The level of knowledge of agricultural employees in the planning process for the transfer of agricultural technologies for yellow maize crop in Kirkuk Governorate.

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Abstract

The aim of the study is to determine the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for the yellow corn crop in Kirkuk Governorate in general, and to determine the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for the yellow corn crop in each stage of the study represented by (preliminary stage, planning stage, implementation stage, evaluation stage), and to determine the correlation between the level of knowledge of agricultural employees in the planning process in the research area and the variables specific to employees represented by (age, gender, number of years of job service, and participation in transferring agricultural technologies).

The study community included all agricultural employees in the research area, numbering (206) employees distributed over 14 agricultural divisions with Kirkuk Agriculture Directorate. A survey sample of (33) employees was taken, thus the number of employees subject to the research became (173) employees. A simple random sample of 60% was selected in a proportional manner so that the number of respondents who underwent the research procedures became (106) employees. A questionnaire form was prepared that included 43 paragraphs distributed over the following research stages (preliminary stage, planning stage, implementation stage, evaluation stage). Each stage included a number of paragraphs, which are (6, 8, 14, 15) respectively. The results showed that the level of knowledge of agricultural employees in general is average and tends to increase, which indicates the effective role of agricultural employees. The research recommended the necessity of opening training courses for agricultural employees in the field of program planning in cooperation with the guidance center and involving the faculty of the College of Agriculture, University of Kirkuk in the training curriculum.

Keywords: Program planning, agricultural personnel, yellow corn.

Introduction

Agriculture has been and still is the basic foundation for any civilizational development, human stability, well-being and security for human life since it existed (1). Modernizing and developing agriculture has become a necessary requirement to secure food and clothing for the population and provide the raw materials needed for industry in addition to providing real job opportunities for young people, and to achieve sustainable rural development for farmers (2). Agricultural development

programs are considered the heart and soul of extension work, as different types of agricultural extension programs work to enhance innovative technologies and extension services and involve local institutions and stakeholders in all stages of program development, and planning is the cornerstone of planned change (3).

Agricultural development in the countries of the world is based on linking sources of scientific knowledge, innovative ideas and field application sites, as the use of scientific knowledge in the agricultural production process has become one of the most important elements that are indispensable for any production sector in the current era, with the necessity of the availability of capital, which has prompted many countries to increase their investments in scientific research and establish agricultural research stations and link them to various production sites (4). Development is also a basic goal for any country, especially developing countries that are trying to catch up with developed countries in order to raise the economic, social and living standards, and agricultural development represents an important part of integrated development (5) quoted from (6).

Agricultural development depends on two basic elements: the human element with its capabilities and skills that qualify it to use the material element efficiently to achieve development, and the material element represented by the outcome of scientific and technological progress in the field of sciences related to agricultural production (7), as modern technologies have shown that they are the important and basic means for solving agricultural problems because in many rural areas, agricultural operations are still carried out using simple traditional means based on the method of trial and error. This means that the availability of these technologies is the basis for treating agricultural problems. While the solution seems simple, it is not so in practice. Even if modern technologies are available, they may not be suitable for certain agricultural areas or cannot be easily transferred or conflict with traditional and civilized processes (8). The process of transferring technologies requires the presence of the appropriate organization in order to carry out this task, and the agricultural guide is the basic pillar in agricultural guidance organizations (9). In confirmation of the importance of the cognitive aspect of workers in agricultural technology dissemination programs and the importance of training as a primary source of this knowledge, several studies have emphasized the importance of continuous training for workers in agricultural technology dissemination programs as a successful means of improving their performance and improving the effectiveness of these programs (10). Therefore, extension programs dedicated to transferring agricultural technologies to crops are a method for developing productivity and agricultural production in all targeted areas to provide solutions to address the problems that prevent increasing agricultural production (11). There must be coordinated efforts to find plans and programs that are designed to achieve the required goals and objectives. These plans and programs are subject to continuous change in light of the development of conditions in the countryside, and the development of the needs of individuals and institutions for new developments in terms of expertise, innovations, means and methods appropriate for farmers to achieve the goals with a high degree of success (12). Diagnosing problems and identifying needs are considered the most important pillars of the success of developing guidance programs, especially in the actual planning stage of the programs, as this stage is considered one of the most important factors that increase the chances of their success when implemented (13). The success of the guidance work as a whole depends on the success of the

