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Vegetable Gardening Skills Needed by Senior Secondary Schools Leavers for Gainful Self-Employment in Oyo State

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Abstract

This study focused on vegetable gardening skills needed for gainful self-employment by senior secondary school leavers in Oyo State, Nigeria. Specifically, it determined skills needed by the school leavers in soil preparation; seed selection and planting; crop maintenance; harvesting and processing; and marketing vegetables. It adopted a descriptive research design. Population consisted of 978 Agricultural Science teachers and 343 vegetable farmers from Oyo State. Questionnaire was used to collect data. Data analysis involved mean, standard deviation, and t-test at 0.05 level of significance. Findings include 11 soil preparation skills. These include, clearing the site ($\bar{X}$ =3.43) and others; 12 seed selection and planting skills, such as selecting high-quality vegetable seeds ($\bar{X}$ = 3.52) and protecting young seedlings from direct sun, heavy rain, and pests ($\bar{X}$ =3.27) ; 10 crop maintenance skills, including application of fertilizers or compost ($\bar{X}$ = 3.39) and pruning diseased or damaged leaves to improve crop health($\bar{X}$ =3.27); 15 harvesting and processing skills, which include harvesting vegetables carefully to prevent bruising or damage ($\bar{X}$ = 3.55) and sorting vegetables by type, size, and freshness($\bar{X}$ =3.45); and 13 marketing skills**,** including, among others, identifying and targeting profitable customer groups ($\bar{X}$ = 3.44). Four recommendations were made based on the findings of the study.

Keywords: Vegetable, Gardening, Skills, Self-employment, Planting, Harvesting, Processing, Marketing.

Introduction

Vegetable gardening is a practical agricultural skill and a sustainable livelihood activity that involves cultivating different types of vegetables for food consumption and income generation. It encompasses several essential operations such as site selection, land preparation, seed selection, planting, watering, weeding, pest and disease control, harvesting, and marketing of produce (Adeoye, 2021). The practice of vegetable gardening contributes significantly to food security, nutrition improvement, and poverty reduction. According to Onyishi (2021), vegetable gardening serves as a viable means of self-employment, particularly among

young people in both rural and urban areas of Nigeria, as it requires relatively low start-up capital and yields quick returns on investment.

Senior secondary school leavers in Oyo State often struggle with limited job opportunities and may not proceed to tertiary education immediately due to financial or admission challenges. These constraints create the need for self-employment options. Vegetable gardening offers a practical solution, as it provides low-cost, accessible skills that can generate income and promote economic independence.

Vegetable gardening, when effectively taught and practiced, has the potential to empower senior secondary school leavers with entrepreneurial skills necessary for self-reliance and economic stability. It enhances their capacity to produce vegetables such as tomatoes, okra, pepper, spinach, and fluted pumpkin (ugu), which are in high demand in local markets (Ojo, Owolabi, & Musa, 2022). The process involves technical and managerial activities such as soil testing, nursery establishment, transplanting, irrigation management, pest control, and post-harvest handling. Each of these stages requires mastery of specific skills that can be developed through agricultural education and hands-on experience (James & Bitrus, 2024).

Every phase of vegetable gardening adds value to natural resources. According to Ojaowhe and Oshio (2021), land preparation creates a suitable environment for crop growth, while proper seed selection ensures high germination rates and quality yield. Similarly, timely weeding and pest management improve crop health and productivity, while harvesting and post-harvest handling maintain the freshness and marketability of vegetables. Vegetable gardening thus functions not only as a means of ensuring household food supply but also as a profitable enterprise that provides employment opportunities and supports rural development (Bamidele and Yussuf, 2023).

Technical skills refer to the practical abilities and knowledge needed to perform specific agricultural tasks efficiently. Scholars defined technical skills as accumulated experiential competencies that enable an individual to execute tasks with precision and confidence. In the context of vegetable gardening, these skills include the ability to use basic farm tools such as hoes, cutlasses, watering cans, sprayers, and wheelbarrows effectively, as well as the knowledge of soil fertility management and crop spacing techniques. Therefore, vegetable gardening skills represent the competencies required to manage crop production successfully and sustain agribusiness ventures (James & Bitrus, 2024).

