Evaluation of information communication technology (ICTs) utilization among dry season vegetable farmers in Ejigbo local government area of Osun state, Nigeria

Afusat Adunni Alabi[1*], Khadijah Olaitan Olanrewaju[1], Ahmed Olugbenga Busari[2], Kaothar Modupe Idris-Adeniyi[1], Monsur Adekunle Bello[1] , Oluwatobi Olalekan Ajibade[1]

[1]Department of Agricultural Extension and Rural Development, Osun State University, P.M.B 4494, Osun State, Nigeria.
[2]Department of Agricultural Economics and Agribusiness Management, Osun State University, P.M.B 4494, Osun State, Nigeria.
***Corresponding author e-mail: : afusat.alabi@uniosun.edu.ng Phone: +2348030686033**
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Abstract

Information Communication Technology (ICTs) plays a pivotal role in enhancing dry-season vegetable production. The study assessed the evaluation of Information Communication Technology (ICT) utilization among dry-season vegetable farmers in Ejigbo local government area of Osun State. A structured interview schedule was used to collect information from 120 respondents for the study selected using a two-stage sampling procedure with the aid of purposive and random sampling techniques from 171 farmers constituting about 93%. Data obtained were analyzed with both descriptive and inferential statistics (Pearson's Product Moment Correlation). The results show that more than half (65.8%) of the respondents were female, and three-quarters (75.0%) were married with mean age, household size, and years of formal education of 35±13.2, 5±1.38 and 5.15±1.38 respectively. Mobile phone was the major ICT used in facilitating input procurement with a weighted mean score (WMS) of 2.53 and delivery to farm (WMS=4.06) was the main purpose of ICT usage. The major constraints to ICT usage were inadequate capital (WMS=1.61) and the high cost of ICT tools (1.53). A significant and positive relationship exists between each age (r = 0.453), household size (r =-0.204), years of experience (r =-0.376), and the utilization of ICT. The study concluded that farmer's use of ICTs was low and informed by socio-economic factors such as inadequate capital and the high cost of ICTs limiting purposeful usage. It is recommended that ICT infrastructural development should be prioritized in rural communities of Nigeria.

Keywords: ICTs, utilization, dry-season, vegetable production

Introduction

Information and communication technology (ICT) play a significant role in dry season vegetable production, helping farmers achieve maximum returns. Agriculture has

long played an important role in the socio-economic development of most countries in reducing poverty, ensuring food security and promoting economic development. In tandem with [1], the majority of the people living in most sub-Saharan African countries solely depend on the Sahara Desert for their livelihoods, making it the source of their economies. Vegetables, along with other various agricultural products, play an important role in the human body, especially in terms of essential vitamins and minerals, thereby helping to prevent problems of malnutrition. [2] discovered that the high death rates among children and pregnant women are a result of the problem of malnutrition, which is particularly severe in these populations. One of the top ten risk factors for human mortality is a poor diet, which accounts for over 2.1 million deaths annually worldwide [3]. This suggests that to address the issues of hunger and malnutrition that are common in Nigeria, vegetables should be included in the diet, particularly in cases where exotic veggies are not inexpensive. Fruits and vegetables also have a positive economic impact since they raise household earnings and job opportunities in both urban and rural locations. It generates twice as many jobs per hectare of production as grain cultivation [1]. Surplus vegetables usually find an easy market and have the potential to become an important new source of income. Additionally, household members will become familiar with vegetable production techniques and benefit from improved agricultural techniques, increasing their chances of earning more income and promoting labor equity. In most poor countries, it is performed primarily by women and children. This improves the status of women smallholders in their households and communities while enabling them to be more independent, self-sufficient, and able to support their families [1]. Information has proven to be the most important element in any human endeavor, especially in the development process. Against this background, agriculture has established itself as an information-driven sector, fed by widely distributed and contextual knowledge and an endless supply of extensive research material [4]. Information and communication technology (ICT) cover a wide range of media, including those that require the use of personal computers equipped with modems and those that provide technologies that facilitate the processing of communications and the transmission of information by electronic means, such as radio, television, mobile phone, and internet [5]. According to [6], Nigeria's vegetable production in 2018 is projected to be 7.5 million tons while in 2019, it increased significantly to 16.7 million tons at an annual rate of 20.77%, but due to various variable factors, in 2020 it significantly decreased to 3.81% [7]. Therefore, the annual vegetable production in different parts of Nigeria has been staggering due to changing weather conditions (climate change) which has had a devastating impact on vegetable production in the state. Furthermore, [8] found that the challenges faced by farmers in vegetable production are widespread and span the length and breadth of the production value chain. According to [1] several barriers have been identified as the factors affecting productions of vegetables during the dry season and these include inefficient local infrastructure, poorly integrated domestic markets in time and space, low transmission prices, and lack of storage options. Difficulties are