planning process carried out by the workers participating in these organizations, which must be able to absorb the developments of planning and implement it with a high degree of skill and efficiency, as well as qualified human competencies are the basic element in the success of guidance planning (14). Planning is the first important and primary function in managing any project, whether industrial, agricultural, service or commercial. The importance of planning in the field of agriculture increases in terms of stating the goal of agriculture and the type of agriculture required for the population on the individual, international or global level, where those working in agriculture can supply the market with the materials necessary for human life (15). The process of planning extension programs is a necessary step for participants in the planning process to learn to identify the needs and prominent problems in the local community and participate in planning agricultural extension programs, through which problems and errors practiced to correct them are addressed to improve the performance of the farmers themselves, which is positively reflected in increasing their production and improving it in terms of quantity and quality, and teaching them to use modern agricultural technologies and methods (16). The importance of extension planning lies in the fact that systems operate in a constantly changing and evolving environment in terms of economics and technological developments. In addition to the necessity of harmonizing between the increasing social needs with population density and limited natural resources (17). Studies indicate that the actual reality of planning agricultural extension programs in Iraq is characterized by the lack of clarity of general objectives and educational goals by workers at the local level, the absence of annual plans, the failure to follow the steps of the planning process accurately, and the lack of adherence to the scientific method during the evaluation of agricultural extension programs (18). The aforementioned problems and negatives can be avoided by identifying the information and knowledge possessed by agricultural employees at all levels in the process of planning agricultural extension programs and identifying the weak aspects in their information and knowledge to include them in training courses for the purpose of providing them with information and knowledge related to the process of planning agricultural extension programs for transferring modern agricultural technologies to farmers.

Based on the above, the study problem is represented by the following questions:

1. What is the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for the yellow corn crop in Kirkuk Governorate in general?
2. What is the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for the yellow corn crop in Kirkuk Governorate at each stage of planning, which are (the preliminary stage, the planning stage, the implementation stage, and the evaluation stage)?
3. Is there a significant correlation between the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for the yellow corn crop in Kirkuk Governorate and the following independent factors (age, gender, number of years of job service, and participation in transferring agricultural technologies)?

Research objectives:

1. Determine the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for yellow corn in Kirkuk Governorate in general.

2. Determine the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for yellow corn in Kirkuk Governorate at each stage of planning, which are (preliminary stage, planning stage, implementation stage, and evaluation stage).
3. Determine the correlation between the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for yellow corn in Kirkuk Governorate and the following independent factors (age, gender, number of years of job service, and participation in transferring agricultural technologies).

Research Methodology :

The descriptive approach was relied upon to achieve the research objectives, in order to describe the subject to be studied accurately through a correct scientific methodology, through which the results reached by the researcher are converted into expressive numbers through which we can interpret them accurately. One of its advantages is that it also provides real information that helps in explaining human and social phenomena (19) quoted from (20)

Research Area :

Kirkuk Governorate was chosen as an area to conduct the research as it is considered one of the important governorates in growing yellow corn and the introduction of modern technologies in the process of growing and serving the crop requires guidance programs in order to spread them among farmers for the purpose of training them to use and adopt them to raise the level of production and productivity.

Research community and sample:

The research community included (14 agricultural divisions in addition to the Kirkuk Governorate Agriculture Directorate), the number of agricultural employees working in the Kirkuk Agriculture Directorate and its affiliated divisions was (206)* agricultural employees distributed among the divisions of the region. After excluding the Hawija Agriculture Division as a survey sample that includes (33) agricultural employees, the research community became (173) respondents. A simple random sample was selected at a rate of 60% and in a proportional manner so that the number of respondents who underwent the research procedures became (106) employees.

