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Level of digital literacy among crop farmers in Oyo state

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Abstract: Digital agriculture technologies have the potential to increase the efficiencies and productivity of farmers. However, the use of these digital technologies requires its users to have some level of digital skills – digital literacy. This study, therefore examined the level of digital literacy of crop farmers in Oyo state. A multistage sampling procedure was used in selecting 120 respondents from the study area. A structured questionnaire was used to collect primary data. Data were analysed using descriptive (frequency, percentage, and mean) and inferential statistics (Chi-square and PPMC) were used. Results reveal that majority of the respondents were male (70%), married (90.8%), had no formal education (42.5%), with a mean age of 56 years and average farming experience of 25 years. About 79.0% had between 0.5 and 8 acres of farmland, 68.3% did not practice mixed farming, 73.3%had never used social media, and 72.5% used feature phones. Furthermore, 57.5% had a favourable perception of the use of digital tools with low knowledge (55%) of basic concepts and processes of digital agriculture and platforms. The level of digital literacy (71.7%) among crop farmers in Oyo state was low. Lack of training to develop digital skills ranked the most severe constraint to digital literacy and usage among respondents. However, the perception of the use of digital tools was favourable. The digital literacy level of crop farmers was generally low. There is a need for government to establish a digital literacy initiative specifically targeted at farmers to develop and improve their digital skills through training.
Keywords: Digital literacy, Digital agriculture, Digital transformation, Digital technologies, Digital tools.

INTRODUCTION

The advent of technology with the emergence of efficient practices and the development of resources (machinery, disease resistant-seeds, etc.) has shaped agriculture and played pivotal roles in achieving a food-secure world. The agricultural sector has experienced a wide spectrum of revolutions contributing to the drive for efficiency, yield, and profitability even to levels that were thought to be unattainable (Rose, 2020). The first revolution was characterized by the transition to farming from hunting. Following the first agricultural revolution is the mechanization of production, the introduction of improved and resistant crop varieties and agrochemicals like chemical fertilizers and pesticides, which were further complemented by the invention of genetic modification technologies, and most recently the digital agricultural revolution. The digital agriculture revolution builds on the use of electronics and information technology to automate production alongside the incorporation of artificial intelligence and autonomous robots (Rose, 2020). These technologies are capable of achieving more efficiency and productivity in agriculture than the field has ever experienced.

The contribution of digital technologies and their integration into agriculture has been recognized as a critical element in the transformation of production practices. Trendov, Varas and Zeng (2019) described it as the future that would transform the agri-food sector and offer numerous opportunities through widespread information access and availability, and connectivity. Digital agriculture has the potential to influence farmers' behaviour, activities of input providers and other stages of the agri-food value chain. According to Food and Agriculture Organization (2017), the use of digital technologies, particularly the internet and mobile phones, has the potential to not only improve farmers' access to information but also offer capacity building opportunities for rural communities, revolutionising early warning systems through data and also revolutionize extension and advisory services. Evidence from studies suggests that it is beneficial to all stakeholders of the agricultural sector and not just the farmers. ICTs could promote learning which would foster technology adoption among farmers; update researchers on farmers' needs; and even allow policymakers to access a more comprehensive overview of agricultural changes and trends in their country (Torrero, 2014).

In an attempt to meet this trend, various initiatives are in place to incorporate digitalization into the Nigerian agricultural sector. The Nigerian Digital Agriculture Strategy (NDAS) is one of these initiatives that have been set in motion to achieve the purpose to improve farmers' access to information and achieving sustainable agricultural production. Coupled with this, the International Institute of Tropical Agriculture developed a series of digital tools such as the Interactive Voice Recording (IVR) service, to provide farmers with cassava cultivation tips; IITA herbicide calculator, to give an accurate estimation of herbicide quantity to be used by farmers and spray service providers among others (Cassava matters, 2020). Most of these digital tools developed by IITA would ensure Nigerian farmers' access to tailored text and voice messages on available markets, advisory services on best practices, and localized weather forecasts, allowing them to make informed decisions during planting and post-planting processes (Fudzagbo, 2021).