Agricultural Science teachers in secondary schools play a vital role in implementing practical gardening lessons. According to Okafor and Eze (2023) teachers are trained professionals responsible for imparting both theoretical and practical knowledge to learners. They are expected to guide students through

stages such as soil preparation, nursery management, and pest control. However, in many secondary schools across Oyo State, limited access to farmland, inadequate agricultural tools, and insufficient practical sessions have hindered effective skill acquisition among students (James & Bitrus, 2024).

Professional farmers and horticulturists—often referred to as "masters of the occupation"—possess years of field experience and practical expertise in vegetable production. Their involvement in mentoring secondary school leavers through apprenticeship, extension services, and demonstration farms has proven to be an effective method of promoting agripreneurship (Ojo et al., 2022). When secondary school graduates acquire these essential vegetable gardening skills, they can establish small-scale farms, supply fresh vegetables to local markets, and contribute to food security and economic growth in Oyo State (Oladipo and Kareem, 2021).

Several studies have examined vegetable gardening skills from different perspectives, including production and agronomic practices that enhance productivity and efficiency (Adeoye, 2021; Ojo et al., 2022), as well as profitability and sustainability of vegetable farming across Nigeria (Ojaowhe & Oshio, 2021; Onyishi, 2021). Others have focused on soil management, irrigation, and marketing skills essential for successful vegetable production **(**Oluwasola, 2020). HowNone of the studies has, however, focus on vegetable gardening skills needed by senior secondary school leavers for self-employment in Oyo State, hence this study.

Purpose of the Study

This study focused on vegetable gardening skills needed by senior secondary school (SSS) leavers for gainful self-employment in Oyo State, Nigeria. Specifically, the study determined skills required by SSS leavers for:

1. soil preparation for vegetable gardening
2. seed selection and planting
3. crop maintenance
4. harvesting and processing
5. marketing vegetables

Hypotheses (HOs)

The following null hypotheses were tested at 0.05 level of significance. There is no significant difference in the mean responses of Agricultural Science teachers and professional farmers regarding vegetable gardening skills needed by senior secondary school students in:

HO_1: soil preparation for vegetable gardening
HO_2: seed selection and planting
HO_3: crop maintenance
HO_4: harvesting and processing
HO_5: marketing vegetables

Methodology

***Design of the Study*:** This study adopted a descriptive survey research design.

***Area of the Study*:** The study was conducted in Oyo State, Nigeria. The state is located in the southwestern part of the

country. It has 33 local government areas (LGAs). It is characterized by fertile soils, favourable climatic conditions, and a strong agricultural base, making it suitable for agricultural activities including vegetable production (Oyo State Government, 2020). The state has a large youth population, with thousands of senior secondary school (SSS) leavers graduating each year, representing a key group for acquiring vegetable gardening skills for self-employment (UNFPA, 2021); Oyo State Ministry of Education, 2023; Federal Ministry of Education, 2022).

***Population of the Study*:** The study population comprised 978 Agricultural Science teachers from 632 public secondary schools (Oyo State Post-Primary Teaching Service Commission, 2023) and 343 vegetable farmers identified from over 10,000 registered farmers in Oyo State (Oyo State Ministry of Agriculture and Rural Development, 2024). The teachers, both male and female with 6 to 25 years of teaching experience, are TRCN-certified and hold degrees in Agriculture and related fields. They are responsible for teaching the agricultural curriculum and supervising practical gardening activities. The vegetable farmers, drawn from associations such as All Farmers Association of Nigeria (AFAN) and Farmers Development Union (FADU) in the area of the study, are literate with 4 to 7 years of vegetable farming experience. They are male between the ages of 25 and 42 years.

***Sample for the Study*:** A sample size of 326 Agricultural Science teachers (representing 33% of the population) was drawn using a stratified random sampling technique in stages. From each senatorial district, 117 teachers were selected from Oyo Central (146 schools), 109 teachers from Oyo North (132 schools), and 100 teachers from Oyo South (124 schools). A total of 120 literate vegetable farmers (representing 35% of the population) were purposively selected for the study from the 343 vegetable farmers identified through the farmers associations across the three senatorial districts. This comprised 37 out of 101 vegetable farmers from Oyo North**,** 40 out of 113 from Oyo Central, and 43 out of 129 from Oyo South**,** using the purposive sampling technique.