Preparing the questionnaire form:

The questionnaire form was prepared in its initial form by reviewing the scientific sources of previous studies and seeking the assistance of experts and specialists. It was formulated according to the study problem and in light of its objectives and the type of data that is consistent with it and to achieve the study objectives. The questionnaire form consists of two parts.

Part One: It included a set of questions related to the personal and social factors of the respondents, represented by (age, gender, number of years of job service, and participation in the transfer of agricultural technologies).

Part Two: It included a scale consisting of (47) paragraphs, each of which represents a step taken in the process of planning the guidance program within the basic stages in the planning process, distributed over the planning stages represented by (the preliminary stage, the planning stage, the implementation stage, and the evaluation stage) with (16, 15, 9, 7) paragraphs respectively.

Validity measurement

The validity of the scale means that the scale meets the purposes and uses for which it was designed (21). Apparent validity means that the scale appears valid in its apparent form for the purpose for which it was designed (22). What is meant by validity is that the scale stipulates measuring what it was designed for in terms of the objectives set and does not measure other objectives (23). Validity is one of the most important conditions that must be available in the measurement tool and on which all researchers rely, (24) and two types of validity were achieved as follows:

A. Apparent validity: It was achieved by presenting the questionnaire to a number of agricultural extension department instructors and psychology instructors to verify the wording of the paragraphs and their clarity in measuring the objectives as shown in Appendix (B). Some paragraphs were modified and two paragraphs were deleted by the experts to become 45 paragraphs.

B. Content validity: The form was presented to the subject specialists as in Appendix (T), and after some paragraphs were modified until it became ready for the initial test, and they expressed their approval of it, and thus its number remained (45) paragraphs.

Initial test

After completing the formulation of the questionnaire in its final form and taking into account all the experts' amendments, the researcher selected the Al-Hawija Agriculture Division as a survey sample that includes (33) agricultural employees for the purpose of verifying the clarity of the paragraphs and questions, diagnosing and addressing the areas of difficulty, and the time it takes the respondent to answer the paragraphs. The data was collected for the period from 9/15/2024 to 9/25/2024.

Measuring stability and validity :

What is meant by stability is the level of stability in the scores achieved on the measurement tool over time (stability of the results if the measurement is repeated on the same group of individuals after a period of time) (25). The stability of the tool means that the tool gives the same results if it is repeated on the same individuals under the same conditions (26). To find stability, the Cronbach's alpha method was used, and the value of the stability coefficient reached (0.91). To obtain the validity of the scale, the square root of the value of the stability coefficient was taken, and the value of the validity coefficient was (0.95).

In order to finalize the questionnaire and collect research data, the value of the ease and difficulty coefficient and the power of discrimination for the scale items were extracted from the answers of the survey sample members. Two items were deleted, one due to ease and the other due to difficulty. Thus, the number of final scale items became (43) items, as in Table 1.

Table (1) Difficulty and ease coefficient values for the scale items

Paragraph number	Ease factor	Difficulty factor	Discrimination power coefficient	Paragraph number	Ease factor	Difficulty factor	Discrimination power coefficient
1	0.585	0.415	0.547	24	0.717	0.283	0.698
2	0.660	0.339	0.585	25	0.708	0.293	0.642
3	0.603	0.396	0.528	26	0.669	0.330	0.623
4	0.566	0.434	0.642	27	0.745	0.255	0.717