exacerbated by the fact that vegetable cultivation provides income to rural dwellers during the dry season, leading to product shortages in all major markets. In developing countries like Nigeria, many farmers do not have a single channel that provides a comprehensive source for all their information needs. Over time, the role of technology in agriculture has strengthened with the introduction of chemicals, fertilizers, labor, improved seeds, and better agricultural techniques and systems. Various ICTs related to agricultural information dissemination enable farmers to access market information, land resources and services, pest and disease control, and rural development programs [5]. Vegetable farmers need to increase their production capacity and stay busy during the dry season to improve their standard of living. However, all these limitations can be avoided if farmers have access to adequate information about climate conditions, easy access to production inputs that improve productivity, extension services and other information that can increase vegetable production even during dry seasons. The specific objectives of the study were to describe the socio-economic characteristics of the dry season vegetable farmers in the study area, identify the dry season vegetable production enterprise, determine the level of utilization of ICTs, examine the purposes of ICTs utilization and identify the constraints to ICTs utilization for dry season vegetable production. Thus, the hypotheses of this study are:

Ho1: There is no significant relationship between selected socio-economic characteristics of dry-season vegetable farmers and their levels of utilization of ICTs **.**

Ho2: There is no significant difference between the purpose of utilization and level of ICTs utilization among dry-season vegetable farmers.

Materials and Methods

This study was conducted in Ejigbo Local Government Area, Osun State, Nigeria. Ejigbo is a major Yoruba city in Osun State of Nigeria. It is about 40 kilometres (25 Km) to Osogbo, the capital of Osun State. The population is 138,357 according to the Geo Names geographical database. It is located on Latitude 7°54'0.00" N and Longitude 4°18'54.00" E while the average elevation is 426 metres (1,398 ft). It has an area of 373 square kilometres (144 sq mi) and had a population of 132,641 at the 2006 census. The average annual rainfall is 52.35 inches (1,330 mm), though there are great deviations from this mean value from year to year. Usually, the rainy season lasts from April to October. Farming is the traditional source of economy in Ejigbo **.**

Its rain-fed crop production involves the production of food crops, such as tubers (yam, cassava, cocoyam, potato, etc.), grains (maize, guinea corn), and cowpea; cash crops like cocoa, palm oil, kola-nut, coconut and varieties of fruits which include large production of pineapple and vegetables. Furthermore, dry season vegetable production is dominant given the access to all year water sources from surrounding rivers, ponds and lakes**.**

Sampling procedure and Sample size

A two-stage sampling procedure was employed in selecting a sample of 120 respondents for the study. In the first stage, two communities: Isundunrin and Ola purposively selected from the LGA as a result of the high preponderance of dry season vegetable production facilitated by the availability of all year-round water access for irrigation through the communal rivers (Okooko River in Isundunrin and Omi river in Olla). In the second stage, 171 farmers who are engaged in dry-season vegetable production were identified as the sampling frame for the study. Thereafter, 120 farmers who constituted about 93% of the sampling frame were randomly selected for the study. Data was collected using a validated interview schedule to elicit information on the farmers' socio-economic characteristics, their production features, utilization of ICT, the production purposes of ICT utilization and constraints to utilization. Utilization of ICT utilization was measured using a three-point rating scale: always = 3, sometimes = 2, and never = 1. A weighted average was determined and used to classify into utilization levels. The purpose of utilization was measured on a 5-point Likert-type rating scale of Strongly Agree (SA)=5, Agree(A)=4, Undecided(U)=3, Disagree(D)=2 and Strongly Disagree (SD)=1 while constraints was measured on a 3-point rating scale of Most severe=2, Severe=1 and Not severe=0. The sum of the product of weights and quantities or variables, divided by the sum of the weights, is the estimated weighted mean score (WMS). Data were analyzed using both descriptive such as frequency, percentage, mean, standard deviation, etc and inferential statistical tools such as Pearson's Product Moment Correlation (PPMC)

