



## THE ROLE OF EXTENSION TRAINING IN DEVELOPING THE CAPABILITIES OF AGRICULTURAL EMPLOYEES IN THE SUSTAINING FIELD OF AGRICULTURAL NATURAL RESOURCES IN THE PROVINCE OF THE CENTRAL REGION OF IRAQ

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### Abstract

The research aimed to know the role of extension training in developing the capabilities of agricultural employees, through a scale consisting of 46 paragraphs distributed in three areas: agricultural land management, water management and agricultural practices management as well as to identify agricultural employee satisfaction towards training in the field of natural resource sustainability Agricultural. The research community included the province of the central region of Iraq (Baghdad, Babylon, Diyala, Holy Karbala, Najaf al-Ashraf, Wasit, Salah al-Din, Anbar). Then a stratified random sample was withdrawn from this province at 50%, with 4 provinces (Baghdad, Babylon, Wasit, Diyala). The respondents' community included the 171 respondents who underwent training courses. A stratified random sample was withdrawn from Baghdad, at 50%, by 53 respondents, and from the rest of the province, at 100%, due to the small number. To achieve the research aim, a questionnaire was prepared from four main areas: agricultural land management, which includes 10 paragraphs, water management, which includes 10 paragraphs, agricultural practices management, which includes 12 paragraphs, agricultural employee satisfaction with training courses in the field of agricultural natural resource sustainability, which includes 14 paragraphs. A five-point scale was used. The agricultural employee satisfaction with the training courses was measured by a five-point scale as well. Data were collected by means of a questionnaire and by a personal interview method. This is through its focus on training its employees and joining them in training courses suited to their work, giving those in charge of the training courses an interest in their place of residence and providing the required requirements to suit the majority of the trainees, whether they are established inside or outside the country. . and the agricultural employees, after completing the training courses, did not obtain a job position commensurate with their scientific abilities and skills acquired in their departments.

**Keywords :** Extension training, agricultural employees Capabilities, sustainability of agricultural natural resources.

### Introduction

Training is at the forefront of the priorities of many countries in the world, both developed and developing country. The training aims to provide the trainees with information, skills and various renewable methods about the nature of their work assigned to them and to improve and develop their skills and capabilities, and try to change their behavior and attitudes positively, thus raising the level of performance and production efficiency. Training is one of the most important means used in the developing process and developing the capabilities of employees within organizations. Through training, organizations can influence the behavior and attitudes of individuals and change their scientific and practical capabilities, and reach them to a high degree of different skills and high efficiency in their field of work within the organization. Training in the agricultural sector becomes one of the essential elements necessary to achieve the objectives of agricultural policy and development programs, by directing a large portion of investments towards the human component to developing technical and extension skills among workers in the extension apparatus and in this direction, (Abdel Fattah, 2001) believes that training works to achieve the highest level of performance for individuals in facing obstacles and obstacles in their jobs (Hilal, 2001), The training aims to acquire, develop or change all of the knowledge, skills and attitudes of those targeted to reach the best performance images (Zayed, 2002). In order to ensure the effectiveness of agricultural work, so that agricultural extension workers can perform their job tasks at the appropriate level, they should have a set of performance competencies and capabilities that enable them to effectively perform the tasks of agricultural work in the field of achieving sustainable agricultural development. And

sustainable agricultural development is one of the important means for the advancement of the agricultural sector and rural development, where its achievement guarantees the preservation of the available natural resources of soil, water and plant assets with achieving the required development for the current generation and at the same time preserving the right of future generations to achieve the required development through natural resources. The reality of sustainable agricultural development depends on the performance of any institution or organization in achieving its aims in an efficient manner to a large extent on the skill and ability of its employees. It is certain for you that agricultural development efforts will continue to face many economic, social and technical obstacles that limit the achievement of its aims, and then the focus was on horizontal and vertical development programs that aim to achieve more productive efficiency from available resources, especially land and water suppliers (Sahra Atta, 2002). The increasing pressure on the environment by depleting its resources, whether by building, Dredging, or polluting the agricultural land with excessive use of pesticides and chemical fertilizers, and the use of farmers for some of the wrong practices that pollute the environment (Nasrat, 2011), which has resulted in the emergence of several problems and environmental damage that are linked to human health And animal, including the development of the characteristic of resistance to many insect pests towards pesticides and the accumulation of pesticide residues in food and agricultural crops (Madkour *et al.*, 2009) In recent decades, the world has witnessed a growing awareness that the current development model (the modernity model) is no longer sustainable after its consumer lifestyle has been linked to serious environmental crises such as air and water pollution, global warming and devastating floods caused by rising sea levels and rivers and exhaustion.

