

Practicing Knowledge Management in Making Extension Decisions in the Field of Agricultural Sustainability/Iraq

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ABSTRACT

The research aimed to identify the practice of knowledge management in making advisory decisions in the field of agricultural sustainability/Iraq. The questionnaire was prepared as a tool to collect data from decision makers in agricultural extension. It included (34) paragraphs distributed over five axes, with (7) paragraphs for each axis of diagnosing and planning knowledge to make advisory decisions in the field of agricultural sustainability, (7) paragraphs for each axis of generating and acquiring knowledge to make advisory decisions in the field of agricultural sustainability, (6) paragraphs for each axis of transfer and share knowledge to make advisory decisions in the field of agricultural sustainability, (7) paragraphs for the axis of organizing and storing knowledge to make advisory decisions in the field of agricultural sustainability, (7) paragraphs for the axis of applying knowledge to make advisory decisions in the field of agricultural sustainability. The research area included the governorates of Iraq, except for the governorates of the Kurdistan Region, which number (15) governorates. A random sample was selected at a rate of (50) % of the governorates, which are (Baghdad, Basra, Dhi Qar, Najaf, Babylon, Karbala, Anbar, Kirkuk). The research community also included the upper and middle extension departments, which numbered (326) respondents. A proportional stratified random sample was selected at a rate of (54%) of the research community, with (176) respondents. The research results concluded that the arithmetic average of the extension departments' practice of knowledge management in making extension decisions in the field of agricultural sustainability was high, amounting to (4.18) degrees, and a standard deviation of (0.68) degrees.

Key words: agricultural extension, agricultural sustainability, knowledge management processes,



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INTRODUCTION

The world today, including Iraq, is witnessing rapid changes in all sectors, including the agricultural sector, which is exposed to increasing challenges such as climate change, deterioration of natural resources, and economic and social pressures, which requires agricultural organizations, including the extension organization, to use a management pattern that focuses on using knowledge and creating new knowledge to employ it in creating policies, methods and outputs that achieve the goals of sustainable agricultural development (Al-Rashid, 2020), exploiting all agricultural resources optimally to increase agricultural production in terms of quantity and quality, reaching food security (Rai, et.al., 2023) and self-sufficiency, while ensuring the

preservation of these resources in a sustainable manner for current and future generations with the same quantity and quality (Danso-Abbeam, et.al., 2018). Knowledge management is one of the vital foundations that enhance agricultural sustainability, as it is the only resource through which the extension organization can achieve distinguished performance to achieve sustainable agriculture (Al-Saed, et.al., 2004), through the use of extensive information and knowledge and advanced changes that preserve agricultural resources and their availability (Al-Janabi & Al-Kelaby, 2020). Especially after realizing the importance of knowledge as one of the important assets in achieving the organization's guiding goals and its role in the major shift towards the knowledge economy

that focuses on investing in intangible intellectual and cognitive assets more than focusing on tangible material assets (Petrovic, 2012), this role has become more important with the prevalence of the concept of the knowledge age, one of the requirements of which is that organizations should not be satisfied with providing information, but rather should think about information (Bunkar, et.al., 2024). Through the above... the importance of knowledge management has become clear among the most important approaches and factors that are relied upon in formulating and making decisions. Naturally, it is of great importance to decision-makers as a tool for correcting decisions, monitoring change and development processes, and making a difference for agricultural systems (Rahmoun & Mazahdia, 2020), It enhances advisory decisions in the field of agricultural sustainability by generating, distributing, and applying knowledge to help decision-makers reach rational decisions that encourage creativity and innovation and increase competitiveness (Belhaj, 2020) to improve its performance and effectiveness and achieve its advisory goals (Jassim & Suleiman, 2017) and motivate it to renew itself to confront unstable environmental changes (Ahmed, 2016), by using available resources in an efficient and effective manner, and thus it helps to increase productivity and production and improve its quality (Danso-Abbeam, et.al., 2018) and thus it is considered a distinctive feature and a key indicator of the progress and success of the extension organization, so that It contributes to achieving its goals of serving and developing the rural community, by making important decisions to determine the directions of extension activities (Ateeg, 2023:278), Due to the importance of the roles played by managers, including agricultural extension managers, in achieving the goals of the extension organization (Norton & Alwang, 2020). Extension decisions based on knowledge management are necessary to encourage sustainable agricultural practices by using knowledge management tools to exchange information about sustainable agricultural techniques and the use of modern technology such as artificial intelligence,