Result and Discussions

Socio-economic characteristics of the dry-season vegetable farmers

The results in Table 1 show that half (53.4%) of the dry-season vegetable farmers were between the ages of 21 and 40 years old, and about (28.3%) of them were between 41 and 60 years old. The mean age of the respondents was 35 years old. The result implies that most of the dry season vegetable farmers are still in their active age where they can effectively take decisions that would be of benefit to them and their level of production. Conformably, [9-11] reported that vegetable farmers in their study areas are middle-aged, implying that they are also expected to be in the position to effectively utilize available resources at their disposal. More than half (65.8%) of the respondents were females and this implies that dry-season vegetable farming in the study area was predominantly practiced by females. Three-quarters (75.0%) of the respondents are married. Marital status is always considered about household and or family size, as it is believed that being married could provide labor needed on the farm through households' members hence reducing the cost of production [12]. Almost half (47.5%) of the respondents had secondary education which can be equated to the expectation of a high level of literacy among the dry season vegetable farmers. This is in tandem with [9] who posited that the higher the educational level of an individual, the faster the rate of apprehension and application of an innovation. The re-

sult in the table further shows that most (66.0%) of the respondents in the study area had a household size of between 4 and 6 persons while the mean household size was 5. This indicates that most of the respondents had a large household. According to [13], the importance of household size in agriculture stems from the fact that it influences several factors, including the amount of labour available for farm work, the total area devoted to various crop enterprises, the quantity of farm produce kept for domestic use, and the marketable surplus. The result in the table further shows that more than half (55.0%) of the respondents had a vegetable farm size of less than 0.61plot while the mean farm size of the respondents is 0.48acres. Since the majority of the respondents are women, low land access may be inevitable as reported. Expressively, lack of access to land remains a major constraint for women farmers in Africa and land reform programs have led almost exclusively to the transfer of land rights to male households' heads [13]. The table also revealed that about (48.4%) of the respondents had less than 10 years of experience in dry season vegetable farming while the average experience of the respondents in dry season vegetable farming is 11.45 years and this shows that the respondents are well-experienced in dry season vegetable farming. The table further indicates that some (40.1%) of the respondents earn between 5001 and 25000 per month while the average monthly income of the respondents in the study area is ₦28,154.17. More than half (58.3%) of the vegetable farmers do not receive extension visits while about (41.7%) of them receive extension visits and this could also affect their production level.

Table (1): Distribution of dry-season vegetable farmers according to their socio-economic characteristics(n=120)

Variables	Frequency	Percentage	Mean
Age			
<21	16	13.3	35.23±13.15
21-40	64	53.4	
41-60	34	28.3	
>60	6	5.0	
Sex			
Male	41	34.2	
Female	79	65.8	
Marital status			
Married	90	75.0	
Widowed	15	12.5	
Separated/Divorced	8	6.7	
Single	7	5.8	
Years spent in school			
0	19	15.8	
1-6	39	32.5	5.15±1.38
7-12	57	47.5	

Above 12	5	4.2	
Household size			
1-3	30	25.0	5±1.38
4-6	76	63.3	
7-9	14	11.7	
Vegetable farm size (plots)			
Less than 0.61	66	55.0	
0.61-1.8	3	2.50	0.48±0.64
1.81-3.00	18	15.0	
3.01-6.00	5	4.2	
Over 6 plots	28	23.3	
Dry season vegetable experience			
<10	58	48.4	
11-15	21	17.5	
16-25	31	25.8	
>25	10	8.3	
Monthly income			
<5001	13	10.8	
5001-25000	49	40.9	
25001-45000	43	35.8	
Extension visit			
Yes	50	41.7	
No	70	58.3	