***Instrument for Data Collection*:** Questionnaire was developed through an extensive review of related literature and aligned with the specific purposes of the study. The questionnaire employed a 4-point rating scale as follows: Highly Needed (4), Needed (3), Minimally Needed (2) and Not Needed (1). It was validated by two Agricultural Science Education Senior Lecturers, and one agricultural extension officer. Reliability of the instrument was established through the test–retest method. The questionnaire was tested among 25 Agricultural Science teachers and 10 vegetable farmers outside the study area and re-administered after a two-week interval. The Pearson correlation yielded reliability coefficients of 0.86 for teachers and 0.82 for vegetable farmers, indicating high internal consistency.

***Data Collection Method*:** A total of 446 copies of the questionnaire (336 to teachers and 120 to farmers) were administered with the assistance of four trained research assistants. A total of 436 copies were retrieved from the respondents; 322 from the teachers, representing a 98.77 percent return rate, and 114 copies from the vegetable farmers, representing a 95 percent return rate.

***Data Analysis Technique*:** Data were analyzed using mean, standard deviation, and t-test at 0.05 level of coefficient. A mean score of ≥ 2.50 indicated that a skill was "Needed," while a mean score of ≤ 2.50 indicated that the skill was "Not Needed."

The null hypothesis was accepted when the t-calculated value (t-cal) was less than the t-critical (t-tab) value of 1.96. On the other hand, null hypothesis was rejected when the t-calculated value (t-cal) was greater than the t-critical (t-tab) value of 1.96 at 0.05 degree of freedom

Findings of the Study

Table 1: Mean Responses, Standard Deviation, and t-test Results on Soil Preparation Skills Needed by Senior Secondary School Leavers in Oyo State

S/N	Soil preparation skills include ability to:	$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2	$\bar{X}_g$	t-cal	R
1	select accessible and secure locations for vegetable gardens	2.96	0.78	3.04	0.83	3.00	-0.63	NS
2	Select land with fertile, well-drained loamy soil for vegetable production	3.46	0.63	3.60	0.58	3.53	-1.29	NS
3	clear the site and remove weeds, stumps, and debris before cultivation	3.31	0.70	3.55	0.68	3.43	-2.36	NS
4	carry out soil sterilisation (solarisation or steaming) to reduce soil-borne pests and diseases	3.10	0.76	3.28	0.71	3.19	-1.51	NS
5	test and improve soil fertility using compost or organic manure	3.18	0.82	3.42	0.76	3.30	-1.97	NS
6	prepare nursery beds or ridges for vegetable planting	3.12	0.74	3.25	0.69	3.19	-1.15	NS
7	maintain proper drainage around the garden to prevent water logging	3.27	0.80	3.46	0.72	3.37	-1.74	NS
8	use hoes and cutlasses effectively during land clearing	3.08	0.77	3.21	0.83	3.15	-1.03	NS
9	apply mulching to conserve soil moisture and control weeds	3.20	0.71	3.18	0.79	3.19	0.17	NS
10	level the soil surface before planting to ensure uniform growth	3.05	0.85	3.33	0.74	3.19	-2.07	NS
11	mark out planting beds according to crop spacing requirements	3.22	0.73	3.40	0.69	3.31	-1.64	NS

N_1 = Number of Agricultural Science teachers (322), N_2 = Number of Vegetable Farmers (114), $\bar{X}_1$= Mean response of Agricultural Science teachers, $\bar{X}_2$ = Mean response of Vegetable Farmers, SD_1 = Standard Deviation of Agricultural Science teachers, SD_2 = Standard Deviation of Vegetable Farmers, $\bar{X}_g$ = Grand Mean, t-cal = Calculated t-value, R = Remark, Degree of freedom (434), t-critical (1.96), NS = Not Significant.

Table 1 shows that the grand means ($\overline{X}_g$) for all the items ranged from 3.00 to 3.53**.** These scores are above the **2.50** benchmark, indicating that all the listed land preparation skills are needed by senior secondary school leavers to acquire for gainful self-employment in vegetable gardening in Oyo State, Nigeria. Furthermore, Table 1 indicates that in each item, the null hypothesis was accepted, revealing no significant difference in the mean responses of Agricultural Science teachers and vegetable farmers regarding the land preparation skills required by senior secondary school leavers for vegetable production.