5	0.576	0.425	0.755	28	0.660	0.339	0.604
6	0.651	0.349	0.528	29	0.698	0.302	0.679
7	0.594	0.406	0.623	30	0.642	0.359	0.698
8	0.632	0.368	0.528	31	0.660	0.339	0.774
9	0.669	0.330	0.679	32*	0.169	0.830	0.302
10	0.594	0.405	0.491	33	0.698	0.302	0.755
11	0.613	0.387	0.642	34	0.642	0.359	0.509
12	0.726	0.274	0.698	35	0.669	0.330	0.585
13	0.660	0.339	0.774	36	0.651	0.349	0.604
14	0.717	0.283	0.736	37	0.651	0.349	0.717
15	0.726	0.274	0.679	38	0.679	0.321	0.353
16	0.717	0.283	0.585	39	0.660	0.339	0.585
17	0.689	0.311	0.679	40	0.613	0.387	0.642
18	0.736	0.264	0.698	41	0.632	0.368	0.585
19	0.708	0.293	0.679	42	0.642	0.359	0.642
20	0.849	0.150	0.434	43	0.557	0.443	0.358
21	0.679	0.321	0.585	44	0.585	0.415	0.491
22	0.736	0.246	0.698	45	0.594	0.406	0.377
23	0.651	0.349	0.66				

Measurement of independent variables:

A. Age: It was measured by the number of years of the respondents' age at the time of data collection.

B. Gender: It was measured by setting the alternatives (male, female) and these alternatives were given the following values (2, 1) respectively.

C. Number of years of job service: It was measured by the number of years of job service of the respondent.

D. Participation in disseminating agricultural technologies: It was measured by the following alternatives (very large, large, medium, small, I did not participate) and were given the values (2, 3, 4, 1, zero) respectively .

Measuring the level of knowledge of employees in planning for transferring agricultural technologies

The level of knowledge of agricultural employees in the field of planning for transferring agricultural technologies specific to the yellow corn crop was measured through (43) paragraphs distributed over the research areas. The alternatives (yes, no) were placed in front of each one and the values (1, zero) were given respectively. Thus, the values expressing this variable are limited to (zero-43) degrees .

Statistical methods:

To achieve the research objectives, many statistical methods and means were used, including:

The range, the arithmetic mean, the simple Pearson correlation coefficient, the Spearman correlation coefficient, and the t-test.

Results and Discussion :

First objective: Determine the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for the yellow corn crop in Kirkuk Governorate in general.
The values expressing the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for the yellow corn crop in Kirkuk Governorate in general were limited between (13-39) degrees with an arithmetic mean of (28.26) and a standard deviation of (8.867). The respondents were divided according to the range law into three categories as in Table (2).
Table (2) Distribution of respondents according to the level of knowledge of employees in the planning process in general

Categories	Number	Percentage	Arithmetic mean
Low (13-21)	29	27.36	16.689
Medium (22-30)	39	36.79	27.333
High (31-39)	38	35.85	38.052
Total	106	100%	

$\bar{x}$=28.26 S.d =8.867

Table (2) shows that the high level of knowledge category (38.052) reached 35.85%, while the medium category reached 36.79%, while the low category reached 27.36%. That is, the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for the yellow corn crop in Kirkuk Governorate is average and tends to rise. The reason for this may be the widespread cultivation of the crop in the research area and the high level of educational attainment of agricultural employees, which made them know the importance of using modern technologies in the field of cultivation and service of the crop and transferring them to farmers, such as crop cultivation techniques, irrigation methods, and mechanical harvesting methods, which made them interested in developing plans for appropriate guidance programs to transfer these modern agricultural technologies in the research area.
The second objective: To determine the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for the yellow corn crop in Kirkuk Governorate at each stage of planning, which is .
1 - The preliminary stage.
The research results showed that the lowest numerical value was (2) degrees and the highest numerical value obtained by the respondents in the preliminary stage was (14) degrees, with an arithmetic mean of (9.57) degrees and a standard deviation of (3.664) degrees. The respondents were distributed into three categories according to the range and the results were as shown in Table (3).
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Categories	Number	Percentage	Arithmetic mean
Low (2-5)	22	20.76	4.132
Medium (6-9)	24	22.64	7.500
High (10-and above)	60	56.60	12.400
Total	106	100%	

= 9.57 S.d=3.664 $\bar{x}$

Table (3) shows that the high level of knowledge category reached 56.60%, while the average category reached 22.64%, while the low category reached 20.76%, meaning that the level of knowledge is high and tends towards average. The reason for this may be the identification of agricultural employees responsible for implementing technology transfer programs for the yellow corn crop, diagnosing their training needs, involving subject specialists, and using distinguished farmers when developing plans for technology transfer programs for the yellow corn crop.