Source: Field survey, 2023

The result of dry-season vegetable production enterprise

The result in Table 2 presents the vegetable production enterprise of the respondents. Almost all (90.0%) of the respondents produced their vegetables for sales, a few (9.2%) of them produced for both sales and consumption while just (0.8%) of them produced for consumption objectives alone. The majority (71.7%) of the respondents used wells as their main source of water while a few (5.8%) of them used nearby streams as their source of water. Most (81.7%) of them source their vegetable seeds from the agro-dealer shops while about (18.3%) of them source their vegetable seeds from their farms. The majority (65.0%) of the respondents used family as their most preferred source of labor. As a result of household size, the majority of the respondents rely on family labor. Almost half (47.5%) of the respondents do sell their vegetables to the wholesalers at the farm gate. More than half (54.2%) of the vegetable farmers go through a distance of less than 2kms to market, some (41.7%) of them go through a distance of between 3 and 10kms to market while few (3.3%) of them go through a distance of between 11 and 20kms to market. Less than half (49.2%) of the

respondents used a motorcycle to transport themselves and their produce to the market. About (46.7%) of the farmers supply their vegetables daily, (35.8%) of them supply weekly, (15.8%) of them supply every two weeks, and just (1.7%) of them supply once a month. This indicates that most of the vegetable farmers in the study area supplied their vegetables daily. About (39.2%) of the respondents practiced on a small scale of production, some (32.5%) of them practiced on a medium scale while a few (28.3%) of them practiced on a commercial scale of production. This indicates that the majority of the farmers produced dry-season vegetables on small and medium scale. This is expected since vegetable farming may be considered household/backyard farming activities.

Table (2): Distribution of dry-season vegetable farmers according to their production enterprise

Variables	Frequency	Percentage
Enterprise objectives		
Sales	108	90.0
Consumption	1	0.8
Both	11	9.2
Source of water		
Irrigation	0	0.0
Well	86	71.7
Borehole	27	22.5
Nearby stream	7	5.8
Source of vegetable seeds		
Agro-dealers shop	98	81.7
Own farm	22	18.3
Type of labour		
Hired	2	1.7
Family	78	65.0
Both	40	33.3
Sales outlets		
To wholesalers at market	14	11.7
To wholesalers at farm gate	57	47.5
To retailers at market	42	35.0
To retailers at farm gate	5	4.2
Combinations of outlets	2	1.7
Distance of farm to the market		
Less than 2kms	65	54.2
3-10kms	50	41.7
11-20kms	4	3.3
Transport system to market		
Trekking	16	13.3

Bicycle	12	10.0
Motorcycle	59	49.2
Bus	30	25.0
Car	1	2.5
Supply periods		
Daily	56	46.7
Weekly	43	35.8
Every two weeks	19	15.8
Once a month	2	1.7
Scale of production		
Small	47	39.2
Medium	39	32.5
Commercial	34	28.3

Source: Field survey, 2023

The result of the types of vegetables grown by the respondents

The result in Figure 2 presents the types of vegetables grown by the respondents. Almost all (99.2%) of the respondents planted Corchorus, 89.2 percent of them planted Amaranthus and 46.7 percent of them planted Celosia. Above one-third (37.5%) planted jute while about one-quarter (27.5%) planted pumpkin. The result affirm that the respondents were mostly growing Corchorus and Amaranthus. This backs the findings of [14] which affirmed a higher preference for the cultivation of Corchorus and Amaranthus among the leafy vegetables in Osun state. These showcase the popularity of the 2 vegetables as the most consumed leafy vegetables in Osun State**.**