Furthermore, numerous digital agricultural platforms like Farmcrowdy, ThriveAgric, and

Agrogrite among others have been developed to improve farmers' access to credit, market and even storage facilities (Unah, 2018). These are all digital technology-enabled opportunities that are at the disposal of Nigerian farmers to take advantage of for improved productivity. The benefits the Nigerian agricultural sector stands to gain from digital technologies cannot be overemphasized. However, the success of this technology is only as good as the skills of its user. The use of digital technologies by farmers is dependent on different factors like access to digital devices, and internet infrastructure among others. However, even if these factors are addressed, there is still a big question about the users' skills to use this innovation: their level of digital literacy.

Digital literacy is an essential skill that farmers need to translate the services provide by digital agriculture into practice. It is the "ability to use information and communication technologies to find, evaluate, create, and communicate information which requires both cognitive and technical skills" (American Library Association, 2013). Digital literacy implies not only IT proficiency but also involves analytical skills, an awareness of the standards behaviours, and an understanding of the shared social issues created by digital technologies. For digital agriculture to be successful in Nigeria, farmers are required to possess a significant level of digital literacy.

While efforts are being made to increase the availability of digitally enabled technologies for farmers' use, experts believe digital literacy would be a great constraint on the adoption of digital agricultural technologies as well as a factor that would determine the successful implementation on farms as the use of these digital agricultural technologies require at least basic digital competence (Trendov *et al*., 2019). This stud, therefore, examined the level of digital literacy among crop farmers in Oyo State. The specific objectives were to:

1. Determine the personal characteristics of farmers in the study area.
2. Assess the perception of respondents towards the use of digital devices.
3. Investigate respondents' knowledge level on the use of digital devices for farm-related information.
4. Identify the constraints to digital usage among respondents in the study area.

Hypotheses of the study

$H_0$1: There is no significant relationship between farmers' personal characteristics (age, sex, marital status, farm size, farming experience, level of education, type of mobile phone used, and type of crop produced) and level of digital literacy.

$H_0$2: There is no significant relationship between the perception of farmers on the use of digital tools and digital literacy.

$H_0$3: There is no significant relationship between level of knowledge of farmers on digital agriculture and platforms and level of digital literacy.

$H_0$4: There is no significant relationship between constraints to digital usage and level of digital literacy.

METHODOLOGY

The study area was Oyo State. Oyo State is an island state in southwestern Nigeria with 33 local government areas. It shares a border with Osun state, Kwara state, Ogun state and the Republic of Benin at the east, north, south, and southwest, respectively. The population of the study comprised crop farmers in Oyo state from Ido and Egbeda local government areas.

A multistage sampling procedure was used to determine the respondents for the study. Out of the 33 local government areas in Oyo state, two were selected using simple random sampling, that is, Ido and Egbeda local government areas. In each of these local government areas, the prominent farmers' association was identified, and a list of the crop farmers was obtained in each of the local government areas. Using simple random sampling, a total of 150 respondents were selected. The primary data were obtained from the respondents using an interview schedule consisting of both close and open-ended questions. Out of the 150 questionnaires, only 120 were returned.

The dependent variable of this study is the level of digital literacy. A list of basic digital skills was devised to measure respondents' usage and competence (ability to use) basic digitally enabled resources. The respondents were asked to indicate the digital skill they have with response options of Yes and No, score as 1 and 0, respectively. The mean score was generated to determine the level of digital literacy and categorized into high or low. The data collected were analyzed using descriptive statistics (frequencies, percentage, and mean). The hypotheses were tested using inferential statistics (Pearson Product Moment Correlation (PPMC) and Chi-square) to show the relationship between the variables as stated in the hypotheses.

Other key variables were;

Perception of respondents to digital agriculture; this was measured by providing respondents with 10 perceptional statements which they responded to by indicating their level of agreement using a 5-point Likert type scale of strongly agree, agree, undecided, disagree and strongly disagree with scores of 5,4,3,2,1 respectively for positive statements and reversed for negative statements.

Knowledge of respondents on digital agriculture and platform: It was measured by providing respondents with knowledge statements on digital agriculture and platform with response option of true- 1 or false- 0.

RESULTS DISCUSSION

Personal characteristics of respondents

The result in Table 1 indicates that the mean age was 56 years. Age could influence the ability of farmers to develop or improve their digital skills as previous studies indicate that the level of digital literacy tends to be lower in older adults according to Iskandar *et al.* (2020). The result further reveals that 70.0% of the respondents were male while 30.0% of the respondents were female. Adeleke (2020) affirmed that gender is an influencing factor in the digital divide with more men than women engaging in digital usage (Adeleke, 2020). Also, most of the respondents (90.8%) were married. This suggests that respondents are mature people who could get assistance from their children, who are expected to have higher levels of digital literacy than their parents since digital literacy is higher among the younger population.