2- Planning stage

The research results showed that the lowest numerical value was (3) degrees and the highest numerical value obtained by the respondents in the planning stage was (14) degrees, with an arithmetic mean of (9.74) degrees and a standard deviation of (3.346) degrees. The respondents were distributed into three categories according to the range and the results were as shown in Table (4).

Table (4) Distribution of respondents according to planning stage

Categories	Number	Percentage	Arithmetic mean
Low (3-6)	23	21.70	4.782
Medium (7-10)	35	33.02	8.771
High (11-14)	48	45.28	12.833
Total	106	100%	

$\bar{X}$= 9.74 S.d=3.346

Table (4) shows that the high level of knowledge category reached 45.28%, while the average category reached 33.02%, while the low category reached 21.70%, meaning that the level of knowledge is high and tends towards the average. The reason for this may be that the employees follow the steps of the planning stage, such as knowing the varieties widely grown in the region, knowing the average productivity of the dunum of yellow corn, collecting and analyzing data, identifying the problems that farmers suffer from, and determining the objectives of the guidance program.

3- Implementation phase :

The research results showed that the lowest numerical value was (2) degrees and the highest numerical value obtained by the respondents in the implementation phase was (8) degrees, with an arithmetic mean of (5.31) degrees and a standard deviation of (1.919) degrees. The respondents were distributed into three categories according to the range and the results were as shown in Table (5).

Table (5) Distribution of respondents according to implementation stage

Categories	Number	Percentage	Arithmetic mean
Low (2-3)	22	20.76	2.500
Medium (4-5)	32	30.18	4.562
High (6-and above)	52	49.06	6.961
Total	106	100%	

$\bar{X}$= 5.31 S.d = 1.919

Table No. (5) shows that the high level of knowledge category reached 49.06%, while the average category reached 30.18%, while the low category reached 20.76%, meaning that the level of knowledge is high and tends towards average. The reason may be knowing the importance of applying modern agricultural techniques in growing yellow corn as an integrated technical package, training

farmers on the use of mechanical farming, modern irrigation techniques, pest control, and mechanical harvesting.

4- Evaluation stage :

The research results showed that the lowest numerical value was (1) degree and the highest numerical value obtained by the respondents in the evaluation stage was (6) degrees, with an arithmetic mean of (3.63) degrees and a standard deviation of (1.348) degrees. The respondents were distributed into three categories according to the range and the results were as shown in Table (6).

Table (6) Distribution of respondents according to evaluation stage

Categories	Number	Percentage	Arithmetic mean
Low (1-2)	24	22.64	1.708
Medium (3-4)	52	49.06	3.596
High (5-6)	30	28.30	5.233
Total	106	100%	

X^{-} =3.63 S.d =1.348

Table (6) shows that the high level of knowledge category reached 28.30%, while the average category reached 49.06%, while the low category reached 22.64%, meaning that the level of knowledge at this stage is average and tends to increase. The reason may be to obtain feedback from farmers who have adopted the application of modern agricultural technologies and to know the difference in the productivity of the dunum and to diagnose the reasons that prevented farmers from benefiting from the guidance program and to diagnose the problems and challenges they face, which increases the experience of employees in providing appropriate solutions.

Fourth objective: Determining the correlation between the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies specific to the yellow corn crop in Kirkuk Governorate and the variables specific to employees, which are:

1- Age: The ages of the respondents ranged between (20-60) years. The respondents were divided into three categories according to the range law, as shown in Table (7).