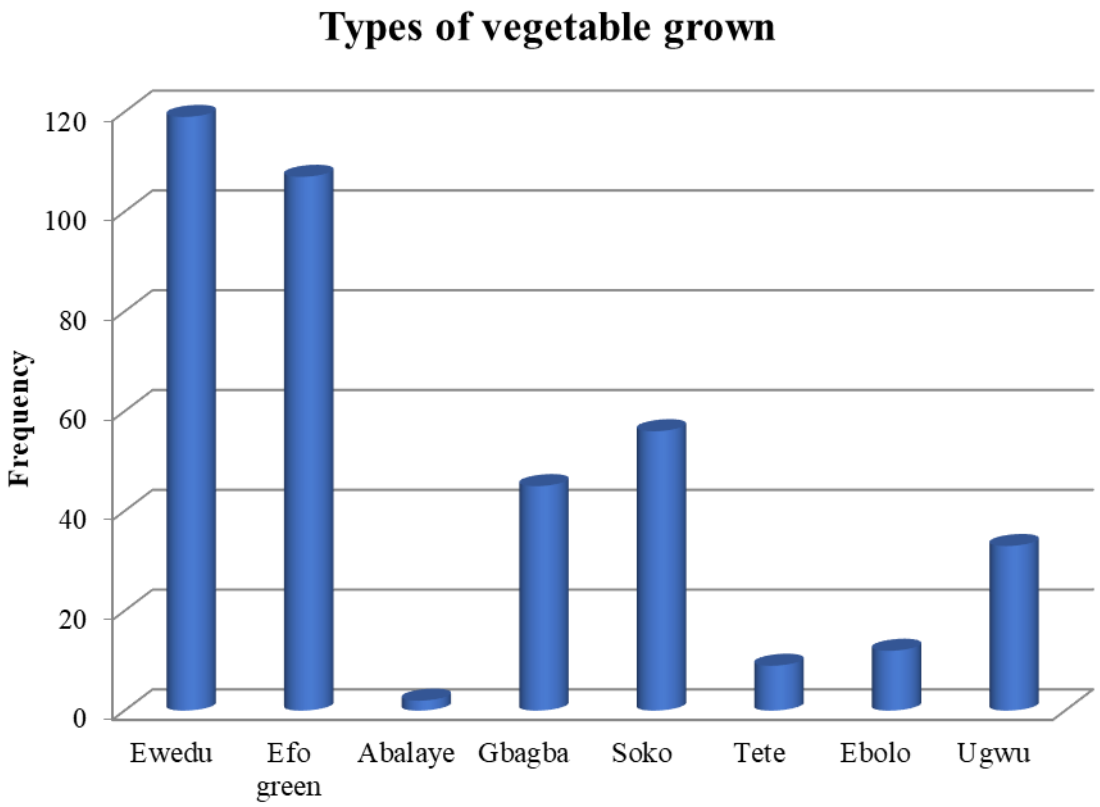

Figure (1): Distribution of dry-season vegetable farmers according to the types of vegetable grown

The result of the constant vegetable supply to the market during dry season

The result in Figure 2 presents the length of the period of constant vegetable supply to the market during the dry season. Less than half (41.7%) of the respondents had been constantly supplying vegetables to the market for about 1 to 2 years, some (30.0%) of them between 5 and 6 years, few (16.7%) of them between 3 and 4 years, while less than a tenth (9.2%) of them were supplying vegetable to02.20. the market for less than a year. The results indicate that a higher proportion of the farmers joined dry season vegetable production and were supplying to the market in about 1 to 2 years. This could be born out of recent awareness of the profitability of dry-season vegetable farming

