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AGRICULTURAL EXTENSION WORKERS' ATTITUDES TOWARDS USE OF ARTIFICIAL INTELLIGENCE TO DEVELOP AGRICULTURE IN THE CENTRAL GOVERNORATES OF IRAQ*

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ABSTRACT

The objective of this research was to assess the attitudes of agricultural extension workers toward utilizing artificial intelligence (AI) technology for agricultural development in the central governorates of Iraq. Additionally, the study aimed to identify the primary challenges and constraints faced by extension workers regarding AI concepts.

The research population comprised officially registered agricultural extension workers across five Iraqi governorates (Baghdad, DIALA, Babylon, Salah Al-Deen, and Al - Anbar), totaling 370 employees. A simple random sample of 40% was drawn from the total population, resulting in a sample size of 148 respondents.

Data were collected via personal interviews conducted in August 2025 using a structured questionnaire. The questionnaire consisted of 110 items distributed across five domains: AI concepts (24 items), AI characteristics (18 items), the future of AI (26 items), AI use cases (22 items), and AI applications (20 items).

Responses were measured on a 3-point Likert scale. Weights of 1, 2, and 3 were assigned to positive items (agree, neutral, and disagree, respectively), while negative items were scored inversely. Total scores ranged from 110 to 330, with a hypothetical mean of 220, and were categorized into negative, neutral, and positive attitudes.

Instrument reliability was verified using a pilot sample of 30 respondents excluded from the main study, yielding a Cronbach's alpha coefficient of 0.899. Data were analyzed via SPSS using descriptive statistical methods.

The results revealed that agricultural extension workers exhibited negative attitudes toward AI technology for agricultural development across all evaluated domains, indicating a severe lack of information and data regarding AI. Based on these findings, the study recommends actively engaging agricultural extension staff in capacity-building programs to enhance their knowledge, digital skills, and interaction with artificial intelligence technologies.

Keywords: workers' attitude, agricultural extension, artificial intelligence, Iraq.

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INTRODUCTION

Agricultural extension is a fundamental component of achieving sustainable agricultural development. It contributes to transferring knowledge, technologies, and expertise from research and educational centers to rural communities, and enhances farmers' ability to make sound, scientifically based production decisions [2]. The importance of agricultural extension lies in its role as a bridge between theoretical knowledge and practical application. It also plays a vital role in increasing production efficiency, improving the standard of living of rural populations, and reducing food poverty in agricultural communities [4]. Oakley and Garforth, leading specialists in agricultural extension development at the FAO, believe that modern agricultural extension should be multidimensional, encompassing productive, environmental, and social aspects, and should be based on interaction and partnership with the local community. Agricultural extension also encourages the application of conservation agriculture systems to protect the soil, rationalize water consumption, and disseminate practices adapted to climate change [20]. Similarly, the American researcher [18] emphasizes that agricultural extension has become a central element in agricultural innovation systems, closely linked to technological modernization, natural resource management, and the empowerment of rural women. Agricultural extension in foreign countries (both developed and developing) has witnessed varying developments, stemming from differences in institutional frameworks, economic resources, openness to technology, and national agricultural policies. The United States is a global leader in organizing agricultural extension. The Cooperative Extension Service was established in 1914 as part of the Land-Grant Universities system. This service is overseen by specialized researchers and academics who provide knowledge and technical support to farmers across the states.

McNamara degrees out that the strength of the American system lies in its integration of research, education, and extension, which has helped to transfer agricultural innovations from the laboratory to the field with high efficiency. The system has been updated to keep pace with the digital revolution, with extension institutions offering online services, virtual learning platforms, and interactive workshops [17]. Among the world's experiences in agricultural extension is India, which has adopted a dual approach combining government and technical extension through agricultural technology centers and digital extension platforms. The Ministry of Agriculture has developed the "eNAM" platform to connect farmers with markets and launched applications such as "Kisan Suvidha" to provide specialized guidance based on location and climatic conditions. These initiatives are overseen by agricultural experts and agricultural policy advisors to the Indian government, who emphasize that digitalization has become essential for expanding the scope of extension [16].