geographic information systems, etc., (Maryam & Fayyadh, 2024). Which all provide effective tools for analyzing agricultural information and guiding decision-making related to sustainability more accurately (Guvén, et.al, 2021). This knowledge must be directed and used in extension activities in a way that supports its success and excellence, by facilitating the process of its access to decision-makers as it is the most important resource that the organization possesses (Hussein, 2016). Accordingly... knowledge management helps improve the effectiveness of decisions by enhancing the ability of decision-makers to improve their role (Saeed & Khalil, 2023) in identifying and confronting problems, especially environmental ones, to find appropriate solutions for them (Al-Hassania, et al., 2014), through which future changes can be predicted to make quick decisions and procedures to adapt to these changes to achieve agricultural sustainability (Al-Hassania, et.al., 2014). Accordingly. This is what a study indicates (Al-Sabbagh, 2002) knowledge management is one of the basic factors that contribute to enhancing the efficiency of the performance of the extension organization in the field of agricultural sustainability, as it plays a pivotal role in supporting the process of making extension decisions. However, most organizations, including the extension organization, focus on their material and tangible resources and leave their knowledge resources without management despite their importance. In addition to (Salman, 2019) that knowledge management is an important and necessary tool for practicing various administrative activities in business organizations, not only in solving problems, learning and planning, but also in the organization's reports by making the optimal decision. Therefore, the current research came to answer the following questions:

What is the practice of knowledge management in making extension decisions in the field of agricultural sustainability?

To identify the practice of knowledge management in making extension decisions in

the field of agricultural sustainability, which includes five axes:

1. Diagnosis and planning of knowledge to make extension decisions in the field of agricultural sustainability
2. Generating and acquiring knowledge to make extension decisions in the field of agricultural sustainability
3. Transferring and sharing knowledge to make extension decisions in the field of agricultural sustainability
4. Storing and retrieving knowledge to make extension decisions in the field of agricultural sustainability
5. Applying knowledge to make extension decisions in the field of agricultural sustainability.

MATERIALS AND METHODS

I use the descriptive approach in light of the nature of the problem and objectives of the

current research to obtain data and real facts to solve problems and understand the practice of knowledge management in making extension decisions in the field of agricultural sustainability, considering that the methods and techniques provided by this approach are more appropriate and consistent with the nature of the current research.

Research community: The research community included all Iraqi governorates except for the governorates of the Kurdistan Region, which number 15 governorates. A random sample of 50% was chosen from the total governorates included in the research community, so that the number of governorates included in the research became (8) governorates, which are (Baghdad, Kirkuk, Salah al-Din, Babylon, Najaf, Karbala, Dhi Qar, Basra). With 8 provinces, as shown in the following Table (1):

Table 1. Spatial sample

Geographical area	provinces Number	%50	Sample provinces
Northern Region	3	2	Kirkuk, Salah al-Din
Central Region	8	4	Baghdad, Babylon, Najaf, Karbala
Southern Region	4	2	Muthanna, Dhi Qar

A proportional stratified random sample of 54% was drawn from the numbers of upper and middle extension departments Affiliated to the Ministry of Agriculture with in the Agricultural Extension and Training Department, and the extension centers and farms affiliated with it and the extension

departments and agricultural divisions affiliated with the Directorates of Agriculture within the governorates included in the research sample, which numbered 326 respondents, with 176 respondents according to the equation (Thompson, 2012). As shown in the following Table (2):