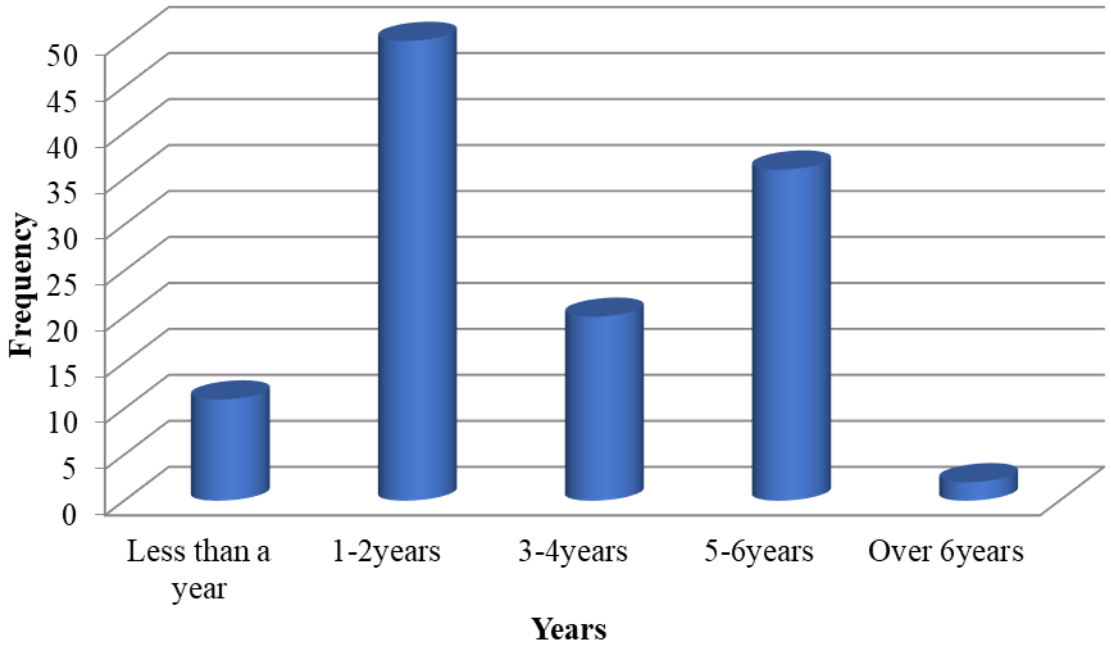

Figure (2): Duration of constant vegetable supply to the market during dry season

The result of ICT utilization level by dry season vegetable farmers

Results in Table 3 show the level of ICT utilization among dry-season vegetable farmers. According to the weighted mean score (WMS), levels of ICT were listed in descending order; mobile phone (2.53), radio (2.27), television (1.78), Facebook (1.40), and Whatsapp (1.17). This indicates that the majorly used ICT resources were mobile phones, radio, and television. This agrees with the findings of [15,16] that confirmed mobile phones as the easiest and most important medium for reaching, improving, and communicating with the rural population of developing countries. Notably, the vegetable farmers' dependence on mobile phones and radio may be a result of the various advantages attached to the said ICT tools or because of the limited availability of other forms of ICT tools in their locality.

Table (3): Level of utilization of ICTs by dry-season vegetable farmers

ICTs	Frequency	Percentage	High	Moderate	Low	WMS	Rank
Mobile Phone	120	100	69	46	5	2.53	1st
Radio	114	95	51	56	7	2.27	2nd
Television	99	82.5	27	61	11	1.78	3rd
E-mail services	58	48.33	23	29	6	1.11	4th
WhatsApp	63	52.5	26	25	12	1.17	5th
Facebook	76	63.33	28	36	12	1.40	6th