As the FAO [13, 11] explained, agricultural extension in Arab countries, including Egypt, needs structural reforms that include modernizing the technological infrastructure, strengthening the partnership between the public and private sectors, and increasing investment in training extension workers. Similarly, Egypt's efforts in digitalizing agricultural extension are considered a significant opportunity to enhance access for small farmers and improve the efficiency of knowledge transfer, especially in light of climate change and dwindling water resources. This necessitates redesigning extension plans to align with the Sustainable Development Goals (SDGs). Likewise,

Saudi Arabia has undergone remarkable development in its agricultural extension system over the past decade, within the framework of Saudi Vision 2030, which aims to diversify national income sources and achieve sustainable food security through the adoption of modern agricultural technologies. The Kingdom has transitioned from the traditional extension model to an advanced model based on digital agriculture, remote extension, and smart training, utilizing virtual reality and simulation technologies. This contributes to improving production efficiency and reducing losses [7]. Furthermore, Al-Shammari and Al-Juaid [6] demonstrated that agricultural extension in Saudi Arabia is now employing artificial intelligence and Internet of Things (IoT) technologies to provide smart and precise agricultural solutions, particularly in areas with limited water resources.

In Iran, agricultural extension services are managed through the Agricultural Jihad Organization, the body responsible for formulating agricultural policies and implementing extension programs nationwide. The Iranian experience in agricultural extension is unique in the region, achieved through the establishment of a vast network of rural extension centers in the provinces, providing technical and technological support to smallholder farmers, and expanding the use of modern technology in extension operations, particularly in areas such as agricultural automation, monitoring soil fertility using satellite imagery, and climate data analysis [21]. A study by Karami and Noori [14] confirms that the Iranian extension system focuses on transferring agricultural knowledge to farmers through "village communication networks," which integrate agricultural media, digital platforms, and field visits. Iran has also implemented pioneering programs for employing artificial intelligence in estimating irrigation needs, smart fertilization, and predicting plant diseases, which have led to improved productivity and reduced waste. These methods and technologies collectively form the dynamic framework for contemporary agricultural extension, which is currently undergoing a rapid transformation towards digitalization and artificial intelligence. This necessitates studying the attitudes of agricultural extension workers towards these technologies and assessing their readiness to adopt them, especially given the challenges facing the Iraqi agricultural sector in its central governorates [3]. Positive engagement with these methods is a crucial indicator of the success of digital transformation and the achievement of the desired agricultural sustainability. Local challenges in Iraq include unstable political and security conditions that restrict the movement of agricultural extension workers and hinder the implementation of extension programs in some areas, in addition to impacting government funding and support plans [5]. Furthermore, weak institutional coordination is evident in the overlapping roles among agricultural extension institutions in Iraq, both governmental and semi-governmental. This occurs in the absence of a clear national strategy for employing modern technologies, particularly artificial intelligence. This overlap leads to fragmented efforts, weakened effectiveness of extension programs, and a lack of coordination between agricultural research, education, and field application [1]. The lack of technological modernization in extension services is also a significant issue. The infrastructure of agricultural extension services in Iraq still largely relies on traditional service delivery methods, with a severe deficiency in the use of digital tools and artificial intelligence. Extension institutions also lack sustainable training programs for their staff that would equip them to use smart tools or interpret

digital agricultural data, negatively impacting their willingness to adopt these technologies for agricultural development [5].

Understanding and analyzing these challenges is a fundamental step in any study that seeks to measure the attitudes of agricultural extension workers toward the use of artificial intelligence (AI). These obstacles constitute key determinants of the level of institutional and individual acceptance and readiness to adopt modern technology in the Iraqi agricultural sector. AI contributes to the development of agricultural extension through several key pathways, including enhancing sustainability and reducing waste. Studies confirm that adopting AI in extension work contributes to reducing resource waste (water, fertilizers, time) and achieving higher productivity using fewer inputs, which aligns with the Sustainable Development Goals [12].