A larger percentage of the respondents had no formal education (42.5%), 21.7% of the respondents had primary education, 13.3% had secondary education, and 22.5% had tertiary education. This implies that majority of the respondents have a low or no level of education. McLean (2015) explained that a higher level of illiteracy is one of the predictors of low digital usage in Nigeria. This also implies that respondents with higher education attainment could have higher levels of digital literacy, and a higher level of knowledge on digital agriculture and digital technologies than those with low or no education.

Table 1: Frequency distribution of respondents' personal characteristics

Variables	Frequency	Percentage (%)	Mean ±SD
Sex			
Male	84	70.0	
Female	36	30.0	
Age			56±9.8years
25-34	4	3.3	
35-44	8	6.7	
45-54	32	26.7	
55-64	50	41.7	
65 and above	26	21.7	
Marital status			
Single	4	3.3	
Married	109	90.8	
Divorced	2	1.7	
Widow(er)	5	4.2	
Level of education			
No formal education	51	42.5	
Primary education	26	21.7	
Secondary education	16	13.3	
Tertiary education	27	22.5	
Farming experience			24.9±13.01years
2-14	31	25.8	
15-27	35	29.2	
28-40	43	35.8	
41-53	10	8.3	
54-66	1	0.8	
Farm size			6.4±8.4acres
0.50-8	94	78.3	
9-16	13	10.8	
17-24	11	9.2	
35 and above	2	1.7	
Type of mobile phone			
Smartphones	33	27.5	
Feature phones	87	72.5	
Presence on social media			
Never	88	73.3	
Sometimes	19	15.8	
Always	13	10.8	

Source: Field survey, 2021

The mean year of respondents' farming experience was 25years while the average farm size was 6.4acres as revealed in Table 1. Farmers with smaller farm size may not appreciate the need to adopt digital agriculture thus preventing them from developing their digital competence or using digital technologies for their farm processes. Also, 72.5% of the respondents use feature phones while 27.5% of the respondents had smartphones. This implies a low availability or widespread of web-enabled smartphones among farmers which could result in low levels of digital literacy as they lack the necessary tools that would encourage digital usage and development of digital skills. Furthermore, 73.3% of the respondents had never used any social media platform, while 26.6% of the respondents use social media platforms sometimes or always. It is expected that those who have a presence on social media and use smartphones would have higher levels of digital literacy, a higher level of knowledge of digital agriculture and digital technologies.

Perception of respondents toward the use of digital tools

Table 2 below shows the frequency distribution of respondents' perceptions of the use of digital tools. As shown in Table 2a, majority (4.0) of the respondents agreed that the benefits derived from the use of digital devices for farm purposes outweigh its cost. They also affirmed that the use of digital devices for information access and advisory services can improve access and save time (4.1). Most of the respondents agreed that only young people can have necessary digital skills to use digital devices (3.6) and were too old to use digital devices (3.

Table 2b below shows the categorization of respondents' perception of the use of digital tools. The perception of the respondents towards the use of digital tools and its implication for agriculture was favourable for most (69.0%) of the respondents. The favourable perception of appreciable proportion may influence their willingness to undergo necessary trainings to develop their digital skills and competence as well as any relevant digital agriculture technology made available to them. Contrary to this finding is the study of Ajayi, Alabi and Okanlawon (2016) which found that many farmers are indifferent to the use of digital ICT tools for agricultural purposes.

Table 2a: Frequency distribution of respondents' perception of the use of digital tools