Table 2: Mean Responses, Standard Deviation, and t-test Results on Seed Selection and Planting Skills Needed by Senior Secondary School Leavers in Oyo State

S/N	Seed selection and planting skills include ability to:	$\overline{X}_1$	SD_1	$\overline{X}_2$	SD_2	$\overline{X}_g$	t-cal	R
1	select high-quality vegetable seeds or seedlings for planting	3.40	0.68	3.63	0.61	3.52	-2.19	NS
2	select disease-resistant and climate-adapted vegetable seed varieties	3.28	0.72	3.46	0.66	3.37	-1.68	NS
3	perform seed viability or germination tests before planting	3.18	0.76	3.32	0.70	3.25	-1.21	NS
4	determine appropriate planting spacing for different vegetable types	3.26	0.74	3.38	0.71	3.32	-1.11	NS
5	use proper seed planting depth according to crop variety	3.18	0.79	3.30	0.72	3.24	-1.02	NS
6	water newly planted seeds or seedlings appropriately	3.35	0.66	3.51	0.69	3.43	-1.56	NS
7	transplant seedlings from nursery to field without root damage	3.27	0.73	3.48	0.70	3.38	-1.94	NS
8	apply organic manure or fertilizer during or after planting	3.22	0.75	3.34	0.68	3.28	-1.05	NS
9	label or identify different vegetable plots after planting	3.06	0.80	3.18	0.74	3.12	-0.92	NS
10	protect young seedlings from direct sun, heavy rain, and pests	3.14	0.77	3.40	0.69	3.27	-2.31	NS
11	irrigate the field regularly to promote uniform germination	3.37	0.69	3.55	0.64	3.46	-1.68	NS
12	record date of planting and expected harvest time for management	3.12	0.78	3.20	0.70	3.16	-0.74	NS

N_1 = Number of Agricultural Science teachers (322),N_2 = Number of Vegetable Farmers (114), $\overline{X}_1$= Mean response of Agricultural Science teachers, $\overline{X}_2$ = Mean response of Vegetable Farmers, SD_1 = Standard Deviation of Agricultural Science teachers, SD_2 = Standard Deviation of Vegetable Farmers, $\overline{X}_g$ = Grand Mean, t-cal = Calculated t-value, R = Remark, Degree of freedom (434), t-critical (1.96), NS = Not Significant.

Table 2 shows that the grand means, ($\overline{X}_g$) for all the items ranged from 3.12 to 3.52. These values are above the 2.50 benchmark, indicating that all the listed seed selection and planting skills are needed by senior secondary school leavers to acquire for gainful self-employment in vegetable gardening in Oyo State, Nigeria. Furthermore, Table 2 reveals that in each item, the null hypothesis was accepted, signifying no significant difference in the mean responses of Agricultural Science teachers and vegetable farmers regarding the seed selection and planting skills required by senior secondary school leavers for successful vegetable production.

Table 3: Mean Responses, Standard Deviation, and t-test Results on Crop Maintenance Skills Needed by Senior Secondary School Leavers in Oyo State

S/N	Crop maintenance skills include ability to:	$\overline{X}_1$	SD_1	$\overline{X}_2$	SD_2	$\overline{X}_g$	t-cal	R
1	water vegetable crops regularly according to their moisture needs	3.41	0.71	3.63	0.64	3.52	-2.04	NS
2	apply fertilizers or compost at the right growth stage	3.28	0.77	3.50	0.69	3.39	-2.18	NS
3	identify and control common vegetable pests and diseases	3.37	0.68	3.56	0.70	3.47	-1.80	NS
4	weed the garden regularly to reduce competition for nutrients	3.46	0.65	3.60	0.62	3.53	-1.41	NS
5	stake or support tall or creeping vegetable crops for stability	3.09	0.83	3.28	0.75	3.19	-1.74	NS
6	prune diseased or damaged leaves to improve crop health	3.18	0.79	3.35	0.68	3.27	-1.63	NS
7	thin overcrowded seedlings to promote proper growth	3.16	0.81	3.38	0.74	3.27	-1.96	NS
8	monitor crop growth and record observations regularly	3.11	0.79	3.25	0.73	3.18	-1.22	NS
9	apply integrated pest management techniques safely	3.20	0.72	3.42	0.70	3.31	-2.08	NS
10	manage irrigation systems (hose, watering can, drip lines) to ensure efficient water use	3.29	0.75	3.47	0.69	3.38	-1.72	NS

