Training and knowledge needs of wheat farmers in the villages of Siha Othman and Ain Hayawi

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ABSTRACT

The research aimed to identify the knowledge training needs of wheat growers in scientific recommendations related to growing the crop in the villages of Siha Othman and Ain Hayawi/Al-Shirqat District/Salah al-Din Governorate in general. and also determining the relationship between the knowledge training needs of wheat growers and some of the following independent factors: (age, educational level, number of years of work in growing the crop, type of holding, sources of information, and participation in extension activities related to growing the wheat crop) . The research community included all wheat growers, numbering (87) growers, a random sample was taken at a rate of (46%), thus the number of growers became (40) growers. The results showed that the categories of those with medium and high Knowledge training needs represented about (72.5%) of the number of respondents. The results also showed a significant correlation at the level of (0.01) between (age, sources of information, educational level, number of years of work in growing the crop, type of holding) and Knowledge training needs. The study also indicated that the average level of growers' problems towards growing wheat is large.

الحاجات التدريبية والمعرفية لمزارعي الحنطة في قريتي سيحة عثمان وعين حياوي

مها سعيد شده ورأفت رياض عبد الوهاب وياسمين حاتم حسن
قسم الارشاد والاقتصاد الزراعية ، كلية الزراعة ، جامعة تكريت ، العراق

الخلاصة:

استهدف البحث تحديد الحاجات التدريبية والمعرفية لزراع الحنطة بالتوصيات الزراعية المتعلقة بزراعة المحصول في قريتي سيحة عثمان وعين حياوي / قضاء الشرقاط / محافظة صلاح الدين بشكل عام ،وكذلك تحديد علاقة الارتباط بين الحاجات التدريبية والمعرفية لزراع الحنطة وبعض العوامل المستقلة التالية : (العمر، المستوى التعليمي ، عدد سنوات العمل في زراعة المحصول ، نوع الحيازة ، مصادر المعلومات , المشاركة في النشاطات الارشادية المتعلقة بزراعة محصول الحنطة). شمل مجتمع البحث جميع زراع محصول الحنطة ، البالغ عددهم (87) مزارع اخذت عينة عشوائية بنسبة (46%) وبذلك اصبح عدد الزراع (40) مزارعاً . اظهرت النتائج أن فئتي ذوي الحاجة التدريبية المعرفية المتوسطة والمرتفعة مثلت حوالي (72.5%) من عدد المبحوثين ، كما اظهرت النتائج وجود علاقة ارتباط معنوية على مستوى (0.01) بين (العمر ، مصادر المعلومات .المستوى التعليمي ، عدد سنوات العمل في زراع المحصول, نوع الحيازة) والحاجات التدريبية المعرفية .كما بينت الدراسة ان متوسط مستوى مشاكل الزراع نحو زراعة الحنطة كبيرة.

الكلمات المفتاحية : التدريب ، الحنطة ، التوصيات العلمية المتعلقة بزراعة المحصول .

INTROUCTION

The agricultural sector in Iraq is unique among the different economic sectors that comprise the national economy since it is the major source of food for the people, and a considerable percentage of the population works in this area.(Qasim, S. ,2024). As a result, its growth is a prerequisite for founding the industrial renaissance that is required for the agricultural renaissance.(Ibrahim, M. M at al , 2025). Two fundamental components are necessary for the agricultural sector to develop: the human element, which consists of the preparedness, abilities, and skills that allow it to use the material element effectively in order to achieve development, and the material element, which is represented by the outcomes of scientific and technical advancements in a field related to agricultural production.(Hassan, K. J at al ,2024) . As a result, a society's ability to advance socially depends not only on its natural and human resources as well as its technological prowess, but also on its attempts to exploit those resources and its investments in the development of its members' skills, knowledge, and abilities.(Earp, F at al ,2025) .