In the Iraqi context, the researcher believes that introducing AI into agricultural extension represents a strategic opportunity to address field challenges related to the weakness of extension staff, the geographical dispersion of fields, and the lack of specialized recommendations, especially in vital agricultural areas such as the central governorates. However, the success of this transformation depends largely on the attitudes of agricultural extension workers and their readiness to adopt these technologies, which this study aims to explore and analyze in detail. This raises a research question: What is the level of attitudes of agricultural extension workers towards using artificial intelligence technology to develop agriculture in the central governorates of Iraq?

Research Objectives

- 1- To identify the level of attitudes of agricultural extension workers towards using artificial intelligence (AI) technology to develop agriculture in the central governorates of Iraq.
- 2- To identify the level of attitudes of agricultural extension workers towards using AI technology to develop agriculture in the central governorates of Iraq in each area of research.
- 3- Identifying the factors that limit or hinder agricultural extension workers from using artificial intelligence technology in the central governorates of Iraq.

MATERIALS AND METHODS

Methodology

This study employed a descriptive-analytical approach and quantitative methods to investigate the impact of the independent variable on the dependent variable in the field study. The study aimed to provide a detailed and comprehensive description and interpretation of the phenomena or topics under investigation [19, 8].

Population and Sample

The number of agricultural workers in the governorates covered by the research was 370. A random sample of 40% of the total number of employees was drawn from the following governorates: Baghdad Agriculture Directorate, Diyala Agriculture Directorate, Babylon Agriculture Directorate, Salah al-Din Agriculture Directorate, and Anbar Agriculture Directorate. The number of employees in these directorates was 77, 76, 99, 52, and 66, respectively, resulting in a sample size of 148 respondents.

Data Collection Tool

A questionnaire form was used as a tool to collect data from employees in the governorate agriculture directorates because it is one of the most commonly used methods in the data collection process [9]. A preliminary questionnaire was developed after reviewing scientific sources, previous studies, and research related to artificial intelligence (AI) technology in agricultural extension, and consulting with university professors and specialists in AI and agricultural extension. Based on this, the questionnaire was designed to understand the attitudes of agricultural extension workers towards using AI technology to develop agriculture in the central governorates of Iraq. (110) items were identified, distributed across five aspects. The first aspect included the concept of AI (24 items), the second the characteristics of AI (18 items), the third the future of AI (26 items), the fourth the uses of AI (22 items), and the fifth the applications of AI (20 items). Responses were measured using a three-point scale constructed according to the Likert scale. Weights of (3, 2, 1) were assigned to respondents' responses (agree, neutral, disagree), respectively, for positive items and the opposite for negative items. The scores were totaled to calculate a score. The total score for each participant is then divided into three categories (negative attitude, neutral attitude, and positive attitude), according to the actual range of total scores for each respondent. Thus, the scale values ranged (110-330), with a hypothetical mean of 220.

Measure Validity and Reliability Procedures

Reliability refers to the degree of stability, retention, and consistency of scores obtained from a measurement instrument when reused over time [10]. To examine reliability, a pre-test was conducted on the employee questionnaire in mid-August 2025, using a sample of (30) employees from the study population outside the sample. To verify the reliability of the scales, Cronbach's alpha was used. The reliability coefficient for the overall questionnaire was (0.899), which is considered acceptable in scientific research. Thus, the questionnaire is considered a field-testable instrument, as a reliability score exceeding 70% indicates that the questionnaire is ready for data collection [15]. (148) questionnaires were distributed to the respondents, and data were collected at the end of August 2025.

RESULTS AND DISCUSSION

1- Identifying the level of attitudes of agricultural extension workers towards using artificial intelligence technology to develop agriculture in the central governorates of Iraq.

The study results showed the level of attitudes of agricultural extension workers towards using artificial intelligence technology to develop agriculture in the central governorates of Iraq. Their scores ranged from (110-330) degrees, with a mean of (213.95) degrees and a standard deviation of (26.52) degrees. 16.89% were in the negative attitude category, 58.11% in the neutral attitude category, and 25.00% in the positive attitude category. The categories were divided into three groups according to the law of dy, as shown in Table 1.

