The Reality of using Information and Communications Technology in Agricultural Extension work/Iraq

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Abstract

The manuscript aimed to identify the reality of using information and communications technology in agricultural extension work in Iraq, the questionnaire was prepared as a tool for collecting data from agricultural extension workers. It included (99) paragraphs distributed into (19) paragraphs for the aim (the reality of using information and communication technology In agricultural extension work) and (56) paragraphs for the first field (use of information technology), and (24) paragraphs for the second field (use of communications technology). The area where the research was conducted included the provinces of Iraq, except for the provinces of the Kurdistan region, which number (15) provinces . A sample was chosen. A random percentage of (50)% of the provinces (Baghdad, Basra, Dhi Qar, Najaf, Babylon, Karbala, Anbar, Kirkuk). The research community included workers in agricultural and agricultural extension, numbering (773) respondents. A proportional, stratified random sample was chosen with a percentage of (33.1). % of the manuscript community (256) respondents, The results of the manuscript concluded that the percentage in the field of use of information and communication technology in agricultural extension work was weak and amounted to (41.1%), and with regard to the field of information technology and its use in extension work only, the average tended to be low, with an arithmetic mean of (2.34) degrees, and a standard deviation of (1.23). degree, and with regard to the field of communications technology and its use in extension work, it was average, with an arithmetic mean of (2.73) degrees, and a standard deviation of (1.28) degrees, The researcher reached the most important conclusions, stating that despite the governmental trends and interest in the Ministry of Agriculture and its formations in the field of information and communications technology, the use of modern technologies, means of communication, application programs, and the diversity of uses of social networking sites in extension work was not at the required level, The researcher recommends the necessity of providing devices and equipment for modern information and communication systems for the extension organization in line with the requirements of extension work, and preparing and implementing awareness raising training programs. Specialized in information and communications technology within the annual plan prepared by the Agricultural Extension and Training Department to develop the skills and capabilities of workers and improve their performance, in addition to the necessity of providing a wide ranging and comprehensive Internet network for all geographical regions for agricultural extension work to cover and implement extension activities and programs.

Keywords: information technology, communications technology, agricultural extension.

Introduction

The continuous tremendous scientific progress and development that the world is witnessing today in many fields, including the agricultural field, the impact of which has been reflected in agricultural activities and practices that have brought about clear changes in the lives of rural communities due to the expansion of information, knowledge, and advanced technologies to preserve agricultural resources and their availability(10), and its sustainability by working to increase production and productivity and improve its quality continuously(13), This cannot be achieved unless there is an agricultural extension system that has the scientific capacity to be A link between the target audience on the one hand and scientific research systems on the other hand (16), to transfer scientific knowledge related to advanced technology through agricultural extension workers carrying out many extension activities (22), to improve their lives and education. On how to make decisions to help them identify and confront problems and find appropriate solutions to them (12), accordingly.. agricultural extension workers are considered the core of the extension process and the mainstay in its success. They work to link two different social systems, the first represented by the extension organization to which they belong, and the second is the external organization represented by work and communication with agricultural extension workers (23), accordingly communication is the essence of extension work, which plays a decisive role in achieving economic, social and cultural development in rural communities through its programmes, activities and plans that are based directly on the nature of modern means of communication used to transfer information, exchange ideas, satisfy the needs of the targets and solve their problems (7), and this led to the emergence of types of electronic platforms for broadcasting many multimedia, including images and video clips (5), which facilitates the access of farmers and their organization to information, knowledge, and modern technologies that help To interact with relevant parties (4), and thus contribute effectively to increasing productivity and production and improving their quality (11), based on the above... modern innovations in communication technology have eliminated the need for direct communication between the targets and the trend towards using networks and means of communication to reduce costs and reduce barriers between them (20), accordingly, the use of information and communication technology has become an inevitable necessity for agricultural extension workers, as they are the interface of the Ministry of Agriculture and implementers of agricultural policies, whether within the extension organization or from the rural community environment, by relying on special practices and behaviors to satisfy their needs and requirements and achieve their aims (24), and improving the level of performance and effectiveness of organizations, including the Guidance Organization (18), accordingly the great challenges faced by the agricultural sector in Iraq in general and the extension system in particular require the use of information and communications technology in extension work to meet the challenges, especially since traditional agricultural extension suffers from several problems (3), despite this... the reality of the use of information and communications technology is almost weak, and this is what many studies have indicated, such as the study Jasim, which indicated that two-thirds of agricultural extension workers do not use modern extension methods in the process of disseminating agricultural technology (17), A study Saleem, & Al-Harbawi also showed that 25.56% of agricultural extension workers always use the mobile phone and that 41.11% of them sometimes use it in their field of extension work (21), while a study Abdel Razzaq found the respondents' use of computers in extension

work at an average level tends to decrease by 57% (2), and the study Tawij confirmed that there is a weakness in the use of modern means of communication on extension farms, in addition to the absence of annual plans in preparing and implementing programs Guidance training specialized in information and communications technology and its applied programmes. Accordingly (26), the current research came to answer the following questions:

- What is the reality of using information and communications technology in agricultural extension work?