One aspect of overall personal development is training, which prepares a person to handle job situations and reach his desired outcomes by stimulating his mind and abilities.(Yousif AlAjeeli ,2022) Since training programs primarily seek to provide trainees the information and skills they need to enhance their performance and expand their professional capabilities, training is crucial to reaching development and the human element.(Abdullah ,2021) . Determining training needs is one of the most significant factors in driving training activity success. As a result, recognizing and precisely describing them is the first pillar in meeting their quantity and quality requirements. Since these demands are the first of many interwoven linkages that make up the

training process, it is therefore possible to increase the efficiency of trainees in the agriculture industry. If this relationship is lost, the training process collapses and fails, rendering training ineffective and a loss of time, effort, and money.(Shada, M. S ,at al ,2023). In this context, the significance of training agricultural extension workers—in particular, agricultural extension workers—to facilitate their ability to act as a mediator between rural groups that benefit from agricultural extension services and agricultural information generation centers comes into focus. In order to respond to the demands of their role in the most effective manner, they must use their Knowledge abilities to activate their professional experiences and update their knowledge. This boosts their credibility and self-confidence in the eyes of their target audience. Cereal crops are important to human life. They served as the foundation for ancient civilizations and continue to do so in present times. Even with global economic and technological advancements, many nations are interested in boosting agricultural output, particularly in the area of grains. The primary causes of this are the issue of food shortages and the rising demand for these resources due to the world's population growth and incapacity to satisfy demands.(Sultan, W ,at al ,2019) As a result, wheat is one of the most essential grain crops since it provides the foundation of human nutrition. As a result, researchers have focused their efforts on developing cultivars with high-quality yields.(Ismael, J. I, at al ,2024). Economically speaking, it is a basic meal with commercial and political significance for every nation on the planet. In terms of cultivated area and production value, it is the most important crop among grain crops in particular and field crops in general. Approximately 65% of the world's grain crop production comes from it. Because it is the primary source of calories for over 35% of the world's population, this crop is significant.(Igrejas, G., & Branlard, G. 2020) Despite being among the first nations to adapt this crop and possess the primary production factors—soil, water, and climate—Iraq's productivity remains low because it has not adopted modern scientific methods for growing it, such as controlling weeds, which can result in up to 45% losses and affect crop growth and productivity(Al-Ansari, N,at al ,2022). Wheat cultivation is concentrated in the northern region because of the availability of enough rainfall for the crop, the fertility and natural drainage of the soil, and the lack of salts, which have a significant impact on wheat yield. In contrast, the main barrier and restriction to wheat cultivation in the southern governorates is the phenomenon of high salt content.(Abdul Wahhab,2023).

As a result, the Salah al-Din Governorate's Sharqat region was selected as the study site. A distance of (75) kilometers south of the city of Mosul is the Sharqat district The district has a total area of 662893 dunums.(Ash Sharqat. ,2021). Because of its reputation for growing wheat, it is regarded as one of the key strategic crop production locations. The majority of training programs are essentially nonexistent without incorporating growers and taking their requirements into consideration, the researchers observed based on their understanding of the agricultural methods and techniques utilized in wheat growing in the research region. This suggests that the themes and demands of growers are not accurately represented in these programs. Thus, the research topic emerged, which led the researchers to investigate wheat growers' training requirements. The findings of this study can help us design training programs that are in line with their real demands, which are reflected in the development of their knowledge and abilities. As a result of this research, we are able to better understand the issues at hand and assign training programs to solve them. This accelerates the implementation of plans related to agriculture, economics, and development. Generally speaking, the study attempts to respond to the following queries:What are the Knowledge Training Needs of Wheat Growers in scientific recommendations Related to Growing the Crop in the Villages of Siha Othman and Ain Hayawi / Al-Shirqat District / Salah al-Din Governorate?

RESEARCH OBJECTIVE: -

1- To determine the Knowledge Training Needs of Wheat Growers in scientific recommendations Related to Growing the Crop in the Villages of Siha Othman and Ain Hayawi / Al-Shirqat District / Salah al-Din Governorate in general .

2- To find out the descending order of study fields according to percentage weight .

3- To determining the correlation between the Knowledge training needs of wheat growers and the agricultural recommendations related to growing the crop in the villages of Siha Othman and Ain Hayawi / Sharqat District and some of the following independent factors : (Age, educational level, number of years working in crop cultivation, type of holding, sources of information,) .

4- To find out the main issues that wheat growers in the villages of Ain Hayawi and Siha Othman in the Sharqat District are dealing with.

RESEARCH ASSUMES

There is no significant correlation between the Knowledge Training Needs of Wheat Growers in scientific recommendations Related to Growing the Crop in the Villages of Siha Othman and Ain Hayawi / Al-Shirqat District / Salah al-Din Governorateand each of the following independent factors: (Age, educational level, number of years working in crop cultivation, type of holding, sources of information) .