Non-renewable resources (Al-Ghamdi, 2007) Therefore, there was a need to take a new approach to agricultural development, which is the sustainable agricultural development method, i.e. sustainable, and sustainability is based on a principle that requires us to satisfy our current needs without harming the ability of future generations to satisfy their needs in the future (Abdullah, 2006) From this standpoint, sustainable agriculture is a key to the development component, which is necessary for the future, which helps in achieving adequate food and health production to improve the living and social status of producers (Al-Atabi and Kadhim, 2009) and gives farmers a means to conserve, improve, and use their natural resources with a greater degree of Efficiency (Alsaidi, 2012). Agricultural extension institutions should have the possibility to enhance the professional competence of workers during their service to update their information and to qualify them to act as a link between the research and agricultural centers. The importance of extension training for workers in extension organization (especially agricultural extension workers who work at the local level) is evident in the importance of their role in bringing about sustainable agricultural development where they are directly responsible for transferring agricultural technologies to farmers, This calls for their continuous training technically, professionally and in the field by providing them with the latest knowledge and skills on agricultural technologies and developing appropriate trends for these technologies, and raising and improving the level of performance of agricultural extension workers depends on what they have learned from specialized technical training courses (Dahash, 2011). Al-Aboudipointed out in his study that more than 70% of different organizations are the process of training and developing workers a key factor in the success of any organization. Al-Rashdi's study also indicated that 76% of the trainees have acquired good skills and experience after joining training courses in their field of work. Accordingly. The Ministry of Agriculture has endeavored to implement many training courses related to the field of sustainable agricultural development in the training and rehabilitation center or training extension centers deployed in the governorates of the central region of Iraq, Its main function is to organize training courses for workers and develop their skills in order to achieve their aims in the best way, where they are the driving force for the work of these departments whose success or failure depends on their ability and capabilities. As we find that the Ministry of Agriculture has allocated huge budgets for training courses in all its institutions and departments because of its belief in its importance and actual contribution to improving and developing the capabilities of workers in its institutions, whether those courses are inside or outside Iraq (Al-Aboudi, 2007). It is clear from this that training needs to be continuous to face the changes taking place in society as well as follow the development in the field of sustainable agricultural development so that training courses are more capable of developing the capabilities of agricultural employees, which contributes to community service. On the

**Table 1:** Distribution of respondents according to the province of the central region of Iraq\*

Research sample	%	Number employee of trainees	province
53	50	105	Baghdad
22	100	22	Babylon
15	100	15	Wasit
29	100	29	Diyala
119		171	Total

basis of that, the research came to answer the following questions:

- 1- What is the role of training in developing the capabilities of agricultural employees in the province of the central region in the field of sustainable agricultural development in the following areas: agricultural land management, water management, agricultural practices management.
- 2- What is the satisfaction of the agricultural employees towards training in the field of sustainable agricultural development.

#### Research aims

- 1- Knowing the role of training in developing the capabilities of agricultural employees in the field of sustainable agricultural natural resources in the following areas: agricultural land management, water management, agricultural practices management.
- 2- Knowing the agricultural employees 'satisfaction towards training in the field of agricultural natural resource sustainability

#### Research hypotheses

- 1- The training courses in the field of agricultural natural resource sustainability achieved a positive role: agricultural land management, water management, agricultural practices management.
- 2- High satisfaction of agricultural employees towards training in the field of sustaining agricultural natural resources

#### Materials and methods

**Research community and sample:** The research community included the following:

- 1- The province of the central region of Iraq, which number (8), which are (Baghdad, Babylon, Diyala, Holy Karbala, Najaf al-Ashraf, Wasit, Salah al-Din, Anbar).
- 2- Agricultural employees who are subject to training courses (in the field of land and water management) in the governorates covered by the research for the period (2015-2018) of which there are 171 employees.

#### The research sample :

First: A stratified random sample was withdrawn from the province of the central region by 50%. Thus, the province covered by the research became (4) province (Baghdad, Babylon, Wasit, Diyala).