Research Aims

Identify the reality of using information and communications technology in agricultural extension work, which includes two areas:

1-Using information technology in extension work.

2-Using communications technology in extension work.

Research Methodology

The descriptive approach is one of the approaches that is concerned with studying the phenomenon or event and obtaining data, information and realistic facts to solve problems and understand the reality of using information and communication technology in agricultural extension work / Iraq.

Research Community

The manuscript community included all provinces of Iraq except the provinces of the Kurdistan region, which are 15 provinces , and a random sample of 50% of the total provinces included in the manuscript community was chosen, so that the number of provinces included in the research was 8 provinces , namely (Baghdad, Kirkuk, Anbar, Babylon, Najaf, Karbala, Dhi Qar, Basra),a proportional, stratified random sample was drawn of 33.1% of the number of agricultural extension workers (technicians and administrators) within the Agricultural Extension and Training Department and its affiliated extension centers and farms, extension departments and agricultural divisions affiliated with the agricultural directorates within the provinces included in the procedure. The research included 773 respondents, 256 respondents according to the equation Steven, n = $\frac{NP(1-P)}{(N-1)(d^2/z^2)+p(1-p)}$ (25). As shown in Table 1.

Table 1. Distribution of agricultural extension workers using information and communications technology within the provinces of the research sample

No.	Governorate	33.1% of the workers in the extension department in the agricultural directorates	33.1% of the workers in the extension unit in the agricultural divisions	33.1% of the workers in the agricultural Extension Department	33.1% of workers in agricultural extension centres	33.1% of the workers on extension farms	The total number of the research sample for agricultural extension workers
1	Baghdad	5	6	53	4	4	72
2	Basra	6	14		4	4	28
3	Dhi Qar	3	6		5	8	22
4	Najaf	3	7		4	9	23
5	Babylon	9	9		9	17	44
6	Karbala	2	3		5	6	16
7	Anbar	5	15		5	3	28
8	Kirkuk	4	8		5	6	23
	the total	37	68	53	41	57	256

Preparation of the Research tool and its design stages:

The questionnaire form is the most common and used tool for collecting data from respondents related to the topic of the current study. Accordingly, the process of

preparing the questionnaire went through several stages, which are as follows: The first stage: The questionnaire was prepared in its preliminary form, in light of previous literature, research and studies in the field of information and communications

technology and the opinions of experts and specialists in the field of agricultural extension and information and communications technology, in addition to field visits and personal interviews with specialists in the field of agricultural extension and information and communications technology. On the international Internet. Accordingly, the questionnaire was prepared in its initial form, which included a question about the reality of using information and communication technology in agricultural extension work, which included 7 paragraphs . A three-point scale was designed (agree, agree with modification, disagree), and weights were assigned to it 2, 1, 0, respectively. It included the reality of the use of information and communications technology in agricultural extension work in two main areas: The first area: the use of information technology, which includes 61 paragraphs distributed over 6 axes, with 9 paragraphs for the information system, 8 paragraphs for organizational procedures, 14 paragraphs for the physical components (devices and equipment), and 11 A paragraph for software and processors, 7 paragraphs for database and information, and 12 paragraphs for users of information and communications technology, while the second area included: the use of communications technology in 26 paragraphs distributed over two axes, with 8 paragraphs for communication technology, and 18 paragraphs for communication networks. The second stage: Validity of the manuscript tool. The questionnaire was presented in its initial form to 12 experts in the field of agricultural extension to measure the apparent validity with the aim of ensuring the soundness and formulation of the paragraphs linguistically, the extent of their clarity and reliability, the lack of overlapping with each other, and the ease of understanding its phrases (6), the questionnaire was presented in its initial form to 9 experts in the field of information technology, communications, media, management, and economics to measure the validity of the content to ensure the clarity of the components of the scale and the connection of its paragraphs with the measured aspect in order to achieve the set goals (14), to express their opinion about their agreement with the axes and paragraphs of the questionnaire regarding its validity. Or amend, reformulate, or delete it. I collected the experts' opinions and recorded their answers for the period from (4/4/2023-5/5/2023), The third stage: The cut-off threshold was set at 75% or more, as long as the fields, axes, and paragraphs included in the questionnaire remain valid in its final form, as the agreement of experts and specialists on the components of the questionnaire on the cut-off threshold of 75% or more is what gives an indication of the validity of the scale and creates a feeling and satisfaction about Its sincerity (15), the fourth stage: The average degrees of agreement of the experts and specialists on the components of the questionnaire in its initial form were calculated after collecting their opinions, recording their answers and analyzing them. The cut-off rate reached 86%. In addition, the suggestions and responses of the experts and specialists regarding the continuation, modification, reformulation or deletion of the axes and paragraphs were taken into account. The questionnaire. The fifth stage: The questionnaire was prepared with its final voice, in light of the opinions of the experts. The questionnaire in its final form included the question about the reality of the use of information and communications technology in agricultural extension work, which contained 19 paragraphs. It included