N_1 = Number of Agricultural Science teachers (322),N_2 = Number of Vegetable Farmers (114), $\overline{X}_1$= Mean response of Agricultural Science teachers, $\overline{X}_2$ = Mean response of Vegetable Farmers, SD_1 = Standard Deviation of Agricultural Science teachers, SD_2 = Standard Deviation of Vegetable Farmers, $\overline{X}_g$ = Grand Mean, t-cal = Calculated t-value, R = Remark, Degree of freedom (434), t-critical (1.96), NS = Not Significant.

Table 3 shows that the grand means ($\overline{X}_g$) for all the items ranged from 3.18 to 3.53. These values are above the 2.50 benchmark, indicating that all the listed crop maintenance skills are needed by senior secondary school leavers to acquire for effective vegetable gardening and self-employment in Oyo State, Nigeria. Furthermore, Table 3 reveals that in each item, the null hypothesis was accepted, showing no significant difference in the mean responses of Agricultural Science teachers and vegetable farmers regarding the crop maintenance skills required by

senior secondary school leavers for successful vegetable production.

Table 4: Mean Responses, Standard Deviation, and t-test Results on Harvesting and Processing Skills Needed by Senior Secondary School Leavers in Oyo State

S/N	Harvesting and processing skills include	$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2	$\bar{X}_g$	t-cal	R
	Ability to:							
1	identify the right maturity stage for each vegetable type	3.42	0.70	3.68	0.61	3.55	-2.66	NS
2	use appropriate harvesting tools (knife, scissors, basket)	3.38	0.73	3.59	0.65	3.49	-2.04	NS
3	harvest vegetables carefully to avoid bruising or damage	3.47	0.68	3.63	0.60	3.55	-1.84	NS
4	handle harvested vegetables hygienically to maintain freshness	3.41	0.75	3.64	0.69	3.53	-2.06	NS
5	sort and grade vegetables according to size and quality	3.33	0.71	3.54	0.68	3.44	-2.02	NS
6	store harvested vegetables properly to prevent spoilage	3.22	0.79	3.49	0.71	3.36	-2.74	NS
7	keep harvested produce under shade before packaging	3.28	0.72	3.41	0.67	3.34	-1.24	NS
8	record the quantity and quality of harvested vegetables	3.14	0.81	3.33	0.76	3.24	-1.88	NS
9	use clean containers and materials for packaging vegetables	3.37	0.69	3.59	0.65	3.48	-2.09	NS
10	wash harvested vegetables with clean water before packaging	3.44	0.71	3.66	0.64	3.55	-2.28	NS
11	sort vegetables by type, size, and freshness	3.36	0.73	3.54	0.68	3.45	-1.92	NS
12	package vegetables attractively using eco-friendly materials	3.32	0.75	3.57	0.70	3.45	-2.54	NS
13	label packaged vegetables with name, date, and price	3.26	0.80	3.48	0.74	3.37	-2.07	NS
14	store processed vegetables in a cool, dry place to maintain freshness	3.41	0.72	3.61	0.66	3.51	-2.04	NS
15	transport harvested vegetables carefully to avoid losses	3.31	0.77	3.53	0.70	3.42	-2.11	NS

N_1 = Number of Agricultural Science teachers (322),N_2 = Number of Vegetable Farmers (114), $\bar{X}_1$= Mean response of Agricultural Science teachers, $\bar{X}_2$ = Mean response of Vegetable Farmers, SD_1 = Standard Deviation of Agricultural Science teachers, SD_2 = Standard Deviation of Vegetable Farmers, $\bar{X}_g$ = Grand Mean, t-cal = Calculated t-value, R = Remark, Degree of freedom (434), t-critical (1.96), NS = Not Significant.