Second: A stratified random sample of 105 respondents in the Baghdad province was withdrawn by 50% by 53 respondents, while the rest of the province due to the small number of them took all of them 100%, and thus the total number of respondents became 119 respondents as shown in Table 1.

A questionnaire was prepared where a tool for collecting data related to the role of extension training in developing the capabilities of agricultural employees in the field of sustainability of agricultural natural resources. The questionnaire consisted of 46 paragraphs distributed on 3 axes as follows: Agricultural land management 10 paragraphs. Water management has 10 paragraphs, the Agricultural Practices management has 12 paragraphs, in addition to the satisfaction of the agricultural employees with the training courses 14 paragraphs. A pre-test) was conducted on October 2019 on a sample of respondents in Baghdad province, consisting of (10) respondents in The training center is outside the research sample, and to verify the stability of the measures included in the questionnaire, the Fakronbach coefficient was used, as shown in Table 2.

Cronbach's alpha	Scale	NO.
0,761	Land management	1
0,881	Water management	2
0,751	Management of agricultural practices	3
0,762	Satisfaction with the training courses	4

It is clear from the above table that the questionnaire is characterized by high stability for each axis of the questionnaire, in addition to the overall stability of the questionnaire. According to the previous procedures, the validity and reliability of the tool were achieved, and it fulfills the conditions, and accordingly, the data was collected.

**Data collection:** The data was collected for the final questionnaire from the sample of employees exposed to training courses in the field of sustainability of natural resources (lands, water), who number 119 respondents, and

they constitute 50% of Baghdad province and 100% of the rest of the province of the research community of 171 respondents, Their responses were recorded for the period between (10 / November / 2019) - (26 / January / 2020).

**Statistical means:** The statistical (Spss) program was used to analyze research data and statistically treat them, and the following statistical methods were adopted:

- 1- Fakronbach equation: used to find the treatments of stability for the measures included in the questionnaire.
- 2- Weighted mean: Use to calculate the weighted average for each scale paragraph and its arrangement relative to the other paragraphs.
- 3- weight percentage : used to describe each vertebra and to know their rank and order in relation to the other vertebrae.
- 4- The hypothetical mean: to know the highest degrees and the lowest degrees for the scale.

### Results and Discussion

**The research aim /** to identify the role of training in developing the capabilities of agricultural employees in the field of sustainable agricultural natural resources in the following areas:

A-Agricultural Land management: The results of the research showed that the respondent's answers to the (10) paragraphs of the land management field, have obtained a Weighted Mean between (3.29 - 2.61) degrees and a percentage weight (82.25-65)., 25) degrees, while the weighted mean of the role in general reached (2,988) degrees, and with a percentage weight of (74.7) degrees, as shown in Table 3.

**Table 3 :** Distribution of respondents according to their answers to the field of agricultural lands management

The weight percentage of the role	The weighted mean of the role	weight percentage	Weighted mean	Paragraphs	Sort by importance	Sort by questionnaire
74,7	2,988	82,25	3,29	Determine the tillage depth	1	9
		81,5	3,26	Choose an appropriate time to use chemical fertilizers	2	2
		79,25	3,17	The importance of Cultivation leguminous crops to preserve the soil	3	6
		77	3,08	Cultivation of Poaceae crops	4	8
		75,25	3,01	Salinity treatment by cultivating plants with salinity	5	7
		74,25	2,97	Determine methods for tillage	6	10
		71,75	2,87	Compensation of Part the organic matter by plant residue	7	1
		70,5	2,82	Knowledge of the importance of reducing soil erosion	8	5
		70	2,80	Reduced use of chemical fertilizers	9	4
		65,25	2,61	Using compost as a source of nutrients	10	3

The above table indicates that all the paragraphs of the land management field have obtained a Weighted mean higher than the hypothetical mean of (2) degrees, which confirms that the indicative training has a role in this axis, as a paragraph (determining the depth of Tillage) came in the first place among the paragraphs, Having obtained the highest weighted average of (3.29) degrees, and with a

weight percentage of (82.25), The reason for this may be that farmers give the Tillage process great attention, where deep Tillage increases the ability to retain soil with water and eliminate bushes, while the paragraph (the use of organic fertilizer as a source of nutrients) got the lowest Weighted mean of (2.61) degrees, And with a percentage weight of (65.25) degrees, the reason may be that most of

the farmers believe that the organic materials lead to an increase in the growth of the weeds as well as the need of the farmers to know how to use and use the organic materials within a short period.