Table 2. Distribution of the sample of respondents

The province	Directorate of Agricultural Extension and Training						Directorates of Agriculture									
	General Manager	Deputy Director	General assistants	their department heads and technical	54% of the people's officials	54% of the people's officials	54% of extension center managers and their assistants	54% of people's officials in extension centers	54% of people's officials in extension centers	54% of extension farm managers	54% of extension farm managers	Directorates of Agriculture	Directorates of Agriculture	Directorates of Agriculture	Directorates of Agriculture	Directorates of Agriculture
Baghdad	1	1	25	14	88	48	2	1	2	1	2	1	2	1	18	10
Salah al-ddin							2	1	2	1	2	1	2	1	30	16
Kirkuk							2	1	2	1	4	2	2	1	18	10
Babylon							2	1	2	1	7	4	2	1	17	9
Karbala							2	1	2	1	7	4	2	1	9	5
Al-Najaf							2	1	2	1	4	2	2	1	10	5
Al-Muthna							2	1	2	1	5	3	2	1	9	5
Dhi Qar							2	1	2	1	4	2	2	1	17	9
the total	1	1	25	14	88	48	16	8	16	8	35	19	16	8	128	69
Final total				326									176			

Data was collected using a questionnaire, which is one of the most common scientific research tools to achieve the research

objectives, for the period between 7/15/2024 - 8/15/2024, which includes a set of questions that the respondents are required to answer,

numbering 176 respondents. The data related to the practice of knowledge management in making advisory decisions in the field of agricultural sustainability were tabulated and analyzed, including 34 paragraphs, distributed over six axes, with (7) paragraphs for the axis of diagnosing and planning knowledge to make advisory decisions in the field of agricultural sustainability, (7) paragraphs for the axis of generating and acquiring knowledge to make advisory decisions in the field of agricultural sustainability, (6) paragraphs for the axis of transferring and sharing knowledge to make advisory decisions in the field of agricultural sustainability, (7) paragraphs for the axis of organizing and storing knowledge to make advisory decisions in the field of agricultural sustainability, (7) paragraphs for the axis of applying knowledge to make advisory decisions in the field of agricultural sustainability. A five-point scale was designed, represented by (completely agree, agree, neutral, disagree, completely disagree), and accordingly, the weights 1, 2, 3, 4, 5 were assigned to it, respectively, and

average were used. Arithmetic and standard deviation.

RESULTS AND DISCUSSION

The research results will be discussed as follows:

Objective 1: Practicing knowledge management in making advisory decisions in the field of agricultural sustainability: paragraphs of the axes of practicing knowledge management in making extension decisions will be discussed, according to their arithmetic averages and standard deviations as follows:

1-1: Diagnosis and planning of knowledge for making advisory decisions in the field of agricultural sustainability The results of the research revealed that the respondents' answers to the paragraphs of diagnosing and planning knowledge for making extension decisions in the field of agricultural sustainability, which numbered (7) paragraphs, obtained a total arithmetic average of (4.23) degrees, which is higher than the hypothetical average of (3), and with a standard deviation of (0.68) degrees, as shown in the following Table (3):

Table 3. Distribution of respondents' opinions on items for diagnosing and planning knowledge for making extension decisions in the field of agricultural sustainability, arranged in descending order according to their arithmetic means and standard deviations

