and continuation of indigenous practices that are more prominent in different respective areas in Nigeria.

The least utilized OFPs were: i) "use of off-farm organic wastes" ($\overline{x}$ = 2.08; rank= 10); ii) "intercropping" ($\overline{x}$ = 2.04; rank = 11) and; iii) "crop rotation" ($\overline{x}$ = 1.71; rank = 12). The practice of using off-farm organic wastes on the farm, such as kitchen sweepings, was low because most of the respondents lived far away from their farms. Intercropping was low too because, as asserted by some of the respondents, the design of Fadama III-AF Project allowed for each Fadama User Group (FUG) to be identified by a specific enterprise all through the lifespan of the Project, although some of the respondents (16.7%) planted a few other crops along with vegetable. This also explains why the practice of crop rotation was low.

Table 3. Distribution of respondents based on organic farming practices (N = 120).

Organic farming practices	Practiced every season		Practiced selected seasons		Practiced but discontinued		Not practiced		Mean *	Rank
	F	%	F	%	F	%	F	%		
Use of animal manure	92	76.7	16	13.3	5	4.2	7	5.8	3.74	1st
Crop rotation	10	8.3	5	4.2	45	37.5	60	50.0	1.71	12th
Mulching	60	50.0	40	33.3	10	8.3	10	8.3	3.25	6th
Composting	22	18.3	70	58.3	7	5.8	21	17.5	2.78	9th
Intercropping	20	16.7	20	16.7	25	20.8	55	45.8	2.04	11th
Use of off-farm organic wastes	18	15.0	32	26.7	12	10.0	58	48.3	2.08	10th
Farm sanitation	60	50	40	33.3	9	7.5	11	9.2	3.24	7th
Reduced/minimum tillage	84	70.0	18	15.0	14	11.7	4	3.3	3.52	3rd
Cover cropping	22	18.3	78	65	12	10	8	6.7	2.92	8th
Use of crop residues	98	81.7	9	7.5	7	5.8	6	5.0	3.66	2nd
Adequate drainage system	70	58.3	35	29.2	10	8.3	5	4.2	3.42	5th
Use of local seed varieties	73	60.8	36	30	8	6.7	3	2.5	3.49	4th

Note: *Mean value of organic farming practices = 2.5.

4. Conclusion and Recommendations

The findings of this study are indicative of the generally moderate attitude of the vegetable farmers towards OFPs. This study also tends to affirm behavior follows attitude (Pantakar, 2020) because the farmers' also recorded a moderate level of utilization of introduced OFPs. Many farmers possess a positive attitude towards OFPs because of its semblance to local, traditional farm practices. It therefore becomes imperative to leverage on the important traditional practices that share similar modes of operation with organic farming; as this will enhance its acceptability and easier diffusion through the farming system. It may also be important to understand reasons behind selective adoption of some OFPs, as to help expose related inadequacies which may need to be addressed, to enhance higher utilization levels. In essence, extension agents must be capacitated to enable them keenly perform awareness and advocacy functions that will espouse the health, economic and environmental benefits of OFPs. It is also important that the positive attitudinal traits of farmers become more enhanced and better transformed into actual behavior of adoption. This should be done by exposing them to means of generating higher income from their farms through OFPs. It is well known that organic production can create employment, transfer knowledge and improve access to high value markets. In this wise, Organic agriculture should be given priority attention in Nigeria because it is demand-driven as the products are needed in advanced countries. Nigeria needs to get its share of the lucrative global organic products market, through embarking on a process of certification of her products by the relevant authorities in the world market. A first step in this direction is through the formulation or stricter implementation of suitable policies to enhance the practice of organic agriculture. After which, a targeted focus on training and capacity building in both primary production and building a veritable value chain for organic products; will be embarked upon for enhanced sustainability.

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