the reality of the use of information and communications technology in agricultural extension work in two areas. There are two basic aspects: The first area: the use of information technology, which includes 56 paragraphs distributed over 5 axes, with 12 paragraphs for database and information, 8 paragraphs for organizational procedures, 14 paragraphs for physical components (hardware and equipment), 11 paragraphs for software and processors, and 11 paragraphs for information and communications technology users. While the second field included: the use of communications technology with 24 paragraphs distributed over two axes, with 8 paragraphs for modern means of communication, and 16 paragraphs for communication networks, as shown in Table 2.

Table 2. Distribution of areas, axes, and paragraphs of the reality of using information and communications technology in agricultural extension work

No.	Aim	Field	Axis	Number of paragraphs
1	The reality of using information technology in agricultural extension work			19
2		Information Technology	Database and information	12
			Regulatory procedures	8
			Hardware components (hardware and equipment)	14
			Software and processors	11
			ICT users	11
3		Communication Technology	Modern communication channels	8
			Networks	16
			The total number of paragraphs	99

Stability of the Research tool:

Stability means that the scale attains stability in its scores achieved after a period of time and under the same conditions (1). Diwaniyah province was chosen to measure stability, and a preliminary test of the questionnaire was conducted on a survey sample of agricultural extension workers, numbering 67 respondents distributed among the Agriculture Directorate. In May 2023, a random sample of 40.3% and 27 respondents was taken. The test data was analyzed using the SPSS program to measure reliability, as the value of the overall Cronbach's alpha reliability coefficient for the scale of the reality of using information and communication technology in agricultural extension work reached 0.90 degrees, and the value is considered scientifically acceptable, and the scale indicates stability and acceptability if it obtains a reliability coefficient value of 0.80 or more (8), and as shown in Table 3.

Table 3. Values of the Cronbach's alpha coefficient for the scale of the reality of using information and communication technology in agricultural extension work

No.	Fields	Axes	Reliability Coefficient
1	Information Technology	Database and information	0.90
		Regulatory procedures	0.94
		Physical components (devices and equipment)	0.94
		Software and processors	0.90
2	Communication Technology	ICT users	0.89
		Modern communication channels	0.88
		Networks	0.92
		total Reliability Coefficient	0.90

Data Collection

The data was collected using a questionnaire form, which is one of the most common scientific research tools to achieve the research objectives, (19) for the period between 28/6/2023- 28/8/2023,

which includes a set of questions that the respondents are required to answer. The number of respondents was 256.

Tabulation and Analysis of data

Data related to the reality of the use of information and communication technology in agricultural extension work/Iraq was classified and analyzed, which contains 19 paragraphs . A binary scale was designed (use, do not use), and weights were assigned to it 0.1, and it included two areas, which are as follows:

The first area: measuring the use of information technology in. The agricultural extension program includes 56 paragraphs distributed over 5 axes, with 12 paragraphs for the database and extension information, 8 paragraphs for organizational procedures, 14 paragraphs for the physical components, and 11 paragraphs for each of the software, processors, and ICT users. A five-point graded scale was designed (completely agree, agree (neutral, disagree, completely disagree), and the weights were assigned to it 5, 4, 3, 2, 1, respectively, and the total score of the scale ranged between 56-280 degrees, and frequencies, percentage, arithmetic mean, and deviation were used. Standard.

The second area: measuring the use of communication technology in agricultural extension work, includes 24 paragraphs distributed over two axes, 8 paragraphs for the use of modern means of communication and 16 paragraphs for communication networks. A five-point graded scale was, designed (completely agree, agree, neutral disagree, completely disagree). The weights were assigned to it as 5, 4, 3, 2, 1, respectively, and the total score of the scale ranged between (24-120) degrees, and frequencies, percentage, arithmetic mean, and standard deviation were used.

Range = 5-1 = 4 degrees

Class length = 4 ÷ 3 = 1.33

1- Low category usage score: (1.00 – 2.33).

2- Average degree of use: (2.34-2.66).

3- High category usage score: (2.67-5.00).

Results and Discussion

Objective 1: The Reality of using Information and Communications Technology in Agricultural Extension work.

The manuscript results showed that the percentages of respondents' use of information and communications technology ranged between 5.9% -73.4 %, while the percentages of non-use ranged between 26.2%-94.1%, as shown in Table 4.