Form sequence	Axes	Arithmetic mean	Standard deviation	Practice level	Sort by practice
1	The extension organization benefits from the expertise of organizations that possess agricultural knowledge to reach decisions that preserve the sustainability of agricultural resources.	4.33	0.57	High	1
7	The extension organization develops a strategic plan to support knowledge management to serve decision makers in obtaining information relevant to the sustainability of agricultural resources.	4.28	0.68	High	2
6	The extension organization is working on designing a map to identify locations for obtaining knowledge related to the sustainability of natural resources to reach effective decisions.	4.26	0.74	High	3
3	The extension organization diagnoses the cognitive skills possessed by extension units to invest in their decisions to achieve food security.	4.24	0.73	High	4.5
5	The extension organization encourages the scientific research method to transform latent knowledge into declared knowledge and benefit from it in decisions that maintain the sustainability of agricultural resources.	4.24	0.74	High	4.5
2	The extension organization identifies innovations that support the sustainability of agricultural resources to simplify procedures that facilitate the implementation of decisions in a timely manner.	4.16	0.63	High	6
4	The extension organization realizes the importance of having an untapped knowledge base that requires planning to reach decisions that preserve the sustainability of agricultural resources.	4.15	0.69	High	7
	Overall average (overall average)	4.23	0.68	High	

From the table above, it is clear that the averages of the respondents' answers to the paragraphs set for the axis of diagnosing and planning knowledge for making extension decisions in the field of agricultural sustainability were high, and what reinforces this is the value of the arithmetic averages that ranged between (4.15 - 4.33) degrees, and despite that, the paragraph "The extension organization benefits from the experiences of organizations that possess agricultural knowledge to reach decisions that maintain the sustainability of agricultural resources came ", ranked first in terms of the level of importance or the respondents' approval of it, as it obtained the highest averages of (4.33) degrees and a standard deviation of (0.57) degrees. The reason for this may be that the extension organization needs the expertise possessed by other organizations to increase the opportunities to benefit from it to expand its knowledge and integrate previous experiences and expertise, which contributes to reaching efficient decisions that allow them to access resources in a sustainable manner. Meanwhile, the paragraph "The extension organization realizes the importance of having an uninvested knowledge balance that requires

planning to reach decisions that preserve the sustainability of agricultural resources" came in last place in terms of the level of importance or the respondents' approval of it, with an arithmetic average of (4.15) degrees and a standard deviation of (0.69) degrees. The reason for this may be attributed to the fact that the extension organization is moving in a rational direction that achieves a balance in determining its priorities and in a way that ensures the efficient exploitation of resources and efforts related to uninvested knowledge and employing them correctly to prepare decision-makers to take measures aimed at directing agricultural systems in a sustainable manner.

1-2: Generating and acquiring knowledge to make extension decisions in the field of agricultural sustainability: The results of the research revealed that the respondents' answers to the paragraphs of generating and acquiring knowledge to make extension decisions in the field of agricultural sustainability, which numbered (7) paragraphs, obtained a total arithmetic mean of (4.18) degrees, which is higher than the hypothetical mean of (3), and with a standard deviation of (0.69) degrees, as shown in the following Table (4):

Table 4. Distribution of respondents' opinions on the items "generating and acquiring knowledge for making extension decisions in the field of agricultural sustainability," arranged in descending order according to their arithmetic means and standard deviations

Form sequence	Axes	Arithmetic mean	Standard deviation	Practice level	Sort by practice
1	The extension organization opens joint work channels with relevant sectors to support them with initiatives and projects and strengthen them with decisions through recommended practices.	4.30	0.62	High	1
7	The extension organization relies on the collective thinking method to solve the problems facing farmers in the field of maintaining agricultural sustainability.	4.19	0.68	High	2
3	The extension organization relies on a policy of cooperation and coordination between extension departments to support decision-makers to achieve sustainable agricultural development goals.	4.18	0.68	High	4
4	The extension organization relies on records and reports related to previous problems that stand in the way of reaching effective decisions for the sustainability of agricultural resources.	4.18	0.70	High	4
5	The extension organization supports knowledge from scientific experts and researchers to benefit from their knowledge expertise to make decisions to provide sustainable food products.	4.18	0.80	High	4
2	The extension organization sets objectives in light of the needs to generate and acquire knowledge to reach decisions that maintain the sustainability of agricultural resources.	4.14	0.63	High	7
6	The extension organization identifies mechanisms for collecting data to be used in arriving at decisions related to sustainable food production practices.	4.14	0.75	High	7
Overall average (overall average)		4.18	0.69	High	

