Practice of knowledge management processes in agricultural extension organization by agricultural workers in Salah al-Din Governorate

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Abstract

The study mainly aimed to identify the level of practicing knowledge management processes in the agricultural extension organization by agricultural workers in Salah al-Din Governorate through the studying knowledge management processes (the process of generating and diagnosing agricultural knowledge, the process of organizing and acquiring agricultural knowledge, the process of storing agricultural knowledge, the process of developing and sharing agricultural knowledge, and the process of applying agricultural knowledge). The study community included all employees of Salah al-Din Governorate who were officially registered in the governorate departments, and their number was (400) agricultural employees. A proportional random sample was drawn at a rate of (40%) of the total number of employees in the governorate, with a size of (160) respondents. A preliminary test of the data collection tool was conducted on a random sample of 20 respondents from the community outside the study sample. The Cronbach's alpha equation was used to find stability, and its value was (0.91). Field data were collected through personal interviews during October and November 2024. The scale consisted of (38) paragraphs measuring the level of knowledge management. Statistical methods and the (SPSS) program were used to analyze the data. The results showed that the level of practice of the researched extension workers in knowledge management and its importance was average and tended to decrease with a relative weight of 75%. This leads us to conclude that the level of practice of knowledge management operations by workers in agricultural departments in Salah al-Din Governorate is low. The research results recommend reconsidering the development of workers in those departments trying to acquire the necessary knowledge and providing the infrastructure to support agricultural knowledge management in agricultural extension.

Keywords: Extension organization practice, agricultural knowledge management processes, Salah al-Din Governorate.

Introduction

Agricultural extension is a continuous educational process carried out by professionals to help farmers in the countryside understand and apply modern agricultural techniques that are appropriate to their conditions and have a clear economic return and to transfer information and knowledge to them so that they may comprehend, learn and apply with understanding and persuasion, and continue to apply that knowledge [15]. The Food and Agriculture Organization of the United Nations [9] has tended to consider the concept of agricultural extension as the process that plays a decisive role in improving the ability of family farmers to obtain innovation, information, and appropriate advisory services to transform their agriculture and food systems to achieve the goals of sustainable development. This allows for the combination of the concept of agricultural extension with the concept of agricultural knowledge and the

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agricultural information system and works on managing knowledge specialists in management through modern methods to disseminate knowledge among workers in the extension apparatus, and then transfer it to beneficiaries. Therefore, knowledge management is based on the idea that the agricultural guide uses his knowledge and everything it includes to bring about change that leads to improving extension activities, which is reflected in the form of services provided to the rural community, and thus achieves the reflection of knowledge on technology and its applications [2]. This leads to achieving fruitful results, including increasing the effectiveness of agricultural decisions and improving performance, increasing productivity, and speeding up response to environmental variables surrounding the rural community. In addition, it provides an important indicator to contribute to removing restrictions and restructuring that helps develop agriculture [12]. [8] state that knowledge is a set of ideas, values, instructions, data, and information that are constantly growing, and it is also a set of facts that a person obtains through his previous experiences, especially the practical ones that accumulate with him. [5] state that management fields depend on knowledge because knowledge is the most important strategic source in building a competitive advantage that enhances the organization's competition. Knowledge is both power and wealth. It is the power that distinguishes the twenty-first century as the most important resource in the information revolution and the information age. Knowledge is more important than capital and labor and can be used to generate and develop new ideas at a lower cost or without additional cost. Knowledge management is the systematic and clear management of knowledge and its associated processes, especially its use, collection, organization, dissemination, use, and exploitation. It requires transforming personal knowledge into collaborative knowledge that can be shared throughout the organization [14]. [7] sees knowledge management as the processes that help organizations generate, select, organize, use, and disseminate knowledge, and finally transform the information and expertise that the organization possesses, which are necessary for various administrative activities, such as decision-making, problem-solving, learning, and strategic planning. Knowledge management is one of the most recent administrative topics that has influenced the literature in terms of quantity and quality, The past and current years have witnessed an increasing interest in it, especially from the side of business administration to adopt the concept of knowledge management, which [3] mentions as the efforts made by managers to obtain, organize, and build the organization's capital of information and knowledge resources, which is called (intellectual and knowledge capital) that the organization possesses. [4] As for the mention that knowledge management is the techniques, tools, and human resources used to collect, manage, disseminate, and invest knowledge within an institution. Knowledge management is the process of efficiently collecting and innovating knowledge, managing the knowledge base, and facilitating its sharing to apply it effectively in the organization [1]. It is also "the conscious, organized effort directed by an organization or institution to collect, classify, organize, and store all types of knowledge related to the activity of that organization and make it ready for circulation and sharing among individuals, departments,