Perceptional Statement	SA F (%)	A F (%)	U F (%)	D F (%)	SD F (%)	Mean
I'm too old to use digital devices	24 (20.0)	26 (18.3)	-	36 (30.0)	38 (31.7)	3.35
Only young people can have the necessary digital skills to use digital devices	13 (10.8)	20 (16.7)	1(0.8)	51(42.5)	35 (29.2)	**3.**63
Only people with formal education can use digital devices	19 (15.8)	29 (24.2)	3 (2.5)	51 (42.5)	18 (15)	3.17
The use of digital devices for obtaining information and marketing is complicated and difficult	20 (16.7)	18 (15)	20 (16.7)	45 (37.5)	17 (14.2)	3.18
The cost of using digital tools is too high	42 (35)	40 (33.3)	11 (9.2)	18 (15)	9 (7.5)	2.27
There are no available infrastructures to support digital agriculture in Nigeria	9(7.5)	27 (22.5)	16 (13.3)	58 (48.3)	10 (8.3)	3.28
With appropriate training, anybody can become digitally literate	30 (25)	37 (30.8)	29 (24.2)	16 (13.3)	8 (6.7)	3.54
The use of digital devices for information access and advisory services can improve access and save time	39 (32.5)	58 (48.3)	17 (14.2)	3 (2.5)	3 (2.5)	4.10
The benefits derived from the use of digital devices for farm purposes outweigh their cost	32 (26.7)	57 (47.5)	24 (20)	7 (5.8)	-	4.00
Digitalization should be integrated into the Nigerian agricultural sector	14 (11.7)	66 (55)	36 (30)	1 (0.8)	3 (2.5)	3.73

Table 2b. Categorization of respondents based on their perception of use of digital tools

Perception	Frequency	%	Min	Max	S.D	Mean
Unfavourable	51	42.5	15	50	7.7	34.1
Favourable	69	57.5				
Total	120	100				

Level of knowledge of respondents on digital agriculture and platforms

Many respondents seem to know the basic use of digital agriculture and how it works as majority know that digital agriculture is useful for information access and communication (99.2%) and that it requires internet connectivity to function (97.5%), as shown in Table 3. However, many of them lack the knowledge of emerging digital agriculture solutions like drones and automation (62.5 %), the services offered by digital agricultural platforms (69.2%), and the use of digital ICT tools like social media for marketing (69.2%). This is in tandem with the findings of Alabi and Okanlawon (2016) which indicated that farmers have more knowledge of traditional ICT tools than digital ICT tools, implying a low level of knowledge of digital tools among farmers.

The result in Table 4 further revealed that majority (55.0%) of the respondents had low or limited knowledge of digital agriculture and relevant platforms, while 45.0% of the respondents had high knowledge. This finding could be a reflection of the limited educational attainment found among respondents. It shows that many of the respondents are unaware of the advanced concepts behind digital agriculture and the specific additional benefits it has to offer.

Table 3: Frequency distribution of respondents' level of knowledge on digital agriculture and platforms

Knowledge Statement	True F (%)	False F (%)
Digital devices can be used to communicate and access information	119 (99.2)	1 (0.8)
Digital devices can be used for social networking	118 (98.3)	2 (1.7)
Digital devices require mobile data for internet access	117 (97.5)	3 (2.5)
Digital agriculture is the collection and sharing of necessary information via digital tools across all stages of farm production	94 (78.3)	26 (21.7)
Digital agriculture also encompasses automation, the use of drones, sensors etc. to monitor farm conditions and processes	45 (37.5)	75 (62.5)
Organizations like farm crowdy, agrorite, agrolinka, Thrive etc.) are digital platforms that offer several services to farmers online	37 (30.8)	83 (69.2)
Relevant information on weather, input supply, market price etc. can be easily accessed online	76 (63)	44 (36.7)
Only information from empirical studies and websites of relevant organizations (like NIHORT, Ministry of Agriculture etc.) are reliable	89 (74.2)	31 (25.8)
Wikipedia is a reliable source for obtaining farm-related information	38 (31.7)	82 (68.3)
Marketing of agricultural produce cannot be done via social media and digital agricultural platforms	37 (30.8)	83 (69.2)
The use of digital devices is limited to information access and exchange	67 (55.8)	53 (44.2)
Digital agriculture is just the collection and sharing of necessary information across all stages of farm production	97 (80.8)	23 (19.2)
Digital agriculture is limited to mobile phones and information access	80 (66.7)	40 (33.3)
Digital agricultural platforms do not offer credit and financial facilities	92 (76.7)	28 (23.3)
Digital agricultural platforms do not offer storage facilities for harvested products	103 (85.8)	17 (14.2)

Table 4: Frequency distribution of respondents based on their level of knowledge on digital agriculture and platforms

Knowledge	Frequency	Percentage	Min	Max	S.D	Mean
Low	66	55.0	4	15	2	10.1
High	54	45.0				
Total	120					