From the table above, it is clear that the averages of the respondents' answers to the paragraphs on generating and acquiring knowledge to make extension decisions in the field of agricultural sustainability were high, and what reinforces this is the value of the arithmetic means that ranged between (4.14 - 4.30) degrees, and despite this, the paragraph "The extension organization opens joint work channels with relevant sectors to support them with initiatives and projects and strengthen them with decisions through recommended practices" came in first place in terms of the level of importance or the respondents' approval of it, as it obtained the highest averages of (4.30) degrees and with a deviation of the standard value of (0.62) degrees, and the reason for this may be that the agricultural extension organization needs to invest in effective mechanisms through communication channels to achieve common goals with relevant parties to exchange opinions and innovations and arrange their priorities to support decisions by establishing projects that reduce farmers' problems and achieve agricultural sustainability, while the paragraph "The extension organization determines goals in light of the needs to generate and acquire knowledge to reach decisions that maintain the sustainability of agricultural resources" and the paragraph "The extension organization identifies mechanisms

for collecting data to be used in arriving at decisions related to sustainable food production practices" came in last place in terms of the level of importance or the respondents' approval of it with an arithmetic mean of (4.14) degrees and a standard deviation of (0.75) degrees, and the reason for this may be attributed to the fact that the extension organization does not follow a clear approach to enhance the establishment of effective mechanisms for collecting data and accessing it quickly and transparently to serve the needs of the target groups to reach decisions and in a manner consistent with the extension work to achieve sustainable agricultural production, This is what was indicated by the study of (Xuan, et, al., 2023) using modern scientific methods and programs to manage knowledge in decision-making.

1-3 :Transfer and Sharing knowledge to make extension decisions in the field of agricultural sustainability: The research results revealed that the respondents' answers to the paragraphs of transfer and sharing knowledge to make extension decisions in the field of agricultural sustainability, which numbered (6) paragraphs, obtained a total arithmetic mean of (4.30) degrees, which is higher than the hypothetical mean of (3), and with a standard deviation of (0.66) degrees, as shown in the following Table (5):

Table 5. Distribution of respondents' opinions on the items of transferring and sharing knowledge for making extension decisions in the field of agricultural sustainability, arranged in descending order and according to their arithmetic means and standard deviations

Form sequence	Axes	Arithmetic mean	Standard deviation	Practice level	Sort by practice
1	The extension organization holds development and training workshops to exchange experiences and knowledge between extension units to reach alternatives to solve agricultural sustainability problems.	4.45	0.58	High	1
3	The Ministry of Agriculture provides the necessary data and information through its affiliated formations in the governorates to make the appropriate decision regarding the sustainability of agricultural resources.	4.32	0.64	High	2
4	The extension organization looks at world experiences to reach decisions related to the deployment of technological packages that maintain the productivity of agricultural resources.	4.29	0.72	High	3
5	The extension organization enhances the ease of knowledge flow for workers to be able to implement decisions to achieve a more sustainable agricultural product.	4.27	0.66	High	4
2	The extension organization partners with relevant authorities to create an electronic platform to choose solutions for agricultural practices and technologies that suit local practices.	4.26	0.68	High	5
6	The extension organization holds flexible structured meetings to develop an integrated methodology to reach decisions related to sustainable production.	4.25	0.68	High	6
Overall average (overall average)		4.30	0.66	High	