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and units of the organization in a way that raises the level of decision-making efficiency and organizational performance [17]. Knowledge management is the organized collection of information from sources inside and outside the organization, analyzing and interpreting it, and deducing indicators of meanings used to direct and enrich operations in the organization and achieve improved performance and rise to higher levels of achievement, whether about the organization's achievements in previous periods or comparison to the achievements of competitors [11].Knowledge management is a tool for effective organizations to invest intellectual capital by making access to the knowledge generated by them for other people who need it an easy and possible process [6]. We can add to all of the above that knowledge management works to devote institutional knowledge, as knowledge management implements a strategy that makes it possible for each department in the organization to contribute to the production of knowledge according to what concerns it to be placed in one crucible and applied in all parts of the organization and return to its general benefit [10]. When this knowledge is formed, it must be circulated among workers and experts and used as a source of strategy to solve problems, exploit opportunities, and confront threats to maintain competitive advantage [13].Therefore, and through the above, knowledge management processes constitute the cornerstone of agricultural extension work and its performance as an organization, especially in work that requires management of agricultural information and data and a mechanism for moving it in the right direction by the organization's workers, because the extension organization, like any organization, is affected by the changes surrounding it locally and globally, and the necessity of keeping pace with the development taking place in the world through knowledge management by its workers at all levels, and in view of the clear failure and low level of management of extension work in all its joints by observing the production and productivity of agriculture in Salah al-Din Governorate, which deals with and is responsible for agricultural activities in it, so the research question comes: What is the level of practice of the agricultural extension organization for agricultural knowledge management processes from the point of view of agricultural workers in Salah al-Din Governorate?

Objectives

-1Identifying the level of practicing knowledge management processes in the agricultural extension organization by agricultural workers in Salah al-Din Governorate in general.

-2Identifying the level of practicing knowledge management processes in the agricultural extension organization by agricultural workers in Salah al-Din Governorate in each of the studied processes, which are (the process of generating and diagnosing agricultural knowledge, the process of organizing and acquiring agricultural knowledge, the process of storing agricultural knowledge, the process of developing and sharing agricultural knowledge, and the process of applying agricultural knowledge).knowledge.(

Research Methodology

The descriptive analytical approach and the quantitative interpretive method were used in a detailed and comprehensive description of the phenomena or topics being studied, and then they are presented in detail in the final report [16] & [18]. The number of employees

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employed in the agricultural departments in Salah al-Din Governorate is 400 employees. A proportional random sample was drawn at a rate of (40%), thus the total sample size for the study was (160) respondents. A questionnaire form was prepared in the field of agricultural knowledge management in a way that achieves the research objectives. It consisted of (38) paragraphs distributed over five processes. The first field included the process of generating and diagnosing agricultural knowledge with (8) paragraphs, the second field included the process of organizing and acquiring agricultural knowledge with (8) paragraphs, the third field included the process of storing agricultural knowledge with (6) paragraphs, the fourth field included the process of developing, sharing and distributing knowledge with (8) paragraphs, and the fifth field included the process of applying agricultural knowledge with (8) paragraphs. Thus, the scale scores ranged from (38-190) points, with a hypothetical mean of 133 degrees, to test the reliability, a pre-test was conducted for the questionnaire form of the employees surveyed in December on a sample of (20) employees from the study community outside the sample, and the value of the reliability coefficient for the fields of the questionnaire form was (0.91) degrees, using the Cronbach's alpha equation, in October and November of 2024. The data was analyzed using a five-point Likert scale consisting of five levels according to the degree of agreement, which are (completely agree, agree, somewhat agree, disagree, disagree at all) to measure agricultural knowledge management, as the following weights were given to it (5, 4, 3, 2, 1) respectively, with a hypothetical average of 3 degrees, and some statistical methods were used such as percentage, frequencies, weighted mean, and percentage weight in data analysis, in addition to using the SPSS program for statistical analysis.