Table 4. Frequencies and percentages of respondents' use of information and communications technology in agricultural extension work

Sort by degree of use	Sort by form	Paragraphs	Degree of use of information and communications technology				Total number of respondents	Overall percentages %
			Use		I don't use it			
			number	%	Number	%		
1	2	Laptop	188	73.4	68	26.6	256	100
2	1	Desktop computer	182	71.1	74	28.9	256	100
3	6	The Internet	175	68.4	81	31.6	256	100
4	4	Mobile phone	166	64.8	90	35.2	256	100
5	8	Facebook (face book)	157	61.3	99	38.7	256	100
6	9	WhatsApp	150	58.6	106	41.4	256	100
7	15	Messenger	141	55.1	115	44.9	256	100
8	18	Google	134	52.3	122	47.7	256	100
9	19	YouTube	116	45.3	140	54.7	256	100
10	5	Software	105	41	151	59	256	100
11	7	Email (E-Mail)	98	38.3	158	61.7	256	100
12	10	Telegram	82	32	174	68	256	100
13	11	Instagram	77	30	179	70	256	100
14	12	Viber	71	27.7	185	72.3	256	100

15	16	Snapchat (chat Sanp)	60	23.4	196	76.6	256	100
16	3	Ipad	35	13.7	221	86.3	256	100
17	14	Twitter	29	11.3	227	88.7	256	100
18	17	Skype	17	6.6	239	93.4	256	100
19	13	Imo	15	5.9	241	94.1	256	100
		Overall average		41.1%		58.9%		

The table above indicates that the total percentage of respondents' use of information and communications technology was low, amounting to 41.1%, and that the highest percentage of use of laptop and desktop computers was 73.4%, 71.1%. The reason is that the majority of respondents have previous experience before employment or during employment because they participate in training and educational programs that qualify them. Using laptop and desktop computers in agricultural extension work widely and easily. While the highest percentage of non-use of Twitter, Skype and Imo applications was 88.7%, 93.4%, and 94.1% in the order. The reason is due to the respondents' lack of awareness and understanding of the importance of such applications, or their weak technical expertise in using them in agricultural extension work. In accordance with the above... the results of the reality of the use of information and communications technology in agricultural extension work / Iraq will be discussed, which are represented in the following:

The first area: The use of Information Technology in Agricultural Extension work The manuscript results showed that the 5 information technology axes obtained an overall arithmetic average of 2.34 degrees, with an overall standard deviation of 1.23 degrees, as shown in Table 5.

Table 5. Arrangement of the axes of the use of information technology in agricultural extension work according to arithmetic means and standard deviations

Order in order of importance	Sort by form	Axes	Arithmetic average	standard deviation	Degree of use
1	3	Physical components (devices and equipment)	2.64	1.17	Medium
2	1	Database and information	2.54	1.29	Medium
3	5	ICT users	2.30	1.28	Low
4	4	Software and processors	2.20	1.28	Low
5	2	Regulatory procedures	2.03	1.14	Low
		Overall average	2.34	`1.23	Medium

Table 5 indicates that the use of information technology in agricultural extension work was average and tended to be low, and the material components axis came in first place in terms of importance, with an arithmetic mean of 2.64 degrees, and a standard deviation of 1.17 degrees, and the reason for this is that the extension organization has wide uses. The physical components of computers and their equipment in preparing reports and documenting plans and their contribution to implementing extension activities and providing extension services, while the focus of organizational procedures ranked last in terms of importance, with an arithmetic average of 2.03 degrees, and a standard deviation of 1.14 degrees. The reason for this is the weakness of The guidance organization's interest in the regulatory procedures, measures taken, and necessary instructions in operating information systems devices and programs, in a way that is compatible with modern developments.

Hardware Components (Devices and Equipment)

The results of the manuscript showed that the arithmetic averages for the 14 paragraphs of the physical components

(devices and equipment) axis ranged between 1.92 and 4.01 degrees, with an overall average of 2.64 degrees, with a standard deviation that ranged between 1.00 and 1.15 degrees, and a total deviation of 1.14 degrees, as shown in Table 6.

Table 6. Distribution of respondents according to their agreement on the material components paragraphs (devices and equipment)