Table 1: Distribution of respondents according to categories and average scores of attitude towards the use of artificial intelligence technology.

Categories Attitude	Frequencies	%	Average attitudes
Negative (110- 183)	37	25.00	145.51
Neutral (184- 257)	86	58.11	219.49
Positive (258 or more)	25	16.89	293.38
Total	148	100%	SD=25.78

Table 6 shows that the attitude of agricultural extension workers towards the concept of artificial intelligence (AI) technology in some Iraqi governorates was neutral, leaning towards a negative stance. This can be attributed to several reasons, including the perceived difficulty in understanding the characteristics of AI technology, the challenges and uncertainties of its application for agricultural extension workers, the difficulty in learning to use modern agricultural technologies through AI, anxieties about experimenting with these technologies, the perception that using AI technology is a risk to agricultural work, and a lack of understanding of how to apply AI in agricultural extension work.

2- To identify the level of attitudes of agricultural extension workers towards using AI technology to develop agriculture in the central governorates of Iraq in each of the research areas: (the concept of AI technology, the characteristics of AI technology, the future of AI technology, uses of AI technology, and applications of AI technology).

A) The Concept of Artificial Intelligence Technology

The study results showed that respondents' attitudes toward the concept of artificial intelligence in agriculture ranged from 24 to 72, with a mean of 47.28 and a standard deviation of 5.04. It was found that 26.35% fell into the negative category, 57.43% into the neutral category, and 16.22% into the positive category. Respondents were divided into three categories according to the range law, as shown in Table 2.

Table 2: Distribution of respondents according to categories and mean attitudes toward the concept of artificial intelligence technology

Categories Attitude	Frequencies	%	Average attitudes
Negative (24- 40)	39	26.35	32.01
Neutral (41- 57)	85	57.43	49.10
Positive (58 and above)	24	16.22	66.09
Total	148	100%	SD=5.04

Table 2 shows that the attitude of agricultural extension workers towards the concept of artificial intelligence (AI) technology in some Iraqi governorates was neutral, leaning towards a negative view. This can be attributed to several reasons, including difficulty understanding how to apply AI in agricultural extension work in their governorate, doubts about the ability of intelligent systems to handle the specific characteristics of the agricultural environment in the central governorates, and difficulty in integrating new technologies into agricultural extension programs in their work areas.

B) Characteristics of Artificial Intelligence Technology

The study results showed that respondents' attitudes toward the concept of artificial intelligence in agriculture ranged from 18 to 54, with a mean of 36.03 and a standard deviation of 3.11. The results indicated that 24.33% fell into the negative category, 58.78% into the neutral category, and 16.89% into the positive category. Respondents were divided into three categories according to the range law, as shown in Table 3.

Table 3: Distribution of respondents according to categories and mean attitudes toward the characteristics of artificial intelligence.

Categories Attitude	Frequencies	%	Average attitudes
Negative (18- 30)	36	24.32	24
Neutral (31- 43)	87	58.78	37
Positive (44 or more)	25	16.89	50
Total	148	100%	SD=3.11

Table 3 shows that the attitude of agricultural extension workers towards the characteristics of artificial intelligence (AI) technology in some Iraqi governorates was neutral, leaning towards a negative stance. This can be attributed to several reasons, including the perception that pattern recognition among agricultural data is not always accurate, the feeling that AI struggles to handle incomplete or inaccurate data, and the possibility that complete reliance on drones might overlook important real-world details.

C) The Future of AI Technology

The study results showed that respondents' attitudes towards the concept of AI in agriculture ranged from 26 to 78, with a mean of 50.19 and a standard deviation of 4.33. It was found that 26.35% fell into the negative category, 60.14% into the neutral category, and 13.51% into the positive category. Respondents were divided into three categories according to the range law, as shown in Table 4.