PROCEDURAL DEFINITIONS

1- Determine the needs for Knowledge training. - These are the areas of deficiency or gap between growers' existing level of knowledge about wheat farming and the desired level of knowledge that extension operations attempt to provide.

2- Agricultural recommendations: These are a collection of agricultural recommendations for wheat production that are transmitted from research institutes and universities to extension centers, where they are then supplied to wheat growers and implemented in their fields.

MATERIAL AND METHODS

FIRST: RESEARCH METHODOLOGY:

The current study comes under the descriptive technique. This type of survey may be used to gather information about respondents' consent, opinions, and reactions to a certain topic or issue.

SECOND : RESEARCH AREA:

Because wheat agriculture is so common in the villages of Siha Othman and Ain Hayawi, which are connected to Sharqat District, they were selected as the research area.

THIRD : RESEARCH COMMUNITY:

A total of (87) * growers from the villages of Siha Othman and Ain Hayawi, which are connected to the Sharqat district, were part of the research community. Following the exclusion of the exploratory test sample of 20 growers, a random sample was selected at a rate of 46%, resulting in 40 growers in the study sample.

*Salah Al-Din Agriculture Directorate / Planning Department, in 2022

FOURTH :RESEARCH TOOL:

In order to gather information for the study, a questionnaire was created. There are three sections to the questionnaire:

Part 1: The segment comprised a variety of personal questions about the responders, specifically: (Age, educational level, number of years working in crop cultivation, type of holding, sources of information)

Part 2: This section has 36 paragraphs divided into six study topics, as stated in Table (1):

Table 1 : Shows The Fields Of Study And The Number Of Paragraphs In Each Field.

N	areas	Number of Items
1	Plowing and land preparation	6
2	Seeding	7
3	Irrigation	5
4	Fertilization	7
5	Control	5
6	Harvest	6
	the total	36

Part 3: It involved identifying 11 issues that are thought to be among the most significant crop cultivation-related issues that wheat growers in the villages of Siha Othman and Ain Hayawi/Sharqat District face. They were given numerical numbers (4, 3, 2, 1) respectively and a four-point scale with the options (big, medium, small, and none) in front of them. The challenges are ranked in decreasing order of average significance.

Cronbach's alpha coefficient, which was used to assess stability, was 0.85. Because of this, the questionnaire was very stable, and when its value was 0.70 or above, it was considered adequate and sufficient. Following that, the questionnaire was completed, and information was gathered from the participants between January 12, 2024, and December 27, 2024.

FIFTH : SEARCH VARIABLES
FIRSTLY : MEASUREMENT OF INDEPENDENT FACTORS :
1 .Age: This factor was measured by the number of years of the grower's age at the time of data collection.
2 -Educational level: The educational level was measured according to the following levels (illiterate, reads and writes, primary, intermediate, preparatory, institute, college) and the following weights were given to them (1, 2, 3, 4, 5, 6, 7) respectively.
3 .Number of years of work in crop cultivation: This variable was measured by the number of years of wheat cultivation.
4. Type of holding: The type of holding was measured by dividing it into three categories as follows (ownership, contract, rent), and the following weights were given to them: (3, 2, 1), respectively.
5 .Information sources: This variable was measured through nine sources from which the respondent could obtain information related to wheat cultivation. The response alternatives were (always, sometimes, I do not get) and were given the following weights: (2, 1, 0), respectively.
SECONDLY: MEASUREMENT OF THE DEPENDENT FACTOR:
Wheat growers' Knowledge training needs were assessed by subtracting their existing level of knowledge from their desired level of knowledge, as follows:
Knowledge training demands = desired level of information minus current level of information.
The present level of information was determined by employing (36) test paragraphs dispersed throughout six regions, and the answers to them (the paragraphs) were by selecting the proper option. One point was given for the correct answer and zero for the incorrect response. Thus, the respondent can achieve the highest score (36) and the lowest point (0).

Each respondent's Knowledge training need scores were collected in all areas of the agricultural recommendations pertaining to crop cultivation for wheat growers. These scores were then categorized into three groups: few (8–13), medium (14–19), and many (20–25) to describe the respondents.   and the average level of Knowledge training need for each category were calculated.