Table (7) Distribution of respondents according to age groups

Categories	Number	Percentage	Average knowledge	value r	value t
Young (20-33)	42	39.62	29.071	- 0.20 *	2.081
Middle Age (34-47)	41	38.68	30.073		
Senior (48- And more)	23	21.70	23.565		Moral
Total	106	100%			0.05

* Indicates that the relationship is significant at the 0.05 probability level.

Table (7) shows that 39.62% of the respondents were in the young age group, which is the highest percentage, followed by the middle-aged group with a percentage of 38.68%, while the elderly group had the lowest number with a percentage of 21.70%. To find the correlation between the level of knowledge of employees and age, Pearson's correlation coefficient was used, and it was found that the relationship was inverse between the two variables, and the value of the correlation coefficient was (-0.2). To ensure the significance of the relationship, the (t) test was used, where the calculated (t) value was 2.081, which is greater than the tabular (t) value at a probability level of (0.05). Thus, we reject the statistical hypothesis that states (there is no significant correlation between the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for the yellow corn crop in Kirkuk Governorate and age). This may be due to the introduction of modern technologies in the field of growing and serving the yellow corn crop in the research area that were not previously widespread and require knowledge that was

not available to elderly employees for the purpose of benefiting from it to develop guidance programs to transfer those technologies.

2. Gender: The results showed that the largest group of respondents was male, amounting to 72 respondents, and the smallest group of respondents was female, amounting to 34 respondents, as shown in Table (8).

Table (8) Distribution of respondents according to gender categories

Categories	Number	Percentage	Average knowledge	Value rs	Value t
Males	72	67.92	30.42	0.29**	3.100
Females	34	32.08	23.70		Morale 0.01
Total	106	100%			

** Indicates that the relationship is significant at the 0.01 probability level.

Table (8) shows that 67.92% of the respondents are males, which is the highest percentage, followed by females at 32.08%. To find the correlation between the level of employees' knowledge and gender, Spearman's correlation coefficient was used, which reached a value of 0.29. To ensure the significance of the relationship, the (t) test was used, where the calculated (t) value reached 3.100, which is greater than the tabular (t) value at a probability level of (0.01). Thus, we reject the statistical hypothesis that states (there is no significant correlation between the level of agricultural employees' knowledge in the planning process for transferring agricultural technologies for the yellow corn crop in Kirkuk Governorate and gender). The reason for this may be that male employees are assigned to extension activities outside the department more than females, and they have more knowledge of farmers' problems and circumstances than females, which makes them know how to develop appropriate training program plans for transferring agricultural technologies for the crop in the research area.

3 - Number of years of service: The results showed that the minimum service of the respondents was 1 year and the maximum service was 40 years. The respondents were divided into three categories according to the term law, as shown in Table (9).

Table (9) Distribution of respondents according to the categories of number of years of service

Categories	Number	Percentage	Average knowledge	Value r	Value t
Short (1-13)	77	72.64	28.42	- 0.11	1.133
Medium (14-26)	22	20.75	28.81		
Tall (27 - And more)	7	6.61	24.71		Non-moral
Total	106	100%			

Table (9) shows that 72.64% of the respondents were in the short service category, which is the highest percentage, followed by the medium service category with a percentage of 20.75%, then the long service category with 6.61%, which is the lowest percentage. To find the correlation between the level of employees' knowledge and the number of years of service, Pearson's correlation coefficient was used, which had a value of 0.11. It was found that the relationship was inverse between the two variables. To test the significance of the relationship, the (t) test was used, which had a value of 1.133, which is less than the tabular (t) value at a probability level of 0.05. Thus, we accept the statistical hypothesis that states (there is no significant correlation between the level of agricultural employees' knowledge in the planning process for transferring agricultural technologies for the yellow corn crop in Kirkuk Governorate and the number of years of service).