Source: Field survey, 2023 WMS=Weighted Mean Score
*Multiple choices

The result of the ICT utilization purpose among dry-season vegetable farmers

Table 4 shows the purpose of ICT usage in dry-season vegetable production in the study area. The result showed in the order of the highest to lowest weighted mean score (WMS); facilitating input procurement and delivery to farm (4.06), linking up with input sources and accessing information needed for improving production efficiency (4.00), facilitating resource use and management (3.89), provision of the reliable channel to seek the best market price in the local market (3.74), provides farmers with vital information of sowing, crop protection and improving soil fertility that enables them to improve agricultural productivity (3.60), market information/facilitation (3.58), organizing and keeping input records (3.41), provision of weather-related advisories and alert to prepare for a sporadic event such as floods, droughts, or even pest and disease outbreak thus preventing significant crop loss (2.96), accessing weather information (2.86) and irrigation planning and organization (2.85) were the rank of their purpose. This indicates that the main purpose of ICT usage among vegetable farmers in the study area was, to facilitate input procurement and delivery to the farm, linking up with input sources, and accessing information needed for improving production efficiency. The result showed that the major purpose for ICT usage among vegetable farmers is majorly for information. In line with this, [17] said that ICT is essential for improving information flow for market access to the rural population, who live in isolation and have restricted access to modern technologies. [18] noted that Information and Communication Technology (ICT) can help meet the information needs of local communities by sharing knowledge and information. This can help address challenges related to food security, leading to increased agricultural production, greater awareness, and improved information sharing. Ultimately, this can enhance food security for everyone at all levels.

Table (4): Distribution of dry-season vegetable farmers based on purpose of ICT utilization

Purpose	SA	A	U	D	SD	WMS	Rank
Facilitating input procurement and delivery to farm	51 (42.5)	42 (35.0)	11 (9.2)	15 (12.5)	1 (0.8)	4.06	1st
To link up with input sources	50 (41.7)	41 (34.2)	10 (8.3)	17 (14.2)	2 (1.7)	4.00	2nd
Accessing information needed for improving production efficiency	53 (44.2)	33 (27.5)	15 (12.5)	19 (15.8)	0 (0.0)	4.00	3rd
Facilitating resource use and management	47 (39.2)	34 (28.3)	20 (16.7)	17 (14.2)	2 (1.7)	3.89	4th
Irrigation planning and organization	13 (10.8)	27 (22.5)	22 (18.3)	45 (37.5)	13 (10.8)	2.85	5th
Guiding decision on	8	30	25	44	13	2.80	6th

water management	(6.7)	(25.0)	(20.8)	(36.7)	(10.8)		
Market information/facilitation	25 (20.8)	50 (41.7)	18 (15.0)	23 (19.2)	4 (3.3)	3.58	7th
Accessing weather information	10 (8.3)	32 (26.7)	16 (13.3)	55 (45.8)	7 (5.8)	2.86	8th
Organizing and keeping input records	24 (20.0)	43 (35.8)	14 (11.7)	36 (30.0)	3 (2.5)	3.41	9th
Provision of vital information to farmers in order to improve productivity	28 (23.3)	46 (38.3)	19 (15.8)	24 (20.0)	3 (2.5)	3.60	10th
Provision of relevant information on weather as regards floods, droughts, or even pest and disease outbreaks	17 (14.2)	24 (20.0)	26 (21.7)	43 (35.8)	10 (8.3)	2.96	11th
Provision of reliable channels about market price for their product	38 (31.7)	45 (37.5)	9 (7.5)	24 (20.0)	4 (3.3)	3.74	12th

Source: Field survey, 2023
*Figures in parenthesis are percentages

The result of the constraints to ICT utilization by dry-season vegetable farmers

The result in Table 5 shows the constraints to ICT usage among vegetable farmers. In descending order of weighted mean score (WMS); Inadequate capital (1.61), the high cost of ICT tools (1.53), inadequate power supply (1.47), high costs of charges on calls (1.43), complexity in the use of ICT tools (1.33), poor network reception (1.28), high costs of internet subscription (1.23), inadequate knowledge on ICT tools, poor maintenance of ICT tools (1.03). The constraints listed above are the major problems affecting the usage of ICT tools by the vegetable farmers in the study area. According to these results, there is a need for the provision of infrastructure for dry-season vegetable farming as this will enhance the farmers' level of production. Furthermore, poor educational background (0.98), lack of ICT training (0.96), absence of cybercafé in rural areas (0.73), language barriers (0.43), and poor radio reception (0.39). Conformably, [19] identified inadequate capital to purchase and the high cost of ICT tools as major impediments to the effective utilization of ICT.