**B- Water Management:** The results of the research showed that the respondents' answers to the water management

field's paragraphs of (10) paragraphs, have obtained a weighted mean between (3.23 - 2.34) degrees, and a percentage weight (80.75-58), 5) degrees, while the weighted mean of the role in general reached (2,756) degrees, and with a percentage weight of (68.9) degrees, as shown in Table 4.

**Table 4:** Distribution of respondents according to their responses to the field of water management

The weight percentage of the role	The weighted mean of the role	weight percentage	Weighted mean	Paragraphs	Sort by importance	Sort by questionnaire
68,9	2,756	80,75	3,23	Not to waste irrigation water	1	4
		78,5	3,14	Eliminate or limit the spread of the Nile flower	2	1
		76	3,04	High temperatures reduce water imports	3	3
		69,5	2,78	The industry consumes water	4	2
		67,75	2,71	Lack of associations to rationalize specialized water	5	5
		66,25	2,65	Not having stored energy	6	8
		64,5	2,58	The lack of culture of farmers to rationalize water	7	7
		63,75	2,55	Sanitation when placed in rivers	8	9
		63,5	2,54	No padded irrigation channels	9	6
		58,5	2,34	Put dead animals in the waters of rivers	10	10

The above table indicates that all paragraphs of the field of water management have obtained a weighted mean higher than the hypothetical mean of (2) degrees, which confirms that the indicative training has a role in this axis, where the paragraph (not wasting irrigation water) came first among the paragraphs, having obtained the highest weighted average of (3.23) degrees and with a percentage weight of (80.75) degrees, The reason may be that the lack of water imports and the absence of agreements between the riparian countries, as well as the use of the alternation system among farmers, while the paragraph (placing dead animals in the waters of rivers), got the lowest weighted mean of (2.34) degrees, and a weight percentage reached (58,5) degrees,

This may be due to the increase in awareness in recent years and knowledge of the damage caused by throwing dead animals into water sources, as well as intensifying guidance activities on not throwing dead animals into rivers and water sources.

**T-The agricultural practices management:** The results of the research showed that the respondents' answers to the paragraphs of the field of agricultural practices management, which number (12) paragraph, have obtained a weighted mean between (3,17 - 2,77) degrees, and a weight percentage (79.25 - 64,25) degrees, while the weighted mean of the role in general reached (2,996) degrees, and with a weight percentage of (74,896) degrees, shown in Table 5.

**Table 5:** Distribution of respondents according to their responses to agricultural practices

The weight percentage of the role	The weighted mean of the role	weight percentage	Weighted mean	Paragraphs	Sort by importance	Sort by questionnaire
74,896	2,996	79,25	3,17	Control the quantities of distributed water	1	11
		79	3,16	Switch the engine oil to the generator regularly	2	3
		78,5	3,14	The pipes shall not be covered and buried except after ensuring that they are free from any cracking or defect in the welding process	3	10
		78,25	3,13		4	7
		77,5	3,10	Lubricating mechanical components of irrigation devices	5	6
		77	3,08	Monitor the throughput of the dispensers	6	5
		75,75	3,03	Washing the whole system, at least at the beginning and end of the season	7	8
		74	2,96	Maintain the water pressure level 4 bar	8	4
		73	2,92	Covering the system's tires in the summer from the sun's rays	9,5	1
		73	2,92	We maintain tire pressure within standards	9,5	2
		69,25	2,77	The system does not operate until at least 24 hours after the end of the works, after which the network is washed and cleaned of dirt and dust.	11	9
		64,25	2,57	Washing the dispensers by injecting amounts of nitric or phosphorous acid once every 15 days.	12	12

The above table indicates that all the paragraphs of the field of agricultural practices management have obtained a weighted mean higher than the hypothetical mean of (2) degrees, which confirms that the indicative training has a role in this axis, where a paragraph (controlling the quantities of distributed water) came in the first rank among the paragraphs, where it obtained the highest weighted mean of (3,17) degrees, and a weight percentage of (79.25) degrees, and the reason may be that the use of irrigation systems according to the instructions ensures a uniform distribution of water quantities in all irrigated areas, Whereas, the paragraph (washing of dispensers by injection of quantities of nitric or phosphoric acid once every 15 days) was obtained, at the lowest weighted mean of (2.57) degrees, and with a percentage weight of (64.25) degrees, and this reason may be due to many farmers are afraid to use the acid for fear of the metal pipes of the systems.