Order import-ance	Ranking question-naire	Paragraphs	Arithmetic average	standard deviation	Degree of use
1	9	Information technology devices contribute to the accuracy and speed of providing guidance services to targets	4.01	1.00	High
2	2	Information technology devices are used to reduce the time and effort required to provide the guidance service to the targets	3.89	0.97	High
3	1	The organization resorts to using computers to document annual, quarterly and monthly extension plans and activities	3.84	1.07	High
4	10	The printer is used to print a hard copy of agricultural data.	3.75	1.09	High
Order import-ance	Ranking question-naire	Paragraphs	Arithmetic average	standard deviation	Degree of use
5	3	The extension organization uses mobile phones to communicate and socialize with targets	2.71	1.43	Medium
6	5	Agricultural extension workers use the latest modern technologies to store extension information, such as hard disks, magnetic floppy disks, flash drives, etc.	2.65	1.43	Medium
7	12	A data viewer device is used to display extension or awareness technologies and activities while providing the extension service.	2.19	1.27	Low
8	7	Information technology devices use multimedia to play video, images and sounds while carrying out extension activities	2.13	1.27	Low
9	14	The scanner is used to enter agricultural images and texts and convert them into a digital image for storage and retrieval	2.10	1.22	Low
10	13	The digital camera on the computer is used to take pictures and record videos of extension activities	2.00	1.09	Low
11	6	The extension organization seeks to introduce modern equipment in agricultural extension work	1.97	1.17	Low
12	8	The computers available in the extension organization are among the latest technologies available in the market	1.95	1.12	Low
13	4	Providing additional backup warehouses to store electronic devices and equipment and use them when needed	1.93	1.15	Low
14	11	Providing special laboratories for the maintenance of electronic devices and equipment, supervised by information and communications technology specialists	1.92	1.15	Low
		Overall average	2.64	1.14	Medium

Table 6 indicates that the item "Information technology devices contribute to the accuracy and speed of providing guidance services to the targets" came in first place in terms of importance, with an arithmetic mean of 4.01 degrees, and a standard deviation of 1.00 degrees. The reason for this is that the workers in the guidance organization, despite the importance Technological devices help deliver all the latest agricultural information and recommendations, but they still practice traditional methods in

providing extension service, and they do not want the idea of using information technology to provide this extension service. While the item "Providing private laboratories for the maintenance of electronic devices and equipment supervised by specialists in information

and communications technology" came in last place in terms of importance with a mean of 1.92 degrees, and a standard deviation of 1.15 degrees. The reason for this is the weakness of the directions and interest of the senior management in the extension organization for establishing laboratories. Especially for the maintenance of electronic devices and equipment within the extension organization's assets.

Database and Information

The manuscript results showed that the arithmetic mean for the 12 paragraphs of the database and information axis ranged between 2.02-3.80 degrees, with a total average of 2.54 degrees, with a standard deviation that ranged between 1.19-1.20 degrees, and a total deviation of 1.29 degrees, as shown in Table 7.

Table 7. Distribution of respondents according to their agreement with the database and information paragraphs

Order import-ance	Ranking question-naire	Paragraphs	Arithmetic average	standard deviation	Degree of use
1	10	The success of the extension organization requires effective and efficient information systems	3.80	1.19	High
2	6	The information systems applied in the extension organization contribute to improving the efficiency of daily extension work	3.70	1.16	High
3	8	The extension organization uses the information system to correct and enhance decisions and ensure their effectiveness in providing the extension service	2.59	1.40	Medium
4	2	The guiding organization relies on obtaining information from its internal and external sources	2.51	1.38	Medium
5	3	The extension organization relies on an information system to coordinate between the Agricultural Extension Department and its extension units	2.50	1.36	Medium
6	12	The extension organization adopts compatible and integrated information systems in all its work, such as disseminating agricultural technology among the targeted people, preparing education and training programs, and solving agricultural problems.	2.46	1.39	Medium
7	4	The database in the extension organization is characterized by its high ability to store and retrieve information	2.42	1.42	Medium
8	9	The advisory organization works to ensure the security of its information and protect it from theft, hacking and loss efficiently	2.21	1.33	Low
9	5	The organization constantly updates its guidance information	2.16	1.27	Low
10	11	Work to create databases available to employees of the extension organization, research centers, and distinguished farmers	2.13	1.22	Low
11	1	The extension organization has data and information stored in the database that has value and is commensurate with the size and nature of agricultural extension work	2.04	1.27	Low

12	7	The extension organization has a sufficient and comprehensive database available to the various extension organizations	2.02	1.20	Low
		Overall average	2.54	1.29	Medium

Table 7 indicates that the item "The success of the extension organization requires the presence of effective and efficient information systems" came in first place in terms of importance, with an arithmetic mean of 3.80 degrees, and a standard deviation of 1.19 degrees. The reason for this is the extension organization's need to develop its information systems to be able to Using guidance information and benefiting from it quickly in guidance work and delivering it to the beneficiaries in a timely manner. While the item "The extension organization has a sufficient and comprehensive database available to the various extension organizations" ranked last in terms of importance, with a mean score of 2.02, and a standard deviation of 1.20, and the reason for this is that providing a broad information base has become a necessity and part of the components. The technological process that includes important extension information increases the efficiency and effectiveness of the extension organization.

Users of Information and Communications Technology

The manuscript results showed that the arithmetic averages for the 11 paragraphs in the ICT users axis ranged between 1.98 and 2.70 degrees, with a total average of 2.30 degrees, a standard deviation that ranged between 1.46 and 1.14 degrees, and a total deviation of 1.28 degrees, as shown in Table 8.