Results

-1Identifying the level of practice of agricultural extension organization for agricultural knowledge management processes from the point of view of agricultural workers in Salah al-Din Governorate in general.

The research results showed that the weighted average scores for the respondents' practice of agricultural knowledge management processes ranged between (3.079-4.423) points, and the percentage weight scores ranged between (61.596% - 66.346%), with a general standard deviation of (25.96) points, according to the knowledge management level scale, the maximum score of which was 190 points, and the minimum score of which was 38 points, as shown in Table 1.

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Table 1. Ranking of agricultural knowledge management domains according to the level of practice by the respondents.

S	Agricultural knowledge management areas	Weighted Average	Percentage Weight	Rank
1	The process of generating and characterizing agricultural knowledge	3.215	64.296	2
2	organizing and acquiring agricultural knowledge	4.423	66.346	1
3	Agricultural knowledge storage process	3.188	63.753	4
4	The process of Agricultural knowledge development and sharing	3.208	64.145	3
5	The process of Agricultural knowledge application	3.079	61.596	5
Total average rate		3.423	64.027	S.d=25.92

It is concluded from Table 1. that the level of practice of the agricultural extension organization for agricultural knowledge management processes from the point of view of agricultural workers in Salah al-Din Governorate is average and tends to decline, for several reasons, including the process of applying agricultural knowledge, which came with a general weighted average of (3.079) degrees, and a percentage weight of (61.596%), and was in the fifth and final field. This shows a great weakness for workers in agricultural departments in applying knowledge management in their work. Another reason is the process of storing agricultural knowledge, which came in terms of importance in the fourth field, with a weighted average of (3.188) degrees, and a percentage weight of (63.753%). This shows a decline in the practice of storing knowledge by workers in agricultural departments and the lack of the necessary databases for storing, documenting, and updating agricultural knowledge.

-2Identifying the level of practice of agricultural extension organization by agricultural workers in Salah al-Din Governorate in each of the studied knowledge management processes as follows:

-1The process of generating and diagnosing agricultural knowledge:

The results of the study showed that the scores of the respondents in the weighted mean ranged from (2.96 - 3.46) degrees, with an average weighted mean of (3.22) degrees, and with percentage weights ranging from (59.25 - 69.13%) and a percentage weight of (64.30%), and it was found that the average weighted means exceeded the hypothetical mean of the study scale of (3) degrees, as shown in Table 2 .

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Table 2. The weighted mean of practicing agricultural knowledge management by the respondents in the process of generating and diagnosing knowledge.

S	Paragraphs	1	2	3	4	5	weighted mean	Weight Percentage	Rank
1	The administration is keen to provide its employees with knowledge that enables them to continuously develop their performance.	25	27	35	49	24	3.13	62.60	5
2	The employee relies on creating his knowledge by creating a culture of constant change.	9	13	54	63	21	3.46	69.25	1
3	The administration provides the opportunity to benefit from the Internet as a source of information to generate knowledge.	21	26	44	33	36	3.23	64.63	4
4	The administration has programs and systems that help it diagnose new knowledge.	7	21	66	52	14	3.28	65.63	3
5	The administration allows the employee to complete the study to expand his knowledge.	10	16	53	53	28	3.46	69.13	2
6	The administration encourages the employees to innovate knowledge through the incentives and rewards system.	20	29	45	52	14	3.07	61.38	7
7	The administration diagnoses the knowledge needs of its employees related to agricultural activities.	13	26	56	58	7	3.13	62.50	6
8	The administration has modern laboratories and workshops equipped to generate knowledge for its employees.	26	25	47	53	9	2.96	59.25	8