From the table above, it is clear that the averages of the respondents' answers to the

paragraphs set for the axis of transfer and sharing knowledge to make extension

decisions in the field of agricultural sustainability were high, and what reinforces this is the value of the arithmetic means that ranged between (4.25 -4.45) degrees, and despite that, the paragraph "The extension organization holds development and training workshops to exchange experiences and knowledge between extension units to reach alternatives to solve agricultural sustainability problems " came in first place in terms of the level of importance or the respondents' approval of it, as it obtained the highest averages of (4.45) degrees and with a standard deviation of (0.58) degrees, and the reason for this may be due to the need of the agricultural extension organization to prepare and present training programs that include innovative and flexible methodologies to exchange new knowledge and information between extension units to reach alternatives that are compatible with the needs of the real problems of the targeted groups to achieve agricultural sustainability, This is what was stated in the study of (Willson, 2021) the importance of knowledge management in the financial decision-making process, as there is a significant impact of the knowledge sharing dimension on the decision-making process, as sound knowledge sharing leads to adequate information on available alternatives reaching

the guidance departments. while the paragraph "The extension organization holds flexible structured meetings to develop an integrated methodology to reach decisions related to sustainable production" came in last place in terms of the level of importance or the approval of the respondents with an arithmetic mean of (4.25) degrees and a standard deviation of (0.68) degrees, and the reason for this may be attributed to the interest of the extension organization in holding meetings to reach realistic solutions to adapt to changing conditions and farmers' requirements to increase the value of extension decisions that would address the priority problems facing sustainable agricultural production, which reflects the ability of the extension body to use a comprehensive and effective methodology in managing these challenges .

1-4 :Storing and retrieving knowledge for making extension decisions in the field of agricultural sustainability: The research results revealed that the respondents' answers to the paragraphs of storing and retrieving knowledge for making extension decisions in the field of agricultural sustainability, which numbered (7) paragraphs, obtained a total arithmetic mean of (4.11) degrees, which is higher than the hypothetical mean of (3), and with a standard deviation of (0.68) degrees, as shown in the following Table:(6)

Table 6. Distribution of respondents' opinions on the items of storing and retrieving knowledge for making extension decisions in the field of agricultural sustainability, arranged in descending order according to their arithmetic means and standard deviations

Form sequence	Axes	Arithmetic mean	Standard deviation	Practice level	Sort by practice
4	The extension organization updates the stored knowledge and adjusts it according to the variables of the internal and external environment to reach effective decisions in achieving sustainable development.	4.16	0.68	High	1
3	The extension organization documents previous achievements, experiences, and committee recommendations to provide as much information as possible for decision-makers to apply sustainable agricultural practices.	4.14	0.69	High	2
2	The extension organization follows modern (electronic) methods to store knowledge about agricultural sustainability in order to arrive at decisions to immediately address agricultural sustainability problems.	4.13	0.69	High	3
7	The administrative units of the extension organization are interested in developing an agricultural information system that will benefit from storing knowledge to support decision makers in achieving sustainable growth in agricultural productivity.	4.12	0.66	High	4
5	The extension organization sets clear instructions for retrieving stored knowledge that facilitates reaching decisions to follow modern irrigation methods.	4.11	0.70	High	5
1	The extension organization relies on the apparent and latent knowledge of workers to reach correct decisions related to the sustainability of agricultural resources.	4.08	0.65	High	6
6	The extension organization takes legal and technological measures that contribute to reaching decisions to protect agricultural knowledge from inappropriate use.	4.03	0.75	High	7
Overall average (overall average)		4.11	0.68	High	

From the table, it is clear that the averages of the respondents' answers to the paragraphs set for the axis of storing and retrieving knowledge for making extension decisions in the field of agricultural sustainability were high, and what reinforces this is the value of the arithmetic means that ranged between (4.03 - 4.16) degrees, and despite that, the paragraph "The extension organization updates the stored knowledge and adjusts it according to the variables of the internal and external environment to reach effective decisions in achieving sustainable development" came in first place in terms of the level of importance or the respondents' approval of it, as it obtained the highest averages of (4.16) degrees and with a standard deviation of (0.68) degrees, and the reason for this may be due to the need of the guidance organization to update previous information and experiences to identify strengths and weaknesses, current and anticipated environmental opportunities and threats, and to provide regular and updated reports to decision-makers that suit the needs of the target groups and that have an impact on the organization's goals and general performance. In light of this, the guidance organization prepares new information in light of innovations and developments and reaches decisions that suit the needs of the target groups and achieve progress in guidance work, This is what was indicated by the study of (Daoudi & Ben Khalifa Ahmed 2013) which valued her knowledge represented in her knowledge and experiences, so knowledge