Table 8. Distribution of respondents according to their agreement with the paragraphs on ICT users in extension work

Order import-ance	Ranking question-naire	Paragraphs	Arithmetic average	standard deviation	Degree of use
1	8	The presence of a sufficient number of qualified workers to use information and communications technology in extension work	2.70	1.46	Medium
2	3	The human resources working in the extension organization are qualified and able to use information and communications technology	2.64	1.45	Medium
3	1	The extension organization obliges workers to use information and communications technology	2.50	1.39	Medium
4	2	The extension organization obliges workers to exchange technical expertise with relevant agricultural and research institutions	2.40	1.38	Medium
5	9	The extension organization has people capable of designing and developing programs in line with the requirements of extension work	2.28	1.21	Low
6	5	The organization provides guidance activities for workers in the field of information and communications technology	2.25	1.25	Low
7	6	Information technology devices are used to increase trust between extension agents and farmers	2.23	1.28	Low
8	4	Use information technology devices to provide diverse education that takes into account individual differences among targets	2.20	1.26	Low
9	11	The extension organization has technicians capable of maintaining information and communications technology equipment	2.10	1.08	Low
10	10	The extension organization encourages its employees to organize ongoing training courses on the use of	2.03	1.19	Low

		information and communications technology in agricultural extension work			
11	7	The extension organization employs people who are scientifically and practically qualified to use information and communications technology in agricultural extension work	1.98	1.14	Low
		Overall average	2.30	1.28	Low

Table 8 indicates that the item "The presence of a sufficient number of workers qualified to use information and communications technology in extension work" came in first place in terms of importance, with an arithmetic mean of 2.70 degrees, and a standard deviation of 1.46 degrees. The reason for this is that the extension organization's success in Publishing and transmitting all new ideas, agricultural innovations, extension information, and results of scientific agricultural research requires resources A human being capable and qualified to use information and communication technology efficiently and effectively commensurate with the requirements of extension work, while the paragraph "The extension organization employs people who are scientifically and practically qualified to use information and communication technology in agricultural extension work" ranked last in terms of importance with a mean of 1.98 degrees, and a standard deviation. 1.14 degrees. The reason for this is that the plans and policies followed in employing workers in the extension and agricultural organization are almost devoid of attention to standards of experience, higher qualifications, and abilities to use information and communications technology and its future developments.

Software and Processors

The manuscript results showed that the arithmetic averages for the 11 paragraphs in the software and processors axis ranged between 1.75-2.57 degrees, with an overall average of 2.20 degrees, a standard deviation of 1.35-1.00 degrees, and a total deviation of 1.28 degrees, as shown in Table 9.

Table 9. Distribution of respondents according to their agreement with the software and processors paragraphs

Order import-ance	Ranking question-naire	Paragraphs	Arithmetic average	standard deviation	Degree of use
1	6	The software used in the extension organization contributes to improving the performance efficiency of targets and providing effective service	2.57	1.35	Medium
2	3	Software contributes to providing high-quality information that supports decision-making processes	2.53	1.36	Medium
3	8	The software used helps provide solutions to the guidance problems facing the targets	2.45	1.36	Medium
4	11	Using the SPSS program to analyze data by researchers in the extension organization	2.43	1.21	Medium
5	9	The software used in the extension organization makes an actual contribution to the information technology system	2.39	1.30	Medium
6	7	The extension organization makes use of software in planning and evaluating the extension programs provided to targets	2.21	1.19	Low
7	1	The extension organization relies on multiple programs with a high-precision design in the field of providing extension service to targets	2.13	1.21	Low
8	10	The computer software available in the extension organization should include reducing risks in	2.01	1.18	Low

		extension work			
9	2	The extension organization uses software to collect and process data that is flexible and easy to use	1.91	1.86	Low
10	4	The software used should contribute to reaching all agricultural extension workers easily and conveniently	1.85	1.07	Low
11	5	The extension organization uses software that is constantly updated	1.75	1.00	Low
		Overall average	2.20	1.28	Low

Table 9 indicates that the item "The software used in the extension organization contributes to improving the efficiency of the targets' performance and providing effective service" came in first place in terms of importance, with an arithmetic mean of 2.57 degrees, and a standard deviation of 1.35 degrees. The reason for this is the small number of cadres and specialists. To design and update software to keep pace with modern developments and in a way that meets the needs of those working in the field of providing extension services, while the paragraph "The extension organization uses software that is constantly updated" ranked last in terms of importance with a mean of 1.75 degrees, and a standard deviation of 1.00 degrees, and the reason for this is due to Software is an important part of computer information systems and organizing the work of its units, which requires constant updating to keep pace with changes in the field of providing guidance services to targets.

Regulatory Procedures

The manuscript results showed that the arithmetic averages for the 8 paragraphs of the organizational procedures axis ranged between 1.85-2.37 degrees, with an overall average of 2.03 degrees, with a standard deviation that ranged between 1.24-1.09 degrees, and a total deviation of 1.14 degrees, as shown in Table10.