SIX : STATISTICAL MEANS:
Numerous statistical techniques and procedures, including range, arithmetic mean, Spearman's correlation law, simple correlation coefficient (Pearson), percentage weight, t-test, and percentage, were employed to meet the study's goals.

RESULTS AND DISCUSSION :
First objective :To determine the Knowledge Training Needs of Wheat Growers in scientific recommendations Related to Growing the Crop in the Villages of Siha Othman and Ain Hayawi / Al-Shirqat District / Salah al-Din Governorate in general .
It was discovered that the maximum value representing wheat growers' Knowledge training demands in agricultural suggestions linked to crop production is (25) and the lowest value is (8). The respondents were divided into three categories based on the range and category length, as shown in Table (2):

Table 2: Distribution Of Respondents According To Knowledge Training Needs In The Field Of Wheat Cultivation In General

Level of Knowledge training needs	Categories	number	%	Average Knowledge training need
Low	(8 -13)	7	17.5 %	11
Medium	(14 – 19)	21	52.5 %	17.3
High	(20 – 25)	12	30 %	21.58
	the total	40	100 %	

S.D = 3.84 $^-$X   = 17.5

According to Table (2), the Knowledge training demands of wheat growers are medium and tend to increase. Approximately 85.5% of the respondents fell into the medium and high Knowledge training need groups. The average Knowledge training requirement for the medium group was (17.3), while for the high category it was (21.58). A lack of extension efforts or their weakness might be the cause, and most growers do not have the skills and expertise needed to cultivate the crop,

The second objective : To find out the descending order of study fields according to percentage weight
According to the percentage weight, the research fields were organized in descending order, and Table No. (3) displays the findings.

Table 3: Arrangement of study fields in descending order

Areas	Average level of needs	Number	Maximum value	Weight %	The arrangement
Irrigation	3.125	5	5	62.5	1
Ploughing and land preparation	3.5	6	6	58.33	2
Harvesting	3.075	6	6	51.25	3
Control	2.35	5	5	47	4
Seeding	3.275	7	7	46.78	5

Table No. (3) reveals that the field of irrigation placed first with a weight percentage of (62.5). As a consequence of my expertise and understanding in this area. The field of (fertilization) placed last with a weight of 54.35. This might be attributed to agricultural guidance's limited involvement in organizing seminars and training courses to teach the optimum fertilization methods and procedures.

Third objective : To determining the correlation between the Knowledge training needs of wheat growers and the agricultural recommendations related to growing the crop in the villages of Siha Othman and Ain Hayawi / Sharqat District and some of the following independent factors :

Age : The respondents' ages ranged from (76) to (20) years, with an arithmetic mean of 47.35. The respondents were divided into age groups based on the range and duration of the group, as indicated in Table 4.

Table 4 : Distribution Of Respondents According To Age Groups And Average Knowledge Training Needs

Categories	Number	%	Average Knowledge training need	Calculated (t) value	Correlation Coefficients(r)
(20 – 38)	13	32.5 %	19.76		
(39 – 57)	17	42.5 %	17.41	3.844	**0.48-
(58 – 76)	10	25 %	14.7		
The total	40				

Significance level = 0.01   S.D = 16.29 ^-X = 47.35

Table (3) reveals that the oldest of the respondents in the age category (39-57) years is (17) respondents, accounting for (42.5%), and their average Knowledge training needs are (17.41) use basic Pearson correlation coefficient was used to find the correlation between Knowledge training needs and age. The results showed a strong inverse correlation at the level of (0.01), with a value of (-0.48**). And so reject the statistical Thus, we adopt the alternative hypothesis, which asserts the following: There is a significant correlation between the Knowledge training needs of wheat growers and the agricultural recommendations related to crop cultivation and age. One possible explanation for this might be that younger responders require more Knowledge training due to their inexperience and less involvement in extension activities. As respondents age, their requirement for Knowledge training decreases because they have more agricultural expertise and are less afraid of taking risks while employing new agricultural techniques.

Educational level : According to the educational level, wheat growers in the two research villages are distributed as follows: (12.5%) illiterate, (27.5%) read and write, (10%) primary school graduates, (17.5%) middle school graduates, (15%) preparatory school graduates, (12.5%) institute graduates, (5%) college graduates as indicated in Table 5.