Table 4 shows that the grand means ($\bar{X}_g$) for all the items ranged from 3.24 to 3.55. These values are above the 2.50 benchmark, indicating that all the listed harvesting skills are needed by senior secondary school leavers to acquire for effective vegetable gardening and gainful self-employment in Oyo State, Nigeria. Furthermore, Table 4 reveals that in each item, the null hypothesis was accepted, signifying no significant difference in the mean responses of Agricultural Science teachers and vegetable farmers regarding the harvesting and processing skills required by senior secondary school leavers for efficient and profitable vegetable production.

Table 5: Mean Responses, Standard Deviation, and t-test Results on Marketing Skills Needed by Senior Secondary School Leavers in Oyo State

S/N	Marketing Skills Include	$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2	$\bar{X}_g$	t-cal	R
	Ability to:							
1	handle vegetables gently during loading and unloading to avoid damage	3.35	0.76	3.55	0.70	3.45	-1.98	NS
2	maintain proper hygiene when handling vegetables	3.40	0.73	3.62	0.66	3.51	-2.11	NS
3	negotiate effectively with buyers and retailers for better prices	3.28	0.81	3.47	0.75	3.38	-1.90	NS
4	identify and target profitable customer groups like restaurants, retailers and others	3.33	0.78	3.55	0.71	3.44	-2.03	NS
5	promote vegetables through price discounts or bundle sales	3.29	0.82	3.50	0.74	3.40	-1.97	NS
6	establish partnerships with local retailers and wholesalers	3.32	0.78	3.53	0.71	3.43	-1.96	NS
7	display vegetables neatly to attract customers	3.38	0.74	3.59	0.67	3.49	-2.14	NS
8	determine selling price based on cost and market demand	3.29	0.78	3.50	0.70	3.40	-2.19	NS
9	keep accurate sales and inventory records	3.21	0.83	3.43	0.76	3.32	-2.08	NS
10	advertise vegetables using local markets and social media	3.34	0.77	3.56	0.69	3.45	-2.00	NS
11	build good customer relationships to encourage repeat sales	3.42	0.70	3.63	0.63	3.53	-2.20	NS
12	use simple market survey techniques to determine customer preferences	3.31	0.80	3.52	0.72	3.42	-2.00	NS
13	evaluate customer feedback and adjust marketing strategies accordingly	3.29	0.78	3.51	0.70	3.40	-1.95	NS

N_1 = Number of Agricultural Science teachers (322),N_2 = Number of Vegetable Farmers (114), $\bar{X}_1$= Mean response of Agricultural Science teachers, $\bar{X}_2$ = Mean response of Vegetable Farmers, SD_1 = Standard Deviation of Agricultural Science teachers, SD_2 = Standard Deviation of Vegetable Farmers, $\bar{X}_g$ = Grand Mean, t-cal = Calculated t-value, R = Remark, Degree of freedom (434), t-critical (1.96), NS = Not Significant.

Table 5 reveals that the grand means ($\overline{X}_g$) ranged from 3.32 to 3.53, all exceeding the 2.50 criterion. This shows that all the marketing skills identified are needed by senior secondary school leavers to ensure successful post-harvest handling and profitable sale of vegetables. Additionally, the table shows that the null hypothesis was accepted for all items, indicating no significant difference between the responses of Agricultural Science teachers and vegetable farmers regarding the processing and marketing skills required for self-employment in vegetable production in Oyo State.

Discussion of Findings

The study found that senior secondary school leavers needed various skills in soil preparation for successful vegetable gardening and self-employment in Oyo State, Nigeria. These skills include clearing the land, loosening the soil through tillage, soil sterilisation, applying manure or compost to enrich soil fertility, leveling the land to enhance drainage, and constructing suitable beds or ridges for planting. Both Agricultural Science teachers and vegetable farmers agreed on the importance of these skills, as indicated by the high mean scores above the 2.50 benchmark. This finding aligns with Adeoye (2021), who emphasized that effective soil preparation practices improve soil structure, crop establishment, and yield. Similarly, Onyishi (2021) reported that proper soil management before planting promotes early crop growth and enhances productivity. This implies that soil preparation is a critical prerequisite for successful vegetable production for gainful self-employment.