Table 10. Distribution of respondents according to their agreement with paragraphs of organizational procedures

Order import-ance	Ranking question-naire	Paragraphs	Arithmetic average	standard deviation	Degree of use
1	8	The extension organization takes measures to save data in the form of files and additional copies for retrieval in case of loss	2.37	1.24	Medium
2	5	The extension organization works to maintain and maintain information technology devices from accidents, damage and tampering	2.14	1.04	Low
3	4	The extension organization uses secure procedures to keep information confidential from being hacked	2.10	1.13	Low
4	6	The extension organization relies on thoughtful procedures developed by experts to clarify the technical and training needs of ICT users	2.05	1.22	Low
5	3	The extension organization uses written rules and instructions as procedures for operating IT equipment	1.98	1.13	Low
6	2	The extension organization uses procedures to operate software applications in agricultural extension work	1.93	1.12	Low
7	7	The extension organization seeks procedures for developing software applications and their continuous updating	1.88	1.15	Low
8	1	The extension organization provides a guide or technical guidance document that facilitates the use of information and communication technology devices by workers in agricultural extension work	1.85	1.09	Low
		Overall average	2.03	1.14	Low

Table 10 indicates that the paragraph "The extension organization takes measures to save data in the form of files and additional copies for retrieval in case of loss" came in first place in terms of importance, with an arithmetic mean of 2.37 degrees, and a standard deviation of 1.24 degrees, and the reason for this is that the extension data it possesses The extension organization, which is stored in files that need to be preserved and protected from loss and electronic attacks, while the paragraph "The extension organization provides a guide or technical guidance document that facilitates the use of information and communication technology devices by workers in agricultural extension work" ranked last in terms of importance with an arithmetic average of 1.85 points. With a standard deviation of 1.09 degrees, the reason for this is that the guide is a reference or document that targets the extension organization's managers and employees and helps them develop organizational policies, procedures, and actual practices related to employing information and communication technology in agricultural extension work.

The Second Area: The use of Communications Technology in Agricultural Extension work.

The manuscript results showed that the overall arithmetic mean for the 2 communication technology axes reached 2.73 degrees, with an overall standard deviation of 1.28 degrees, as shown in Table 11.

Table11. Arrangement of the axes of the use of communication technology in agricultural extension work according to arithmetic means and standard deviations

Order in order of importance	Sort by form	Axes	Arithmetic average	standard deviation	Degree of use
1	1	Modern communication channels	2.89	1.32	Medium
2	2	Networks	2.58	1.25	Medium
		Overall average	2.73	1.28	Medium

Table 11 indicates that the use of communication technology in agricultural extension work was average, and the axis of modern means of communication came in first place in terms of importance, with an arithmetic mean of 2.89 degrees, and a standard deviation of 1.32 degrees. The reason for this is that the extension organization has recently turned to applying and employing Modern means of communication in agricultural extension work to overcome the difficulties facing traditional extension methods, while the axis of communication networks ranked last in terms of importance, with an arithmetic mean of 2.58 degrees, and a standard deviation of 1.25 degrees. The reason for this is that the extension organization seeks to expand networks. Wired and wireless communication using the Internet, computers, and mobile phones to provide guidance services to the targeted people.

Modern means of Communication

The results of the research showed that the arithmetic averages for the 8 paragraphs in the modern means of communication axis ranged between 2.16-3.31 degrees, with an arithmetic mean of 2.89 degrees, with a standard deviation ranging between 1.33-1.26 degrees, and a deviation of 1.32 degrees, as shown in Table 12.

Table 12. Distribution of respondents according to their agreement with paragraphs on modern means of communication

Order import-ance	Ranking question-naire	Paragraphs	Arithmetic average	standard deviation	Degree of use
1	1	Modern means of communication are used to facilitate all operations in the extension organization	3.31	1.33	Medium

2	6	The organization uses the most appropriate communication technology for its extension work	3.25	1.32	Medium
3	2	Modern communication technologies are the most widely used means in the extension organization to send and receive data internally and externally	3.19	1.34	Medium
4	3	The extension organization is keen to use communication technology to enhance its extension work	3.10	1.35	Medium
5	7	The extension organization relies on mobile phones to communicate with entities related to agricultural extension work	3.00	1.35	Medium
6	5	The existence of a new website between the extension organization, the administrative levels and its external environment	2.96	1.37	Medium
7	4	The extension organization uses communication technology in an advanced manner and keeps pace with everything new in extension work	2.21	1.25	Weak
8	8	E-mail allows the extension organization to facilitate communication with farmers	2.16	1.26	Weak
		Overall average	2.89	1.32	Medium

Table 12 indicates that the item "Modern means of communication are used to facilitate all operations in the extension organization" came in first place in terms of importance, with a mean score of 3.31 degrees, and a standard deviation of 1.33 degrees. The reason for this is the lack of knowledge and skills of workers in using modern means of communication. Thus, it affects the performance of the extension organization's work, while the item "E-mail allows for facilitating the extension organization's communication with farmers" ranked last in terms of importance, with an arithmetic mean of 2.16 degrees, and a standard deviation of 1.26 degrees, and the reason for this is that e-mail is of great importance. In agricultural extension work, because it is considered the most effective means of rapid communication between people inside and outside the extension organization, sending important information and extension recommendations, and responding quickly to problems faced by the extension system's beneficiaries, which shortens distances and shortens time.