Table 5: Distribution Of Respondents According To Their Educational Levels And Average Knowledge Training Needs

Categories	Number	%	Average Knowledge training need	Calculated (t) value	Correlation Coefficients(rs)
illiterate	5	12.5 %	20.2		
read and write	11	27.5 %	19.09		
Elementary school graduate	4	10 %	18.75		
middle school graduates	7	17.5 %	16.85	3.844	**0.48-
preparatory school graduates	6	15 %	16.6		
Institute graduate	5	12.5 %	15.8		
College graduate	2	5 %	5.5		
The total	40	100 %			

Significance level = 0.01

use basic Spearman's correlation coefficient was used to find the relationship between the Knowledge training needs and the educational level, and the results showed a strong inverse relationship at the (0.01) level, and its value was (-0.48**).And so reject the statistical Thus, we adopt the alternative hypothesis, which asserts the following: There is a significant correlation between the Knowledge training needs of wheat growers and the agricultural recommendations related to crop cultivation and Educational level . This indicates that different educational levels require different Knowledge training. The necessity for Knowledge training decreases as educational attainment increases. The ability of students to comprehend and understand the instructions on how to plant and serve the crop might be the cause of this.

Number of years of work in crop cultivation : According to the findings, the longest period of employment in agriculture was 46 years, while the shortest was 2 years. The research participants were divided into three groups. The first group comprised people aged 2 to 16 and was represented by 62.5%. The second group comprised those aged 17–31 and accounted for 22.5% of the total. The third group, which included people aged 3 to 46, accounted for 15% of the research sample as a whole. as indicated in Table 6

Table 6 : Distribution Of Respondents According To The Number Of Years They Worked In Agriculture And The Average Knowledge Training Needs

Categories	Number	%	Average Knowledge training need	Calculated (t) value	Correlation Coefficients(R)
(2 – 16) years	25	62.5 %	18.76		
(17 – 31) years	9	22.5 %	17.11		
(32 – 46) years	6	12.83 %	12.83	5.38	**0.58-
	40	100 %			

Significance level = 0.01   S.D = 12.91 $\bar{X}$ = 16.98

Table (6) demonstrates a rise in the number of respondents who have worked in agriculture for between 2 and 16 years, and they make up the bulk of the study sample. use basic Pearson correlation coefficient was used to find the relationship between the Knowledge training needs and Number of years of work in crop cultivation , and the results showed a strong inverse relationship at the (0.01) level, and its value was (-0.58**). And so reject the statistical Thus, we adopt the alternative hypothesis, which asserts the following: There is a significant correlation between the Knowledge training needs of wheat growers and the agricultural recommendations related to crop cultivation and Number of years of work in crop cultivation . The explanation for this might be that the more years of wheat cultivation the respondents have, the less training they require owing to an increase in their experience, knowledge, and abilities in this sector, and so the requirement for Knowledge training reduces.

Type of holding : Based on the data presented in Table (7), the findings indicated that 19 respondents, or 47.5 percent of the total number of respondents, owned agricultural lands, and that their average Knowledge training needs were 19.31. Ten respondents, or 25 percent of the total number of respondents, contracted with agricultural lands, and their average Knowledge training needs were 16.6. Eleven respondents, or 27.5 percent of the total number of respondents, rented agricultural lands, and their average Knowledge training needs were 15.8.

Table 7 : Distribution Of Respondents According To The Type Of Possession And Average Knowledge Training Needs

Categories	Number	%	Average Knowledge training need	Calculated (t) value	Correlation Coefficients(RS)
ownership,	19	47.5 %	19.31		
contract	10	25 %	16.6	3.251	**0.43
rent	11	27.5 %	15.8		
	40	100 %			

Significance level = 0.01

Table (7) shows that most growers are owners of agricultural land. use basic Spearman's correlation coefficient was used to find the relationship between the Knowledge training needs and Type of holding, and the results showed a strong relationship at the (0.01) level, and its value was (0.43**).And so reject the statistical Thus, we adopt the alternative hypothesis, which asserts the following: There is a significant correlation between the Knowledge training needs of wheat growers and the agricultural recommendations related to crop cultivation and Type of holding .