The study also revealed that senior secondary school leavers required skills in seed selection and planting operations, such as selecting quality vegetable seeds, determining correct planting spacing, sowing or transplanting seedlings appropriately, watering immediately after planting, and ensuring proper plant establishment. Both Agricultural Science teachers and vegetable farmers agreed on the importance of these planting skills, as shown by grand means above the 2.50 benchmark. This finding supports Ojo, Owolabi, and Musa (2022), who identified seed selection and planting operations as essential to achieving uniform crop growth and higher yield. In agreement, James and Bitrus (2024) stated that precision in planting techniques enhances the productivity and efficiency of young farmers in agricultural ventures. This implies that the acquisition of sed selection and planting skills will enable senior secondary school leavers to achieve better crop stands and profitable vegetable production.

Furthermore, the study found that senior secondary school leavers needed skills in crop maintenance such as regular watering, fertiliser application at appropriate growth stages, weeding, mulching, pest and disease control, staking tall crops, removing diseased leaves, thinning overcrowded seedlings, and keeping records of crop performance. The mean responses of both Agricultural Science teachers and vegetable farmers

showed no significant difference, indicating a shared perception of the importance of these skills. This finding agrees with Ojaowhe and Oshio (2021), who reported that proper crop maintenance enhances plant vigor and yield quality. Similarly, Bamidele and Yussuf (2023) found that integrated pest management and good crop care practices reduce losses and improve profitability. This implies that crop care and maintenance are essential competencies for achieving sustainable vegetable farming.

Additionally, the study revealed that senior secondary school leavers required skills in harvesting and processing vegetables, including identifying the right maturity stage, using appropriate tools, handling harvested produce carefully, sorting and grading, proper storage, shading before packaging, maintaining hygiene during handling and transporting produce safely. Both Agricultural Science teachers and vegetable farmers rated these skills highly, and no significant difference was found in their mean responses. This finding aligns with Oladipo and Kareem (2021), who emphasized that timely harvesting and careful processing maintain vegetable freshness. In agreement, Ojo et al. (2022) noted that post-harvest handling skills which involves processing and marketing are vital in reducing losses and ensuring profitability in vegetable production. This implies that proper harvesting and processing skills are indispensable for maintaining product quality and ensuring steady income generation.

Finally, the study found no significant difference in the mean responses of Agricultural Science teachers and vegetable farmers regarding the vegetable gardening skills needed by senior secondary school leavers in soil preparation, seed selection and planting, crop maintenance, harvesting and processing, and crop marketing. This finding aligns with James and Bitrus (2024) and Okafor and Eze (2023), who reported that skill acquisition is vital to improving individuals' productivity and livelihood. Supporting this view, Adeyemi and Ogunbiyi (2022) asserted that individuals equipped with relevant vocational skills are more capable of achieving self-reliance and sustainable employment. This implies that the acquisition of essential vegetable gardening skills will enable senior secondary school leavers to become self-employed, productive and contributors to food security and rural development in Oyo State, Nigeria.

Conclusion

Senior secondary school leavers need specific vegetable production skills in soil preparation, seed selection and planting, crop maintenance, crop harvesting and processing, and crop marketing to achieve gainful self-employment in vegetable farming. These essential skills include clearing and carrying out soil sterilisation, applying organic manure, constructing suitable beds, selecting quality seeds, determining appropriate planting spacing

and depth, watering and transplanting properly, applying fertilizers and controlling pests, weeding and mulching, harvesting vegetables at the right maturity stage using appropriate tools and keep accurate sales and inventory records. By acquiring these technical skills, senior secondary school leavers can become proficient in vegetable production, improve their quality of life, enhance food security, and contribute meaningfully to agricultural and economic development in Oyo State and Nigeria at large.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. The Oyo State Ministry of Education should integrate vegetable production skills into the senior secondary school Agricultural Science curriculum, based on the findings of this study.
2. Agricultural Science teachers should work closely with experienced vegetable farmers to provide students with extensive practical exposure to the skills identified by the study.
3. The Oyo State Government and other agricultural stakeholders should expand support for school-based agricultural ventures by supplying essential inputs.
4. Parents, guardians, and community groups should actively encourage students to develop vegetable production competencies.

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