It is concluded from Table 2 that the level of knowledge management practice in the agricultural extension organization through the process of generating and diagnosing agricultural knowledge was found to be average and tending to decline, and this may be due to several reasons. Among these reasons, as stated in the eighth paragraph, in the last order in terms of importance, it obtained a weighted average of (2.96) degrees, and a percentage weight of (59.25%), which is weak (the administration has modern laboratories and workshops equipped to

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generate knowledge for its employees), and the sixth paragraph also came in the penultimate place in terms of importance in the seventh rank, as it obtained a weighted average of (3.07) degrees, and a percentage weight of (61.38%), which is weak. The administration encourages the employee to innovate knowledge through the incentives and rewards system, and this may be due to the weakness of government support for workers in agricultural extension, in addition to the weakness of the administration in diagnosing the knowledge needs of its employees related to agricultural activities, and this paragraph came in the sixth rank in terms of order.

-2The process of organizing and acquiring agricultural knowledge:

The results of the study showed that the respondents' scores in the weighted mean ranged from (3.18 - 3.47) degrees, with an average weighted mean of (4.423) degrees, with percentage weights ranging from (63.50 - 69.38%), and a percentage weight of (66.35%), and it was found that the average weighted means exceeded the hypothetical mean of the study scale of (3) degrees. As shown in Table 3 .

Table 3. The weighted mean of practicing knowledge management by the respondents in the process of organizing and acquiring knowledge

S	Paragraphs	1	2	3	4	5	weighted mean	Weight Percentage	Rank
1	Organizing knowledge is one of the basics that motivate the enrichment of the ideas of its employees.	22	16	49	58	15	3.18	63.50	8
2	Organizing knowledge contributes to developing newly generated knowledge among agricultural extension workers.	8	13	63	48	28	3.47	69.38	1
3	The administration attaches great importance to knowledge organization by educating its employees.	11	17	49	69	13	3.33	66.63	4
4	The administration continuously investigates modern knowledge and organizes it logically to benefit from it.	9	21	47	64	19	3.39	67.88	3
5	The administration contacts various research centers to acquire new knowledge.	17	28	47	42	26	3.20	64.00	7
6	The administration is keen to encourage employees who enrich their knowledge with tangible additions.	11	28	44	56	21	3.30	66.00	5
7	The administration focuses on acquiring knowledge for its	13	24	55	44	24	3.26	65.25	6

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	employees to enhance cases of creativity and innovation.								
8	The administration is interested in developing the capabilities of employees in knowledge acquisition skills through workshops and seminars.	19	13	44	52	32	3.41	68.13	2

It is concluded from Table 3. that the level of knowledge management practice in the agricultural extension organization through the process of organizing and acquiring agricultural knowledge was found to be average and tending to weakness, and this may be due to several reasons. Among these reasons is the lack of organizing knowledge and considering it as one of the basics that motivate the enrichment of the ideas of those working in it. It came in eighth place in terms of the level of importance for the respondents, as it obtained a weighted average of (3.18) degrees and a percentage weight of (63.50%). Also, the fifth paragraph came in the penultimate place in knowledge management, which is the administration's failure to contact various research centers to acquire new knowledge. It obtained a weighted average of (3.18) degrees and a percentage weight of (63.50%). This shows the weakness of the agricultural departments' interest in contacting research centers and activating the role of coordination and interaction to gain knowledge in their field of work.

-3The process of storing agricultural knowledge:

The results of the study showed that the scores of the respondents in the weighted mean ranged from (3.03 - 3.32) degrees, with a weighted mean average of (3.19) degrees, and with percentage weights ranging from (66.38 - 60.50%), and with a percentage weight of (63.75%), and it was found that the weighted mean average exceeds the hypothetical mean of the study scale of (3) degrees, as shown in Table 4.

Table 4. The weighted mean for practicing knowledge management by the respondents in the knowledge storage process.

