

## **ASSESSMENT OF INDIGENOUS VEGETABLE MANAGEMENT PRACTICES AMONG VILLAGE ALIVE DEVELOPMENT INITIATIVE (VADI) FARMERS IN KWARA STATE, NIGERIA**

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### **ABSTRACT**

*Indigenous agricultural practices have long played an important role in sustaining food production and maintaining ecological balance in many African communities. However, the increasing adoption of modern farming techniques has raised concerns regarding their environmental and health implications. This study examined the level of utilization of indigenous vegetable management practices among vegetable farmers in Kwara State, Nigeria. A multi-stage sampling procedure was used to select 324 vegetable farmers from selected 3 communities in Ifelodun and Ekiti Local Government Areas of the state. Data were collected using a structured interview schedule and analyzed using descriptive statistics including. The findings revealed that the mean age of farmers was 41 years. The majority were male, married, and had at least a secondary education. Most farmers operated on small farm holdings with a mean farm size of 1.21 hectares, while 56.2% relied primarily on personal savings as their main source of farm financing. The results further showed a high level of utilization of several indigenous practices such as (85.2%) watering, (84.6%) shifting cultivation, (77.8%) crop rotation, (78.7%) weeding, (76.5%) soil management, and (78.4%) indigenous pesticides among the respondents. The study concludes that indigenous vegetable management practices remain widely utilized and play a significant role in promoting sustainable vegetable production and food security.*

**Key words:** Indigenous agricultural practices, Vegetable production, Indigenous vegetable management, Farmers' adoption, Sustainable agriculture, Food security.

### **INTRODUCTION**

There is a growing need to increase awareness of the utilization of indigenous agricultural practices rather than relying solely on conventional systems in Africa (Abang et al., 2014). This need has arisen from the introduction of modern agricultural production methods that have environmental and health implications for consumers. Assessing the status of indigenous knowledge in agricultural production is important for Nigeria and its ever-growing human population. With a population of over 200 million, the country has become inevitable to strengthen and develop its agricultural sector to achieve sustainable food security (Ibrahim and Arulogun, 2020).

According to Abdulrahman et al. (2017), food production is a vital component for human survival. Agriculture remains a significant sector of the Nigerian economy, contributing to food production and generating employment opportunities, particularly in rural areas.

Despite the growing need for sustainable food production, agriculture has been reported to impose a substantial environmental burden due to the use of improved agricultural management systems (Iheanacho et al., 2019). In addition to environmental concerns, improving human nutrition is also an important goal of agricultural production. Increasing the production and consumption of vegetables is an effective way to improve dietary diversity and quality, especially in diets that are dominated by high-energy foods with low micronutrient content (Shahbaz et al., 2020). In line with this, vegetables are widely cultivated in Africa due to their nutritional value and their importance as an essential component of the African diet. Some vegetables are consumed fresh, while others are cooked using different preparation methods before consumption. Common examples of vegetables cultivated in the tropics include the genera *Amaranthus*, *Celosia*, *Cucumis*, *Hibiscus*, *Talinum*, *Solanum*, and *Corchorus*, as well as crops such as onion, tomato, okra, pepper, carrot, melon, and jute (Ibeawuchi et al., 2015).

However, despite the numerous benefits of indigenous vegetable farming practices, farmers' adoption of these practices is increasingly challenged by the introduction of modern vegetable farming techniques. These introduced practices are considered to have less beneficial effects on the environment, on soil fertility, and on potential health outcomes (Oluwasusi, 2014). Their utilization has also been reported to have environmental effects and health implications for consumers (Nicolopoulou-Stamati et al., 2016). This situation differs from the traditional system of crop production and management, which incorporated indigenous agricultural methods largely free of chemical inputs and posed little or no environmental or health risks (Lu et al., 2015). Due to these concerns, there is an urgent need to develop and promote agricultural innovations that support ecological balance and sustainable food production (Nicolopoulou-Stamati et al., 2016).

Given this background, the study examined the level of utilization of indigenous vegetable management practices among vegetable farmers in Kwara State, Nigeria. Specifically, the objectives of the study are to describe the socio-economic characteristics of vegetable farmers in the study area and ascertain the level of utilization of indigenous management practices among them.