Table 4: Distribution of Respondents According to Categories and Average Attitudes Towards the Future of Artificial Intelligence Technology

Categories Attitude	Frequencies	%	Average attitudes
Negative (26- 43)	39	26.35	34.5
Neutral (44- 61)	89	60.14	52.5
Positive (62 or more)	20	13.51	70.5
Total	148	100%	SD=4.33

Table 4 shows that the attitude of agricultural extension workers in some Iraqi governorates towards the Future of Artificial Intelligence Technology (AI) was neutral, leaning towards a negative view. This can be attributed to several reasons, including a feeling that AI use might raise privacy and surveillance concerns in agriculture. There may also be a perception that the technology could widen the gap between technically skilled and unskilled workers. Furthermore, there might be a belief that AI cannot support extension workers in making faster and more accurate decisions, and a fear that the lack of proper regulation in AI use could lead to unintended harm in agriculture.

D) Uses of Artificial Intelligence Technology

The study results showed that respondents' attitudes toward the concept of artificial intelligence in agriculture ranged from 22 to 66, with a mean of 44.92 and a standard deviation of 7.05. The results indicated that 23.65% fell into the negative category, 56.08% into the neutral category, and 20.27% into the positive category. Respondents were divided into three categories according to the range law, as shown in Table 5.

Table 5: Distribution of respondents according to categories and mean scores of attitudes toward the uses of artificial intelligence technology.

Categories Attitude	Frequencies	%	Average attitudes
Negative (22- 37)	35	23.65	29.8
Neutral (38- 53)	83	56.08	45.7
Positive (54 or more)	30	20.27	60.4
Total	148	100%	SD=7.05

Table 5 shows that the attitude of agricultural extension workers towards the use of artificial intelligence (AI) technology in some Iraqi governorates was neutral, leaning towards a negative stance. This can be attributed to several reasons, including a belief that workers lack sufficient knowledge to use AI in analyzing and interpreting agricultural data. Additionally, there is a perception that excessive reliance on AI may diminish workers' critical thinking and independent decision-making abilities, and a feeling of insufficient understanding or representation of the appropriate knowledge required to apply AI to agricultural activities.

E) Artificial Intelligence Applications

The study results showed that respondents' attitudes toward the concept of artificial intelligence in agriculture ranged from 20 to 60, with a mean of 39.55 and a standard deviation of 6.25. The results indicated that 25.00% fell into the negative category, 56.76% into the neutral category, and 18.24% into the positive category. Respondents were divided into three categories according to the range law, as shown in Table 6.

Table 6. Distribution of respondents according to categories and mean scores of attitudes toward artificial intelligence applications.

Categories Attitude	Frequencies	%	Average attitudes
Negative (20- 33)	37	25.00	26.6
Neutral (34- 47)	84	56.76	40.4
Positive (48 or more)	27	18.24	54.1
Total	148	100%	SD=6.25

Table 6 shows that the attitude of agricultural extension workers towards artificial intelligence (AI) applications in some Iraqi governorates was neutral, leaning towards a negative stance. This can be attributed to several reasons, including the belief that some farmers are afraid to use technology because it is expensive or difficult. Additionally, I feel that the lack of training for agricultural workers leads some people to distrust them and make mistakes in conveying and understanding the data from the devices used by farmers. Furthermore, I believe that some farmers prefer traditional methods, even when

modern technologies are available, due to the attitudes of some agricultural extension workers.

3- Identifying the factors that limit or hinder agricultural extension workers from using artificial intelligence technology in the central governorates of Iraq.

To demonstrate the respondents' agreement on the existing problems, the weighted average (importance) for each area is calculated as follows:

To identify the problems faced by agricultural extension workers in using artificial intelligence (AI) technology to develop agriculture in the central governorates of Iraq, these problems were ranked in descending order based on their weighted average. It was found that all problems had average weights higher than the hypothetical mean of the scale, which was 2 degrees, as shown in Table 7.