S	Paragraphs	1	2	3	4	5	weighted mean	Weight Percentage	Rank
1	The administration provides the necessary databases to store and document agricultural knowledge.	25	24	46	52	13	3.03	60.50	6
2	The administration is interested in documenting the lessons learned from previous successes or failures.	16	30	52	51	11	3.07	61.38	5
3	The administration works to update the stored data and information continuously.	6	19	55	61	15	3.30	66.00	2
4	The administration uses electronic means and tools to store knowledge to facilitate	12	32	37	51	28	3.32	66.38	1

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	access to it.								
5	The research and studies presented at scientific conferences and seminars are stored documented and used in extension activities.	14	30	45	47	24	3.23	64.63	3
6	The employees have sufficient experience that enables them to organize, store, and retrieve knowledge.	24	8	60	51	17	3.18	63.63	4

It can be concluded from Table 4. that the level of knowledge management practice in the agricultural extension organization through the process of storing agricultural knowledge was found to be average and tending to decline, and this may be due to several reasons. Among these reasons is the lack of the necessary databases for storing and documenting agricultural knowledge. It came in sixth place in terms of the level of importance for the respondents, as it obtained a weighted average of (3.03) degrees and a percentage weight of (60.50%). This may be due to the extension agency not giving sufficient attention to knowledge management through documenting agricultural knowledge and benefiting from it in agricultural extension, while the other paragraphs came in sequence according to the level of importance until the paragraph (the administration uses electronic means and tools to store knowledge to facilitate access to it), which came in first place in terms of the level of importance for the respondents, as it obtained a weighted average of (3.32) degrees and percentage weight of (66.38%.(

-4The process of developing and sharing agricultural knowledge:

The results of the study showed that the scores of the respondents in the weighted mean ranged from (60.88 - 67.13) degrees, with a weighted mean rate of (3.21) degrees, and with percentage weights ranging from (60.88 - 67.13%) and a percentage weight of (64.15%), and it was found that the weighted mean rate exceeds the hypothetical mean of the study scale of (3) degrees, as shown in Table 5.

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Table 5. The weighted mean for practicing knowledge management by the respondents in the process of developing and sharing knowledge.

S	Paragraphs	1	2	3	4	5	weighted mean	Weight Percentage	Rank
1	The administration relies on developing the knowledge of its employees through meetings between experts and specialists.	25	23	48	48	16	3.04	60.88	8
2	The administration works in a team style to achieve the development of experience and knowledge among its employees.	4	50	40	51	15	3.14	62.88	7
3	The administration provides modern technologies to facilitate the process of developing knowledge for employees through its knowledge inventory.	18	20	46	62	14	3.21	64.25	4
4	Employees have the skills that enable them to identify the knowledge they need and share it with others.	5	31	43	64	17	3.38	67.13	1
5	The administration relies on publications and reports to distribute knowledge among its employees.	19	17	51	52	21	3.24	64.88	3
6	Information and knowledge are easily shared in the administration at all levels.	10	35	49	48	18	3.18	63.63	6
7	The administration issues scientific publications about the work through which knowledge is disseminated among its employees.	16	28	43	55	18	3.19	63.88	5
8	Older employees accept sharing knowledge and do not monopolize it as a source of strength for them in advisory work.	4	37	49	50	20	3.28	65.63	2

It is concluded from Table 5. that the level of practicing knowledge management in the agricultural extension organization through the process of developing and sharing agricultural knowledge was found to be average and tending to decline, and this may be due to several reasons. Among these reasons, it is clear that the administration does not rely on developing knowledge among its employees through meetings between experts and specialists, and it came in eighth place in

terms of the level of importance for the respondents, as it obtained a weighted average of (3.04) degrees and a percentage weight of (60.88%), reaching the paragraph (employees have the skills that enable them to identify the knowledge they need and share it with others), which came in first place in terms of the level of importance for the respondents, as it obtained a weighted average of (3.38) degrees, and a percentage weight of (67.13%.(

-5The process of applying agricultural knowledge:

The results of the study showed that the scores of the respondents in the weighted mean ranged from (2.64 - 66.63) degrees, with a weighted mean average of (3.079) degrees, and with percentage weights ranging from (52.88 - 66.63%) and a percentage weight of (61.60%), and it was found that the weighted mean average exceeds the hypothetical mean of the study scale of (3) degrees, as shown in Table 6.