## **METHODOLOGY**

The study was conducted in Kwara State, located between latitudes 11°02' and 11°45'N and longitudes 2°45' and 6°04'E (National Population Commission, 2006). The state covers approximately 32,500 km<sup>2</sup>. It is bordered to the north by Niger State, to the south by Oyo State, Osun State and Ekiti State, and to the east by Kogi State. To the west, it shares an international boundary with the Republic of Benin. The state experiences a dual-seasonal climate—dry and wet—with peak rainfall between July and September. Monthly rainfall ranges from 50.8 mm to 241.3 mm, while the annual mean varies between 745.5 mm and 1,409.2 mm. The average temperature ranges from 18°C to 35°C. Kwara State also contains 24 forest reserves covering about 5,087.2 km<sup>2</sup> (National Population Commission).

A multi-stage sampling procedure was used for the study. In the first stage, two local government areas—Ifelodun and Ekiti—were purposively selected due to their high concentration of vegetable farmers participating in the VADI programme. The second stage involved the random selection of two communities from six participating communities in Ifelodun LGA (Koko-Araromi and Jimba-Oja), and one community from three participating communities in Ekiti LGA (Osi). In the third stage, two communities each were randomly selected from the six selected LGAs, giving a total of twelve communities. At the fourth stage, vegetable farmers were selected from each of the twelve communities. Finally, at the fifth stage, twenty-five vegetable farmers who had been actively involved in VADI communities were randomly selected from each community or group, giving a total sample size of 324 respondents. Data were collected using a structured interview schedule.

## **RESULT AND DISCUSSIONS**

### **Socio-Economic characteristics of farmers in the study**

The mean age of the respondents indicates that most vegetable farmers in the study area are within the economically active and productive age group. This suggests that vegetable production in the area is largely undertaken by individuals who possess the physical strength and capacity required for farming activities. The dominance of farmers within the productive age category may enhance the adoption and effective utilization of indigenous vegetable management practices. This finding supports the report of Agunloye (2017), who noted that individuals within the active age group tend to be more productive and actively involved in agricultural activities.

The predominance of male farmers in vegetable production suggests that vegetable farming in the study area is largely male-dominated. This may be attributed to the labour-intensive nature of vegetable farming and the cultural roles that often assign major farming responsibilities to men in many rural communities. This observation corroborates the findings of Adebisi et al. (2011), who reported that male farmers constitute the majority of vegetable producers due to their greater access to land and other productive resources.

The high proportion of married respondents implies that family structure may play an important role in vegetable production. Married farmers are likely to benefit from family labour and moral support, which can contribute to improved farm productivity and commitment to farming activities. This finding is consistent with Shahbaz et al. (2020), who reported that married farmers often demonstrate greater commitment to agricultural activities due to family responsibilities and support.

The household size of respondents suggests the availability of family labour for farming activities. Larger household sizes can provide additional labour for farm operations, thereby reducing the need for hired labour and lowering production costs. This may positively influence the management and sustainability of vegetable farming practices in the study area.

The educational status of the respondents indicates that most farmers possess at least basic formal education. This implies that farmers in the study area are likely to understand and apply agricultural information provided through extension services or other sources. Education can enhance farmers' ability to make informed decisions, adopt improved farming techniques, and effectively utilize indigenous knowledge systems. This observation aligns with the findings of Shahbaz et al. (2020), who reported that education plays an important role in influencing farmers' participation and productivity in agricultural activities.

Furthermore, the dominance of full-time farmers suggests that vegetable production serves as a major livelihood activity for many households in the study area. This indicates a strong dependence on agriculture for income generation and food security.

The small farm sizes observed among the respondents indicate that vegetable production in the study area is predominantly carried out on a small-scale basis. Smallholder farming is common in many developing countries, particularly in rural areas where access to land and capital is limited. The implication is that farmers may rely more on indigenous and low-cost management practices to sustain production. This finding is consistent with Omotilewa et al. (2021), who reported that farm size significantly influences farmers' participation and productivity in agricultural activities.

### **Level of utilization of Indigenous vegetable management practices**

The findings indicate that respondents widely utilized several indigenous vegetable management practices. Practices such as watering, shifting cultivation, crop rotation, weeding, pest and disease control, soil management, and indigenous pesticides were the most commonly adopted, reflecting farmers' strong reliance on traditional knowledge systems for vegetable production. Other practices, including green manures, use of neem leaves, trap cropping, ashes, faeces and urine mixtures, rogueing, and tobacco residue, were moderately practiced, suggesting selective adoption based on familiarity, perceived effectiveness, or labor requirements.