Table 7 reveals the multiplicity and diversity of problems faced by employees in the studied provincial departments. Among the problems that ranked first was: "I believe that a lack of knowledge of artificial intelligence tools prevents some employees from benefiting from their capabilities," which hinders the advancement of this technology in the near future. The second problem was: "I believe that some employees lack the digital skills and knowledge to use artificial intelligence tools." This factor limits many of the tasks that employees are supposed to perform. The third problem, in terms of ranking, was: "I believe that the cost of introducing modern technology to employees, such as artificial intelligence, is still high for many government departments." Given the state's annual budgets and the lack of allocated funds for this purpose, it is an obstacle to using this technology. The problem that came last was: "Many employees in agricultural departments believe that the lack of clarity in the results of some digital analyses for farmers makes them hesitant to use them." This may be due to the lack of model farms where extension agents can demonstrate the results achieved from increased production and the use of equipment.

Table 7: Problems and Challenges Facing Respondents in Using Artificial Intelligence Technology.

Rank	Problems	Weighted average
1	I believe that a lack of knowledge about artificial intelligence tools prevents some workers from taking advantage of its potential.	2.66
2	I believe that some employees lack the digital skills and knowledge to use artificial intelligence tools.	2.57
3	I believe that the cost of introducing modern technology to employees, such as artificial intelligence, is still high for many government departments.	2.55
4	The staff imagine that some farmers are afraid of losing their current machinery and means of work due to the use or application of artificial intelligence technologies.	2.54
5	I believe that the lack of training in artificial intelligence technology causes a state of anxiety or frustration among some agricultural extension workers.	2.51
6	I feel that the lack of technical support makes it difficult to fix malfunctions or take full advantage of artificial intelligence technologies.	2.50
7	The use of artificial intelligence does not help employees improve their guidance methods.	2.47
8	I believe that smart agriculture does not help reduce environmental damage by improving the use of water and fertilizers.	2.42
9	I believe that the data provided by farmers to the agricultural department staff does not help in predicting crops and making better agricultural decisions.	2.41
10	I feel that artificial intelligence technologies neither improve the quality of production nor reduce waste in farming.	2.35
11	Few engineers specialize in artificial intelligence technology in agricultural circles.	2.34
12	I believe that the lack of digital infrastructure in some rural areas hinders the implementation of smart agriculture.	2.32
13	The features of artificial intelligence technology are still unclear to many workers in agricultural circles.	2.31
14	The cost of agricultural technologies is high, which causes them to not be used in agricultural circles.	2.30
15	I believe that smart agriculture needs time and effort to become easy and accessible to everyone, especially in our regions.	2.28
16	I imagine that the growing interest in artificial intelligence in agriculture is causing problems that are difficult to solve with those working in government departments.	2.25
17	I believe that complete reliance on technology may make some workers feel disconnected from the traditional work environment.	2.23
18	Many employees in agricultural departments believe that the lack of clarity in the results of some digital analyses for farmers makes farmers hesitant to use them.	2.20

Conclusions

- The research concludes that the attitude of agricultural extension workers towards the concept of artificial intelligence (AI) technology in some Iraqi governorates is negative. This indicates a lack of data and information about AI technology.
- The research concludes that there is a negative attitude among agricultural extension workers towards the concept of AI technology in some Iraqi governorates across all research areas, and this requires support from the Ministry of Agriculture.

- The research concludes that there are significant problems with logistical support, a lack of infrastructure for this technology, a shortage of specialists, and a lack of trust in AI technology among agricultural extension workers.

Recommendations

- The Ministry of Agriculture should adopt smart agriculture technologies, especially AI, and increase trust in human-machine cooperation to contribute to raising the efficiency of agricultural extension workers.
- Farmers should be encouraged to use modern technology, particularly AI, due to their current lack of trust in it.
- The Ministry of Agriculture should work to raise the level of agricultural extension workers by intensifying training on AI applications, which they consider complex. - The Ministry of Agriculture is committed to the continuous participation of agricultural extension workers in raising their training level regarding knowledge of the concept of artificial intelligence technology, as well as introducing farmers to its benefits, and developing knowledge, skills, and the importance of the role of artificial intelligence in improving the management of agricultural resources and reducing losses through modern technologies.