Table (5): Distribution of dry-season vegetable farmers based on constraints to ICT utilization

Constraints	MS	S	NS	WMS	Rank
Inadequate capital	73(60.8)	47(39.2)	0(0.0)	1.61	1st
The high cost of ICTs	65(54.2)	54(45.0)	1(0.8)	1.53	2nd

Inadequate power supply	56(46.7)	64(53.3)	0(0.0)	1.47	3rd
High cost of charges on calls	52(43.3)	67(55.8)	1(0.8)	1.43	4th
Complexity in the use of ICT tools	43(35.8)	73(60.8)	4(3.3)	1.33	5th
Poor network reception	39(32.5)	76(63.3)	5(4.2)	1.28	6th
High cost of internet subscription	32(26.7)	83(69.2)	5(4.2)	1.23	7th
Inadequate knowledge on ICT tools	33(27.5)	79(65.8)	8(6.7)	1.21	8th
Poor maintenance of ICT tools	21(17.5)	81(67.5)	18(15.0)	1.03	9th
Poor educational background	24(20.0)	69(57.5)	27(22.5)	0.98	10th
Lack of ICT training	21(17.5)	73(60.8)	26(21.7)	0.96	11th
Absence of cybercafé in rural areas	13(10.8)	61(50.8)	46(38.3)	0.73	12th
Language barriers	2(1.7)	47(39.2)	71(59.2)	0.43	13th
Poor radio reception	2(1.7)	43(35.8)	75(59.2)	0.39	14th

Source: Field survey, 2023
Note: MS= Most severe, NS = Severe, S=Severe

Result of selected socio-economic characteristics of dry-season vegetable farmers and their level of usage of ICT

Table 6 presents the results which show that age (r=0.453) and years of education (r=0.225) have a significant positive correlation with the level of ICT utilization among dry-season vegetable farmers and this is significant at 1% and 5% respectively. This means that the higher the age and education level of the farmers, the higher their utilization of ICTs. As education level is linked to age, a farmer with higher education will likely have a higher age, which in turn implies a higher utilization of ICT. On the other hand, there is an inverse significant relationship between household size (r=-0.204, p=0.025) and vegetable farming experience (r=-0.376, p=0.000) and the level of ICT utilization among vegetable farmers at 5% and 1% respectively. A lower household size and farming experience correspond to a higher utilization of ICT.

Table(6): The result of Pearson's product correlation matrix showing the relationship between selected socio-economic characteristics of dry-season vegetable farmers and the level of ICTs utilization

Variables	Coefficient (r)	Sig.	Decision
Age	0.453**	0.000	S
Years of education	0.225*	0.013	S
Household size	-0.204*	0.025	S
Vegetable farming experience	-0.376**	0.000	S

Vegetable farm size	-0.062	0.504	NS

Source: Data analysis, 2023

Result of relationship between the purpose of utilization and level of ICTs utilization among dry-season vegetable farmers

The result in Table 7 shows that the purpose of ICT usage (r=0.329, p=0.000) was positive and significantly related to ICT utilization among vegetable farmers. This reveals that the need for using ICT drives the extent of utilization by the farmers.

Table (7): Analysis of variance showing significant difference between the purpose of utilization, constraints to ICT utilization and level of ICTs utilization among dry season vegetable farmers

Variables	Coefficient (r)	Sig.	Decision
Purpose	0.329**	0.000	S
Constraint	0.063	0.496	NS

Source: Data analysis, 2023

The study concluded that there is a low usage of ICTs among the dry-season vegetable farmers in the study area. This might be due to various constraints that were identified by the study which include inadequate capital and high cost of ICT tools among others. Also, the land per head at the production site is very small, and the reality is that without access to adequate land, one cannot practice dry-season vegetable farming.

It is therefore recommended that farmers should be assisted to have access to land for production optimization and expansion. The vegetable farmers should be motivated in vegetable production through the provision of certain incentives such as seeds, fertilizer, and other inputs. They should also be encouraged to join cooperative societies to give them more access to credit facilities especially loans with affordable interest rates to procure mobile phones to have access to relevant information on dry season vegetable farming. Training on the use of ICT tools by the dry season vegetable farmers should be provided by relevant stakeholders to improve the level of use of ICTs among the farmers.

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