**Table 1: Distribution of respondents**

Age	Frequency	Percentage	Mean
≤ 20	10	3.1	
21 – 30	58	17.5	
31 – 40	96	30	41.26
41 – 50	89	27.5	
51 – 60	53	16.3	
>60	18	5.6	
<b>Sex</b>			
Male	213	65.7	
Female	111	34.3	
<b>Marital Status</b>			
Single	63	19.4	
Married	252	77.8	
Widowed	9	2.8	
<b>Household size</b>			
<5	179	55.2	
5-10	122	37.7	
11-15	18	5.6	
16-20	5	1.5	
<b>level of education</b>			
No formal education	32	9.9	
Primary school attended	15	4.6	
Secondary school attended	83	25.6	
Secondary school completed	81	25.0	
Tertiary education	102	31.5	
Adult education	11	3.4	
<b>Involvement in farming</b>			
Full time	182	56.2	
Part time	142	43.8	
<b>Farm size in hectares</b>			
≤ 1	250	77.2	
1.01 – 2.00	54	16.6	1.21
> 2	20	6.2	

Field Survey, 2026

**Table 2: Level of utilization of indigenous vegetable management practices**

Indigenous Practices	Highly utilized	Utilized	Moderately Utilized	Slightly Utilized	Not Utilized	Ranked Mean
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)	
Watering	276(85.2)	35(10.8)	9(2.8)	4(1.2)	0(0)	4.7994
Shifting cultivation	274(84.6)	37(11.4)	9(2.8)	4(1.2)	0(0)	4.7809
Crop rotation	252(77.8)	60(18.5)	12(3.7)	0(0)	0(0)	4.7407
Weeding	255(78.7)	56(17.3)	6(1.9)	7(2.2)	0(0)	4.7253
Pest and disease control	262(80.9)	42(13.6)	16(4.9)	0(0)	4(1.2)	4.7222
Soil management	248(76.5)	61(18.8)	15(4.6)	0(0)	0(0)	4.7191
Indigenous technical knowledge	250(77.2)	50(15.4)	20(6.2)	4(1.2)	0(0)	4.6852
Minimum tillage	224(69.1)	90(27.8)	10(3.1)	0(0)	0(0)	4.6605
Legumes	234(72.2)	70(21.6)	14(4.3)	6(1.9)	0(0)	4.6420
Burning of stubbles on the field	244(75.3)	50(15.4)	20(6.2)	10(3.1)	0(0)	4.6296
Indigenous pesticides	254(78.4)	41(12.7)	13(4.0)	9(2.8)	7(2.2)	4.6235
Scare-crow	238(73.5)	61(18.8)	13(4.0)	0(0)	12(3.7)	4.5833
Crop residues	191(59.0)	130(40.1)	3(0.9)	0(0)	0(0)	4.5802
Off – farming organic waste	219(67.6)	73(22.5)	19(5.9)	7(2.2)	6(1.9)	4.5185
Green manures	171(52.8)	114(35.2)	21(6.5)	18(5.6)	0(0)	4.3519
Use of neem leaves	168(50.3)	116(35.8)	35(10.8)	6(1.9)	4(1.2)	4.3210
Trap cropping	210(64.8)	56(17.3)	22(6.8)	18(5.6)	18(5.6)	4.3025
Use of ashes	177(54.6)	93(28.7)	32(9.9)	6(1.9)	8(2.5)	4.2623
Faeces and urine mixture	180(55.6)	58(17.9)	25(7.7)	53(16.4)	8(2.5)	4.0772
Rogueing	132(40.7)	132(40.7)	13(4.0)	21(6.5)	26(8.0)	3.9969
Use of tobacco residue	120(37.0)	81(25.0)	94(29.0)	6(1.9)	23(7.1)	3.8302
Valid N (listwise)						

Source: Field survey, 2026

Note: 5 highly Utilized, 4 Utilized, 3 moderately Utilized, 2 slightly Utilized, 1 not Utilized

## CONCLUSION AND RECOMMENDATIONS

The study concludes that indigenous vegetable management practices are widely utilized among farmers in Kwara State, Nigeria. Farmers are predominantly young, active, and primarily engaged in vegetable production as their main occupation, with most possessing at least secondary education and cultivating small farm holdings. The study further concludes that practices such as watering, shifting cultivation, crop rotation, weeding, soil management, and the use of indigenous pesticides are commonly applied, enabling farmers to reduce production costs while maintaining soil fertility and supporting environmental sustainability.

Based on findings from the study, the following recommendations are made:

1. Government and agricultural development agencies should strengthen extension services to improve farmers' access to information on improved and sustainable indigenous farming practices.
2. Farmers should be encouraged to join cooperative societies in order to improve access to credit, farm inputs, and government support programmes.