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اتجاهات العاملين في الارشاد الزراعي نحو استخدام تكنولوجيا الذكاء الاصطناعي

لتطوير الزراعة في المحافظات الوسطى من العراق*

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الملخص

يهدف البحث التعرف على مستوى اتجاهات العاملين في الإرشاد الزراعي نحو استخدام تقنية الذكاء الاصطناعي لتطوير الزراعة في المحافظات الوسطى من العراق، وكذلك في كل مجال من مجالات البحث، وكذلك التعرف المشكلات او التحديات التي يعاني منها العاملين في الإرشاد الزراعي نحو مفهوم تقنية، شمل مجتمع البحث العاملين في الإرشاد الزراعي ببعض محافظات العراق وهي: (بغداد، ديالى، بابل، صلاح الدين، الانبار)، وبإجمالي عددهم (370) موظفاً والمسجلين رسمياً، سحبت عينة عشوائية بسيطة بنسبة (40%) من مجموع العاملين الموظفين من تلك المحافظات، وبذلك بلغ حجم العينة الكلية للدراسة (148) مبحوث.

استخدم الاستبيان لجمع البيانات من المبحوثين، وتكون الاستبيان من (110) فقرة موزعة على خمس مجالات، وتضمن المجال الأول مفهوم الذكاء الاصطناعي بعدد (24) فقرة، والمجال الثاني خصائص الذكاء الاصطناعي بعدد (18) فقرة، وتضمن المجال الثالث مستقبل الذكاء الاصطناعي بعدد (26) فقرة، وتضمن المجال الرابع استخدامات الذكاء الاصطناعي بعدد (22) فقرة، وتضمن المجال الخامس التطبيقات الذكاء الاصطناعي بعدد (20) فقرة، وتم قياسها بمقياس ثلاثي متدرج تم بناءه تبعاً لطريقة ليكرت، وخصصت الأوزان (3، 2، 1) درجة للاستجابة المبحوثين (موافق، محايد، غير موافق)، على الترتيب في حالة الفقرات الموجبة والعكس في حالة الفقرات السالبة، وتجمع الدرجات لتعطي درجة إجمالية لكل مبحوث، ثم تقسم إلى ثلاثة فئات (اتجاه سلبي، واتجاه محايد، واتجاه إيجابي)، وفقاً للمدى الفعلي للدرجات الكلية لكل مبحوث، وبذلك تراوحت قيم المقياس (110-330)، وبوسط فرضي 220. واستخدمت معادلة ألفا كرونباخ للتحقق من ثبات أداة القياس، إذ تم اخذ عينة استطلاعية من مجتمع البحث خارج العينة وبلغ عددهم (30) مبحوثاً، وقد بلغت قيمته (0.899)، وجمعت البيانات بالمقابلة الشخصية خلال شهر آب عام 2025. وقد حللت البيانات بواسطة برنامج SPSS باستخدام الاساليب الاحصائية الوصفية.

أظهرت نتائج البحث ان العاملين في مجال الارشاد الزراعي ابدوا اتجاهات سلبية تجاه مفهوم تقنية الذكاء الاصطناعي لتطوير الزراعة في المحافظات الوسطى من العراق في مجالات البحث كافة، مما يشير الى نقص حاد في البيانات والمعلومات عن تقنية الذكاء الاصطناعي.

واوصى البحث بضرورة اشراك موظفي الإرشاد الزراعي بشكل فاعل في برامج بناء قدرات تعنى بتعزيز معارفهم ومهاراتهم الرقمية وتفاعلهم مع تقنية الذكاء الاصطناعي. الكلمات الدالة: اتجاه العاملين، الإرشاد الزراعي، الذكاء الاصطناعي، العراق.

* البحث مستل من رسالة ماجستير للباحث الأول.

¹ وزارة الزراعة، دائرة التخطيط والمتابعة، بغداد، العراق.

² جامعة تكريت، كلية الزراعة، صلاح الدين، العراق.

➤ تاريخ تسلم البحث: 3/ تشرين ثاني /2025

➤ تاريخ قبول البحث: 15/ كانون اول/2025

➤ متاح على الانترنت: 30/ حزيران/2026.