Communication Networks

The results of the manuscript showed that the arithmetic averages for the 16. Paragraphs of the communication networks axis and the swallows ranged between 1.89-4.26 degrees, with an overall average of 2.58 degrees, with a standard deviation ranging between 0.82-1.25 degrees, and a total deviation of 1.25 degrees, Table 13.

Table13. Distribution of respondents according to their agreement with the communication networks paragraphs

Order import-ance	Ranking question-naire	Paragraphs	Arithmetic average	standard deviation	Degree of use
1	12	Communication networks increase the speed of access to guidance information	4.26	0.82	High
2	1	The extension organization considers the Internet an imperative necessity for carrying out its extension activities	4.19	0.90	High
3	9	The Internet contributes to delivering important extension decisions and instructions to all agricultural extension workers in extension units and centers in a timely manner.	3.12	1.32	Medium
4	8	The extension organization considers social networking sites an important and imperative means of	2.91	1.41	Medium

		communication to perform its extension work and disseminate all new agricultural information and ideas.			
5	4	The Internet reduces the cost of dealing with entities related to extension work	2.82	1.41	Medium
6	16	The organization uses its website to introduce the guidance service it provides to targets	2.72	1.39	Medium
7	11	The website and browsing through communication networks contribute to increasing the confidence of the targets in the guidance service provided to them	2.70	1.43	Medium
8	3	The multiplicity of communication networks increases the efficiency of agricultural extension work and the speed of providing extension service to the targets	2.30	1.30	Low
9	2	The Internet is used to exchange information between all administrative levels of the extension organization	2.21	1.22	Low
10	6	The extension organization uses e-mail as an easy means of communication to send extension messages and exchange them electronically with relevant parties	2.18	1.20	Low
11	7	The Internet is used to access the websites of the Ministry of Agriculture, agricultural directorates, and extension centers in the provinces	2.16	1.28	Low
12	13	The extension organization has many services dedicated to online conversations	2.07	1.27	Low
13	15	In its guidance work, the organization relies on multimedia technology to deliver guidance content effectively	2.02	1.29	Low
14	14	The Guidance Organization ensures that its regulations and laws are implemented via the Internet whenever the need arises	1.95	1.28	Low
15	10	The search engine is used to connect to the Internet through stored documents to view the world's experiences in the field of extension work	1.93	1.26	Low
16	5	The communication network and visits to Arab and foreign websites are used to familiarize the targets with everything new in agricultural extension work	1.89	1.25	Low
		Overall average	2.58	1.25	Medium

Table 13 indicates that the item "Communication networks increase the speed of access to indicative information" came in first place in terms of importance, with an arithmetic average of 4.26 degrees, and a standard deviation of 0.82 degrees. The reason for this is that there is difficulty in communications via communication networks due to their distance from the constellations. Installed by companies providing telephone communications services, in addition to the presence of problems with signal reception or its weakness in general, while the paragraph "Using the communication network and visiting Arab and foreign websites to familiarize the target with everything new in agricultural extension work" ranked last in terms of importance. with an arithmetic mean of 2.89 degrees, and a standard deviation of 1.25 degrees, the reason for this is the belief of some agricultural extension workers that the extension topics published on websites do not rely on reliable scientific sources. In addition, there are websites that may obscure extension information, making it difficult to obtain. Except in exchange for paying specific amounts of money.

Recommendations

1- The extension administration's interest in employing information and communications technology in agricultural extension work and including it within the annual plan prepared by the general authority for agricultural extension and Training.

2- Work to support workers in the extension system morally and materially and encourage them to apply information and communications technology in agricultural extension work.
3- Agricultural extension should take its role in preparing extension training programs that include courses and workshops on how to use and apply information and communications technology in agricultural extension work.
4- Providing the necessary financial allocations to secure the infrastructure of information and communication systems devices and equipment and their use in extension work.
5- The necessity of providing information and communication systems devices and equipment in sufficient numbers in line with the requirements of extension work.
6-Providing a comprehensive and wide-ranging Internet network for all geographical regions within the limits of the work of extension units and centers to ensure the implementation of extension activities and programmers.
7- It is necessary for the extension administration to pay attention to the extension organization's website and update it continuously to create interaction with the target audience to disseminate scientific agricultural and extension information and recommendations.

Conflict of interest

The authors declare no conflict of interest.

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