Constraints to digital literacy and usage among respondents

Table 5 reveals the frequency distribution and ranks of constraints based on their level of severity. The result shows that lack of training to develop digital skills (1.87) ranked the most severe constraint to digital literacy among respondents. Unstable or lack of power supply (1.47) ranked second most severe constraint. This might have been a result of unavailability of adequate infrastructure in different communities. Illiteracy (1.45) ranked third in order of severity which is in conjunction with the study of Fawole and Olajide (2012) which identified illiteracy as a constraint to digital ICT usage among farmers alongside poor electricity, internet infrastructure, and unavailability or substandard relevant digital tools. However, the findings of the study show that unavailability of digital tools (1.38) and poor or no internet access (1.23) were also constraints to digital literacy ranking fourth and fifth in order of severity, respectively. However, financial constraint (1.11) ranked the least severe constraint to digital literacy. This implies that the financial capacity of farmers

does not necessarily affect their level of digital literacy or their ability to use digital tools.

Table 5: Frequency distribution of constraints to digital literacy among respondents

S/N	Constraints	Not a constraint F (%)	Severe F (%)	Very severe F (%)	Mean	Rank
1.	Financial constraint	15 (12.5)	76 (63.3)	29 (24.2)	1.11	7th
2.	Unavailability of necessary digital devices	26 (21.7)	23 (19.2)	71 (59.2)	1.38	4th
3.	Poor or no internet access	18 (15)	57 (47.5)	45 (37.5)	1.23	5th
4.	Unstable or lack of power supply	5 (4.2)	74 (61.7)	40 (33.3)	1.47	2nd
5.	Lack of trainings to develop digital skills	2 (1.7)	12 (10)	106 (88.3	1.87	1st
6.	Illiteracy	29 (24.2)	8 (6.7)	83 (69.2)	1.45	3rd
7.	Lack of social support networks	33 (27.5)	39 (32.5)	48 (40)	1.12	6th

Level of digital literacy

As indicated in Table 7 below, majority of respondents were not skilled enough to; send and receive text messages, emails, or through social media(70.0%),use Google and other search engines to find out general information(73.3%), use Google and other search engines to find out general information (75.0%), share information and knowledge to others digitally (75.0%), use digital platforms to network with other farmers, input suppliers, and buyers (78.3%), use mobile apps like IITA herbicide calculator to determine the quantity of herbicide necessary (87.5%).

The result in Table 8 further revealed that the level of digital literacy was low among respondents which may be due to their educational attainment and the type of mobile phone they have access to or use. Evidence from the study of Okoedo-Okojie and Omoregbe (2012) corroborates the study as their findings showed that farmers had low digital usage and competence owing to their low educational level and lack of appropriate digital tools. The implication of this is that if the NDAS is introduced to Oyo state, many of the farmers from the state may not be able to utilize any of the digital agriculture technology, as proposed by the NDAS.

Table 7: Frequency distribution of respondents' basic digital skills

Basic Digital Skills	Yes F (%)	No F (%)
I can send and receive text messages, emails, or through social media	36 (30.0)	84 (70.0)
I can use Google and other search engines to find out general information	32 (26.7)	88 (73.3)
I can use Google and other search engines to find out farm-specific information	30 (25.0)	90 (75.0)
I am able to share information and knowledge with others digitally	30 (25.0)	90 (75.0)
I can use digital platforms to network with other farmers, input suppliers, and buyers	26 (21.7)	94 (78.3)
I can search for agricultural inputs online and compare prices	25 (20.8)	95 (79.2)
I can use the internet to access weather forecast	23 (19.2)	97 (80.8)
I can interpret weather forecasts found online	7 (5.8)	113 (94.2)
I use the internet (search engines, social media etc.) to stay updated on the market price for my products	19 (15.8)	101 (84.2)
I am able to evaluate all contents found online for their accuracy and reliability	19 (15.8)	101 (84.2)
I use digital agricultural platforms (like agrorite) to market my farm products	17(14.2)	103 (85.8)
I use digital agricultural platforms (like agrorite) to access credit facilities	11 (9.2)	109 (90.8)
I can use mobile apps like IITA herbicide calculator to determine the quantity of herbicide necessary	15 (12.5)	105 (87.5)
I can use digital platforms to seek out advisory services for experts	25 (20.8)	95 (79.2)
I'm aware of and capable of taking necessary measures to protect personal data and privacy online	24 (20.0)	96 (80.0)