Table 6. The weighted mean for practicing knowledge management by the respondents in the knowledge application process.

S	Paragraphs	1	2	3	4	5	weighted mean	Weight Percentage	Rank
1	Management has means and methods that help in applying knowledge.	33	13	57	42	5	2.64	52.88	8
2	Employees face difficulty in applying new knowledge due to fear of making mistakes in extension work.	8	41	68	32	11	2.98	59.63	6
3	Management gives its employees the freedom and sufficient authority to apply their new knowledge in extension work.	9	45	56	43	7	2.96	59.25	7
4	Management supports the processes of integrating knowledge into all its extension activities.	1	32	60	47	20	3.33	66.63	1
5	The agricultural organization monitors the level of application of individuals to the new knowledge they have learned.	8	25	61	44	22	3.29	65.88	2
6	The management works to transform the knowledge it possesses into action plans.	10	36	58	40	16	3.10	62.00	5
7	The agricultural organization relies on the extension and advice of senior management in applying knowledge.	11	31	48	57	13	3.19	63.75	3
8	The management devotes knowledge management processes largely to improving information services.	15	34	48	40	23	3.14	62.75	4

It is concluded from Table 6. that the level of knowledge management practice in the agricultural extension organization through the process of applying agricultural knowledge was found to be average and tending to decline, and this may be due to several reasons. One of these reasons is that the administration does not have the means and methods that help in applying knowledge. It came in last place in terms of the level of importance for the respondents, as it obtained a weighted average of (3.33) degrees and a

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percentage weight of (66.63%). This is considered one of the problems suffered by workers in agricultural administrations who do not have the components that help them in spreading and adopting agricultural knowledge, and it has become necessary to provide means for applying knowledge, while the other paragraphs came in sequence according to importance for the respondents until the paragraph (the administration supports the processes of integrating knowledge into all its extension activities) which came in first place in terms of the level of importance for the respondents, as it obtained a weighted average of (3.33) degrees and a percentage weight of (66.63%.(

Conclusions

The level of practice of the researched extension workers in the concept of knowledge management and its importance was average and tended to decrease with a percentage weight of 75%, and this leads us to conclude that the low level of practice of knowledge management processes by workers in agricultural departments in Salah al-Din Governorate requires a review of the development of workers in those departments and an attempt to acquire the necessary knowledge in this field.

The level of practice of each process of agricultural knowledge management by the researched was the level of practice of generating and diagnosing agricultural knowledge was average with a percentage weight of 64.296%, and the level of practice of organizing and acquiring agricultural knowledge was average with a percentage weight of 66.346%, and the level of practice of storing agricultural knowledge was average with a percentage weight of 63.753%, and the level of the process of developing and sharing agricultural knowledge was average with a percentage weight of 64.145%, and the level of practice of the process of applying agricultural knowledge was average with a percentage weight of 61.596%, from which it is concluded that there is a clear decrease in all knowledge management practices by workers in the departments of Salah al-Din Governorate.

Recommendations

Providing the infrastructure to support agricultural knowledge management in agricultural extension.

The necessity of providing the necessary information technology to manage agricultural knowledge and training extension workers on it so that they can benefit from it in carrying out agricultural knowledge management operations in performing their extension tasks and paying attention to adopting strategies that support agricultural knowledge management within agricultural extension.

The necessity of providing material and moral incentives for extension workers to encourage them to participate with their knowledge.

Supporting and providing administrative requirements, as knowledge management requires a non-traditional style of leadership to focus on the importance of communicating with others.

The necessity of establishing a unit in the extension organization that supervises agricultural knowledge management and gives workers the freedom to use and apply the knowledge they have in a way that achieves workers' awareness of the importance of the information they possess.

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