4- Participation in the transfer of agricultural technologies: The results showed that the smallest category of respondents were non-participants, amounting to 41 respondents, and the highest category of respondents was participants, amounting to 65 respondents, as shown in Table (10).

Table (10) Distribution of respondents according to participant categories

Categories	Number	Percentage	Average knowledge	value rs	Value t
Participant	65	61.32	29.015	0.35 **	3.826
Non-Participant	41	38.68	27.073		Morale 0.01
Total	106	100%			

** Indicates that the relationship is significant at the 0.01 probability level.

Table (10) shows that 61.32% of the respondents are in the participant category, which is the highest percentage, followed by the non-participant category with a percentage of 38.68%. To find the correlation between the level of employees' knowledge and participation in the transfer of agricultural technologies, Spearman's correlation coefficient was used, with a value of 0.35. To test the significance of the correlation between the two variables, the (t) test was used, with its calculated value reaching 3.826, which is greater than the tabular (t) value at a probability level of (0.01). Thus, we reject the statistical hypothesis that states (there is no significant correlation between the level of agricultural employees' knowledge in the process of planning to transfer agricultural technologies for the yellow corn crop in Kirkuk Governorate and participation in the transfer of agricultural technologies). The reason for this may be that the participants acquire more knowledge through their direct dealing with the latest methods and technologies related to the crop, and they are subject to training programs and workshops that help them to learn about developments in the agricultural field, which makes them more knowledgeable about the process of planning programs to transfer modern technologies to farmers.

Conclusions:

1. The results showed that more than 64% of agricultural employees fall within the categories of medium and low levels of information about planning to transfer agricultural technologies for the yellow corn crop in Kirkuk Governorate. We conclude from this that agricultural employees need to be provided with information about planning programs and their multiple sources.
2. The results showed that the planning phase ranked first in the level of knowledge of agricultural employees. We conclude from this that there is knowledge of the hybrid varieties grown in the research area and the methods of serving them and what affects their productivity and the ability of agricultural employees to diagnose the problems suffered by crop farmers and arrange them in order to find solutions according to importance.
3. The results showed that the evaluation stage ranked last in the level of knowledge of agricultural employees. We conclude from this that employees are unable to know the productivity of the dunum among farmers who did not participate in the guidance program and compare it with the productivity of the dunum among farmers who participated in the program to demonstrate the importance of applying scientific recommendations to production.
4. The results showed a direct correlation between the level of knowledge of agricultural employees and each of the personal factors represented by (gender, and participation in the transfer of agricultural

technologies). We conclude from this the importance of these factors when assigning agricultural employees to develop future plans for the transfer of agricultural technologies.

5. The results showed a significant inverse correlation between the level of knowledge of agricultural employees and each of the personal factors represented by (number of years of job service). We conclude from this the need to provide managers of agricultural departments to increase their knowledge of modern agricultural technologies in growing and serving the yellow corn crop in the research area in order to know the development of plans for the dissemination of agricultural technologies specific to the crop in the research area.

Recommendations:

1. Open training courses for agricultural employees in the field of program planning in cooperation with the Extension Center and involve the faculty of the College of Agriculture | University of Kirkuk in the training curriculum.
2. Increase extension activities in the research area, especially field demonstrations to clarify the method of using modern agricultural technologies in mechanical agriculture, sprinkler irrigation and harvesting with mechanical harvesters.
3. Increase the knowledge of agricultural employees in the field of program evaluation and explain its importance to identify the strengths and weaknesses of the program in order to overcome them in subsequent programs.
4. Assign agricultural employees who have shown a direct moral correlation to develop plans for transferring modern agricultural technologies in the future.
5. Provide managers of agricultural departments with information about programs for transferring modern agricultural technologies through delegation or opening special courses for them at the Extension Center in Kirkuk Governorate in order to increase their knowledge in developing plans for disseminating agricultural technologies.

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