became a means of renewal and change. while the paragraph "The extension organization takes legal and technological measures that contribute to reaching decisions to protect agricultural knowledge from inappropriate use" came in last place in terms of the level of importance or the respondents' approval of it, with an arithmetic mean of (4.03) degrees and a standard deviation of (0.75) degrees. The reason for this may be attributed to the fact that the extension organization needs to reach well-thought-out decisions that enhance the protection system to secure possible resources for sustainable production processes, and to make agricultural knowledge protected from inappropriate use, which contributes to developing sustainable agricultural practices that serve the target groups in light of local problems, This is what was indicated by the study of (Keeley, 2004) Which provided a strong infrastructure of systems and devices that support knowledge, whether through electronic means or actual participation.

1-5 :Applying knowledge to make extension decisions in the field of agricultural sustainability: The research results revealed that the respondents' answers to the paragraphs of applying knowledge to make extension decisions in the field of agricultural sustainability, which numbered (7) paragraphs, obtained a total arithmetic mean of (4.11) degrees, which is higher than the hypothetical mean of (3), and with a standard deviation of (0.68) degrees, as shown in the following Table :(7)

Table 7. Distribution of respondents' opinions on the paragraphs of applying knowledge to make extension decisions in the field of agricultural sustainability, arranged in descending order according to their arithmetic means and standard deviations

Form sequence	Axes	Arithmetic mean	Standard deviation	Practice level	Sort by practice
4	The extension organization coordinates and integrates the various departments to apply new knowledge that facilitates reaching decisions that enhance sustainable food production practices.	4.17	0.70	High	1
2	The extension of organization benefits from scientific competencies to enhance the application of knowledge management to address the problems facing research results in agricultural fields to maintain the sustainability of natural resources.	4.14	0.67	High	2
7	The extension organization relies on knowledge based on digital and technological transformation in decisions to implement agricultural innovations that mitigate climate change.	4.12	0.70	High	3
5	The extension organization works to transform knowledge into action plans and projects that contribute to the implementation of decisions that meet the need of small producers to implement sustainable food systems.	4.11	0.64	High	4.5
6	The extension organization contributes by applying information in databases and using it to develop an appropriate number of alternatives for managing and sustaining natural resources.	4.11	0.68	High	4.5
1	The extension organization applies knowledge management in its work by allowing workers and beneficiaries to decide to innovate and apply new knowledge for sustainable agricultural development.	4.09	0.68	High	6
3	The extension organization prepares initiatives and programs related to the application of knowledge with the aim of accelerating decision-making and benefiting from it in the field of achieving more sustainable agricultural products.	4.07	0.71	High	7
	Overall average (overall average)	4.11	0.68	High	

From the table above, it is clear that the averages of the respondents' answers to the paragraphs set for the axis of applying knowledge to make extension decisions in the field of agricultural sustainability were high, and what reinforces this is the value of the arithmetic means that ranged between (4.07 - 4.17) degrees, and despite that, the paragraph "The extension organization coordinates and integrates the various departments to apply new knowledge that facilitates reaching decisions that enhance sustainable food production practices " came in first place in terms of the level of importance or the respondents' approval of it, as it obtained the

highest averages of (4.17) degrees and a standard deviation of (0.70) degrees, and this may be due to the awareness of the extension units to facilitate the connection and interaction and create common denominators to face challenges and prevent conflicting goals to achieve positive results in determining the best practices, which leads to reaching well-studied decisions that are appropriate to the requirements of local communities to keep pace with the transition to sustainable agricultural systems, This is what was indicated by the study of (Petrovic. 2012) To the importance of developing and activating effective knowledge systems in institutions