Table 8: Frequency distribution showing respondent's level of digital literacy

Basic digital skills	Frequency	Percent	Min.	Max	S.D	Mean
Low	86	71.7	0	15	4.8	2.8
High	34	28.3				
Total	120					

Relationship between respondents' personal characteristics and level of digital literacy

The Chi-square analysis in Table 9 shows that there was no significant relationship between respondents' sex (X^2 = 0.946, p = 0.331) and respondents' level of digital literacy. However, there were significant relationships between level of education (X^2 = 74.265, p < 0.001), type of mobile phone (X^2 = 87.775, p < 0.001), marital status (X^2 = 16.029, p = 0.001) and respondents' level of digital literacy. This suggest that the use of smartphones could increase the level of digital literacy than using feature phones. Furthermore, digital literacy could be determined by level of education and marital status.

Also, there was a significant relationship between the respondents' age (r = -0.550, p < 0.001), farming experience (r = -0.569, p < 0.001), and farm size (r = -0.396, p < 0.001) and their level of digital literacy. However, the negative r values of these independent variables indicate negative correlations which suggest that as these variables (age, farm size, and farming experience) increase, the level of digital literacy reduces and vice versa. This implies that farmers with high farming experience have low digital literacy and usage to obtain information but farmers with lower years of experience tend to actively use the internet and other digital tools to obtain information relevant in their production process. Similarly, it is also consistent with the findings of Moore *et al*. (2015) that showed that the level of digital literacy tends to reduce as age increases.

Table 9: Relationship between personal characteristics and level of digital literacy

Variables	χ^2	df		p-value
Sex	0.946	1		0.331
Marital status	16.029	3		0.001*
Education level	74.265	3		0.000*
Type of mobile phone	87.775	1		0.000*
Type of crop produced	0.525	1		0.469
Age			-0.550	0.000**
Farming experience			-0.569	0.000**
Farm size			-0.396	0.00**

Source: Field survey, 2021

Perception on use of digital tools, knowledge of digital agricultural tools, constraints to digital literacy and level of digital literacy

Table 10 below shows that the perception of respondents towards the use of digital tools had a positive but weak correlation with the level of digital literacy (r = 0.429) and a significant relationship between the variables also exists (p < 0.001). This finding suggests that respondents' level of digital literacy increases with favourable perceptions. Favourable perception toward digital technologies among the respondents indicates that they could be willing and eager to seek or participate in training organized to develop digital skills. Also, there was no significant relationship between the knowledge of respondents on the use of digital literacy and the level of digital literacy (p = 0.504) and no correlation between the two variables (r = - 0.062). This finding suggests that farmers' knowledge of digital agriculture and platforms does not necessarily translate to a high level of digital literacy. Furthermore, there was also a significant relationship between constraints to digital literacy and respondents' level of digital literacy (p < 0.001). However, the negative value of r (r = -0.533) indicates a negative correlation between constraints and the level of digital literacy. This result suggests that the more constraints faced by farmers, the lower their level of digital literacy. The implication of this is that if efforts are made to address the identified constraints, then farmers' level of digital literacy could improve.

Table 10: Distribution according to relationship between perception of respondents on use of digital tools and level of digital literacy

Variable	R	p
Perception vs. level of digital literacy	.429	.000**
Knowledge vs. level of digital literacy	-0.062	0.504
Constraints vs. level of digital literacy	-0.533	0.000**

**= significant at p≤ 0.01

CONCLUSION

Based on these findings, it can be concluded that the level of digital literacy among crop farmers was low. Most of the farmers were married male old adults with low educational attainment. They made use of feature phones and have used any social media platform. They also had favourable perception towards digital tools and agriculture. Lack of necessary trainings to develop their digital skills was the most severe constraints affecting digital usage and literacy among farmers, However,

farmers are willing to participate in trainings that would develop their digital skills such as trainings on how to: handle digital devices.

The following recommendations are made based on the findings of this study to ensure sustainable adoption and implementation of digital agriculture.

1. In order to bridge the knowledge gap in digital skills of farmers, public and private extension personnel should focus on training farmers to develop their digital skills as well as encourage seasonal trainings to keep their digital skills updated and improved, since digital technologies continue to evolve.
2. Government can partner with telecommunication companies to provide farmers with subsidized digital tools in order to improve their access to broadband internet connection.

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