This may be explained by the fact that when growers acquire more agricultural land, their demands for Knowledge training rise. The typical Knowledge training demands of growers are undoubtedly rising as a result of the landowner's constant search for information and advancements in agricultural crop growing.

Information sources : The study's findings indicated that exposure to information sources had the highest numerical value (12) and the lowest numerical value (3). Table (8) illustrates how the responses were arranged based on the range and category length of the information sources.

Table 8 : Distribution Of Respondents According To Information Sources And Average Knowledge Training Needs

Categories	Number	%	Average Knowledge training need	Calculated (t) value	Correlation Coefficients(RS)
Low (3 – 5)	13	32.5 %	19.38		
Medium (6 – 8)	12	30 %	18.58		
High (9 And more)	15	37.5 %	15	5.38	**0.58-
	40	100 %			

Significance level = 0.01

use basic Spearman's correlation coefficient was used to find the relationship between the Knowledge training needs and Information sources , and the results showed a strong inverse relationship at the (0.01) level, and its value was (**0.58-).And so reject the statistical Thus, we adopt the alternative hypothesis, which asserts the following: There is a significant correlation between the Knowledge training needs of wheat growers and the agricultural recommendations related to crop cultivation and Information sources . The explanation for this link might be that the researchers' contact with agricultural information sources connected to wheat farming provides them with numerous valuable experiences, abilities, and knowledge in their field of work, reducing their requirement for Knowledge training.

Fourth objective : To find out the main issues that wheat growers in the villages of Ain Hayawi and Siha Othman in the Sharqat District are dealing with .

The responders were asked the following question: What issues do you encounter when growing wheat? In their responses, the growers listed several issues, which were ranked by the growers' significance, as seen in Table (9).

Table (9) Ranking of wheat growers' problems in the villages of Siha Othman and Ain Hayawi / Sharqat District

The paragraphs	The size of the problem				Average Knowledge training need	Rank
	Large	Medium	Little	None		
Lack of chemical fertilizers	29	1	0	0	3.975	1
the weakness of guidance services	38	2	0	0	3.95	2
Existence of interest on loans granted to wheat growers	38	2	0	0	3.95	3
Spread of infected and adulterated seeds in local markets	37	3	0	0	3.925	4
Weak electricity and frequent power outages	36	3	1	0	3.875	5
The phenomenon of high transportation costs during marketing times	32	8	0	0	3.8	6
Lack of government support for wheat growers (fertilizers, pesticides, fuel, and seeds)	28	11	1	0	3.675	7
Lack of machinery for agriculture	26	14	0	0	3.65	8
Low government pricing for wheat crops	24	15	1	0	3.575	9
Delay in paying growers' dues	17	21	2	0	3.375	10
difficult security procedures that hinder the marketing of the produce	17	15	8	0	3.225	11

When diagnosing the problems faced by wheat growers in the villages of Siha Othman and Ain Hayawi / Sharqat District from their perspective, it became clear that they are suffering from a number of issues, the first of which is the lack of chemical fertilizers. The second place was occupied by the weakness of guidance services, while the issue of "difficult security procedures that hinder the marketing of the produce" came in last. This leads us to the conclusion that these issues are genuine and authentic, even though they repeat at different rates. We must thus stop at these issues in order to deal with them and identify suitable remedies for their root causes.

CONCLUSION
1. Growers of wheat do not follow scientific and technological procedures from crop planting to harvesting and selling.

2. Inadequate performance of extension departments in offering growers services and scientific advice on how to plant and prepare the wheat crop.
3. The use of low-yielding cultivars that have been certified by seed processing businesses is demonstrated by low productivity and production.
4. To boost wheat output and productivity in particular, and grain production in general, growers still require a nationwide extension program.

RECOMMENDATIONS

1. The researcher suggests educating growers about the use of high-yield seeds rather than stored seeds and conducting training sessions on wheat crops and agricultural service operations.
2. Developing the performance of agricultural extension workers and creating and executing suitable extension programs based on the fundamental requirements and issues of growers in order to improve the performance level of agricultural extension units in the area and the governorate as a whole.
3. The researcher suggests that the extension agency accept the research findings and design efficient extension programs to offer extension services to growers in order to transfer agricultural technology and scientific advice for wheat production and service.

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