because of their great role and impact on the survival of these institutions and creating competitive advantages that enable them to grow and because of their great impact in strengthening the means of making sound decisions in general .while the paragraph came “The extension organization prepares initiatives and programs related to the application of knowledge with the aim of accelerating decision-making and benefiting from it in the field of achieving more sustainable agricultural products” ” came in last place in terms of the level of importance or the respondents’ approval of it, with an arithmetic mean of (4.07) degrees and a standard deviation of (0.71) degrees. The reason for this may be attributed to the necessity of advisory organization adopting initiatives, innovations and supportive programs to maximize the benefit in applying knowledge to reach advisory decisions to achieve more sustainable agricultural products.

CONCLUSIONS

1. Knowledge management is a fundamental pillar for enhancing the effectiveness of advisory decision making to achieve agricultural sustainability, which contributes to improving productivity and preserving natural resources.
2. Infrastructure is a key factor contributing to the effective use of knowledge management in decision-making to ensure optimal use of natural resources. It provides technological support, fosters collaboration, develops skills, etc. "Knowledge management serves as a critical enabler in enhancing extension decision-making, thereby promoting sustainable agricultural development and resource conservation.
3. The proposed vision enhances the efficiency and effectiveness of decision-making and its extension, which is reflected in the achievement of efficiency of agricultural extension activities in the field of agricultural sustainability.
4. Follow-up and evaluation of knowledge management are essential elements to support extension decision makers, as they contribute to improving the effectiveness of making and making decisions that support achieving agricultural sustainability.

5. The work environment contributes to encouraging continuous learning, updating knowledge, and increasing awareness of the latest trends and technologies in the field of achieving agricultural sustainability, which enhances the extension decisions taken.

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ممارسة ادارة المعرفة باتخاذ القرارات الارشادية في مجال الاستدامة الزراعية/ العراق

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المستخلص

هدف البحث الى التعرف على ممارسة ادارة المعرفة باتخاذ القرارات الارشادية في مجال الاستدامة الزراعية/ العراق، تم أعداد الاستبانة كأداة لجمع البيانات من متخذي القرار في الارشاد الزراعي، تضمنت (34) فقرة موزعة على خمسة محاور وبواقع (7) فقرات لمحور تشخيص وتخطيط المعرفة لاتخاذ القرارات الارشادية في مجال الاستدامة الزراعية و(7) فقرات لمحور توليد واكتساب المعرفة لاتخاذ القرارات الارشادية في مجال الاستدامة الزراعية و(6) فقرات لمحور نقل ومشاركة المعرفة لاتخاذ القرارات الارشادية في مجال الاستدامة الزراعية و(7) فقرات لمحور تنظيم وتخزين المعرفة لاتخاذ القرارات الارشادية في مجال الاستدامة الزراعية و(7) فقرات لمحور تطبيق المعرفة لاتخاذ القرارات الارشادية في مجال الاستدامة الزراعية. شملت منطقة أجراء البحث محافظات العراق عدا محافظات اقليم كردستان والبالغ عددها (15) محافظة، اختيرت عينة عشوائية بنسبة (50%) من المحافظات وهي (بغداد، البصرة، ذي قار، النجف، بابل، كربلاء، الانبار، كركوك)، كما شمل مجتمع البحث الادارات الارشادية العليا والوسطى والبالغ عددها (326) مبحوثاً، اختيرت عينة عشوائية طبقية تناسبية بنسبة (54%) من مجتمع البحث وبواقع (176) مبحوثاً، وخلصت نتائج البحث الى أن المتوسط الحسابي لممارسة الادارات الارشادية لإدارة المعرفة باتخاذ القرارات الارشادية في مجال الاستدامة الزراعية كانت مرتفعة وقدرها (4.18) درجة وانحراف معياري قدره (0.68) درجة.

الكلمات المفتاحية: الارشاد الزراعي، عمليات ادارة المعرفة، الاستدامة الزراعية.