Based on the foregoing, the research hypothesis which states: Training courses in the field of the sustainability of agricultural natural resources has achieved a positive role: agricultural land management, water management, agricultural practices management.

#### **The research aim/Knowing the agricultural employees 'satisfaction towards training in the field of agricultural natural resource sustainability.**

The results of the research showed that the answers of the respondents to the paragraphs of the field of employee satisfaction with the training courses, which numbered (14) paragraphs, have obtained a weighted mean between (4,01-3.22) degrees and a weight percentage (80,2 - 64,4) degrees, while the weight percentage of the role in general reached (3,727) degrees, and with a weight percentage of (74,543) degrees, shown in Table 6.

**Table 6:** Distribution of respondents according to their answers to identify satisfaction with training courses

The weight percentage of the role	The weighted mean of the role	weight percentage	Weighted mean	Paragraphs	Sort by importance	Sort by questionnaire
74,543	3,727	80,2	4,01	The place to hold the training course	1	3
		79,4	3,97	The date of the training session	2	2
		78,4	3,92	Course content	3	1
		78,2	3,91	The ability of the trainees to reach the place of the training course	4	7
		77,4	3,87	The training practitioner plays his role as facilitator	5	4
		76	3,80	The training content is appropriate to the capabilities and capabilities of the trainees	6,5	9
		76	3,80	The course meets my cognitive need	6,5	13
		75,2	3,76	The training course fulfills the cognitive desire of the trainees	8	8
		74,6	3,73		9	6
		73,2	3,66	The training course is within the competence of the trainees	10	5
		71,8	3,59	The training course meets the need or desire of the trainees	11	10
		71	3,55	The trainees are chosen or evaluated fairly	12	14
		67,8	3,39	The topics of the training courses fit my ambition	13	12
		64,4	3,22	The training course is used economically.	14	11

The above table indicates that all paragraphs of the employee satisfaction field for training courses have obtained a weighted mean higher than the hypothetical mean of (3) degrees, which confirms that the indicative training has a role in this axis, as a paragraph (the place of the training course) came in the first rank among the paragraphs, Having obtained the highest weighted mean of (4,01) degrees, and with a weight percentage of (80,2) degrees, The reason for this may be that the interest of those in training courses in the place of their establishment and providing the required requirements to suit the majority of trainees, whether they are established inside or outside the country, while a paragraph (after completing the training course, the trainee gets a new or higher job position), with the lowest weighted mean was (3.22) degrees and a weight percentage of (64,4), The reason may be that the majority of the trainees did not take into consideration their training courses in the duties and future work assigned to them, in addition to not obtaining a job

position commensurate with their capabilities in their departments after completing the training courses. The reason may be that the majority of the trainees did not take into consideration their training courses in the duties and future work assigned to them, in addition to not obtaining a job position commensurate with their capabilities in their departments after completing the training courses, Based on the above accepts the research hypothesis which states: the increase in the satisfaction of agricultural employees towards training in the sustainability of agricultural natural resources.

#### **Conclusions**

We conclude from the research that the training courses contribute to developing the capabilities of agricultural employees in the field of sustainable natural resources, where government departments keep pace with the rapid and enormous developments in the field of practices related to the sustainability of natural resources (agricultural land

management, water management), and this is through focusing on training its employees and enrolling them in training courses appropriate for their work. It also gives those in charge of the training courses attention to the place of residence and provides the necessary requirements to suit the majority of the trainees, whether they are established inside or outside the country, the agricultural employees, after completing the training courses, did not obtain a functional position commensurate with their scientific abilities and skills acquired in their departments. The researcher recommends focusing on the practical side when conducting the training courses and giving him adequate and appropriate time. The Agricultural training and Extension Department should work to increase the training courses for developing the capabilities of agricultural employees and according to the most important topics, Giving agricultural employees who have joined the training courses the opportunity to obtain a job position commensurate with their capabilities that the training courses contributed to developing.

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