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The level of knowledge of agricultural employees in the advanced change strategy for the employees' 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 yellow corn crops in Kirkuk Governorate in general, and to arrange the study stages in descending order based on the agricultural workers' level of expertise in the research area's planning process and to ascertain the relationship between the agricultural workers' level of in the planning process in the research area and the variables specific to employees represented in (academic achievement, academic specialization, administrative position, and the trend towards modern technologies). All of the agricultural workers in the research area were part of the study community, numbering (206) employees distributed over 14 agricultural divisions with the Kirkuk Agriculture Directorate, and 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 (6, 8, 14, 15) respectively. The findings demonstrated that, generally speaking, agricultural workers' knowledge levels are average and tend 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
One of the issues facing sustainable agricultural development and the conversion of agricultural sectors from traditional to investment sectors with the goal of increasing productivity and profit is modernizing agricultural sectors., provided that they are ecologically sound, socially applicable, and culturally appropriate as well, as modern agriculture needs advanced technology that works to keep pace with scientific knowledge with agricultural needs. The use of agricultural technology is not limited to the use of agricultural machines only, but includes providing inputs for agriculture such as fertilizers, pesticides, and other inputs [1].

The importance of agricultural development is focused on close cooperation between three important bodies, namely agricultural research, agricultural extension, and the masses of farmers, through conducting various agricultural research, extracting and verifying its results, and sharing these findings with the application field in the areas of plant, animal, and agricultural production, and convincing the masses of farmers to apply and adopt them with the aim of increasing agricultural production [2], quoted from (Al-Sharif, 2013). Modern technologies have shown that they are the important and basic means of 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 operations [3].

The process of transferring technologies requires the presence of an appropriate organization in order to carry out this task. The agricultural guide is the main pillar in the extension and agricultural organizations. Life in the village is one of the factors in the distance of agricultural guides from living in the countryside. This leads to the failure to develop the organizational structure that helps in transferring modern technologies [4]. In confirmation of the importance of the cognitive aspect for workers in agricultural technology dissemination programs and the importance of training as a primary source of this knowledge, several studies have confirmed 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 [5].

Planning includes three issues: investigating the past, assessing the present, and forecasting the next move. An effective extension program outlines in writing what will be done, why, how, when, with whom, and where. Planning is the process of developing a plan for our goals, methods, procedures, activities, and expected results [6].

The process of planning extension programs is a necessary step as participants in the planning process learn to identify the needs and prominent problems in the local community and participate in planning agricultural extension programs through which problems and errors are addressed and corrected to improve the performance of the farmers themselves, which is positively reflected in increasing their producing and enhancing it in terms of of quantity and quality, and teaching them to use modern agricultural technologies and methods [7].

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, as the need for planning comes from the importance of what has been planned [8].

The above-mentioned problems and negatives can be avoided by identifying the knowledge possessed by agricultural employees at all levels in the process of planning agricultural extension programmes and identifying the weak points in their knowledge to include them in training courses for the purpose of providing them with the knowledge specific to the process of planning extension programmes to transfer agricultural technologies.

Based on the above, the research problem is represented in answering the following research 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 order of the stages and paragraphs of the research in descending order?
3. What is the 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 (academic achievement, academic specialization, administrative position, and the trend towards modern 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. Arrange the planning stages and paragraphs of each stage in descending order according to the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for yellow corn in Kirkuk Governorate.
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 (academic achievement, academic specialization, administrative position, and attitude towards modern technologies).

Statistical hypotheses

1. There is no significant correlation between the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for yellow corn in Kirkuk Governorate and academic achievement.
2. There is no significant correlation between the level of knowledge of agricultural employees in the planning process for transferring agricultural technologies for yellow corn in Kirkuk Governorate and academic specialization.
3. There is no significant 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 administrative position.
4. There is no significant 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 trend towards modern technologies.

Materials and methods of work

Research methodology

In order to accurately describe the subject under study using proper scientific methodology which transforms the researcher's findings into expressive numbers that we can accurately interpret the descriptive approach was used to accomplish the research objectives. One of its benefits is that it offers accurate data that aids in the interpretation of social and human phenomena [9] cited in [10].

Research area Kirkuk Governorate was chosen as the 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

In addition to the Kirkuk Governorate Agriculture Directorate, the research community comprised 14 agricultural departments. The number of agricultural employees employed by the Kirkuk Agriculture Directorate and its affiliated divisions was (206)* agricultural employees distributed over 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 scientific sources and previous studies and seeking the help 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 (academic achievement, academic specialization, administrative position, and the trend towards modern 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.

Measuring Validity: The validity of the scale means that the scale meets the purposes and uses for which it was designed (11). Apparent validity means that the scale appears valid in its apparent form for the purpose for which it was designed (12). What is meant by validity is that the scale stipulates the measurement of what it was designed for in terms of the objectives set and does not measure other objectives (13). Validity is one of the most important conditions that must be available in the measurement tool and on which all researchers rely, (14) and two types of validity were achieved as follows:

a) **Apparent validity:** This was achieved by presenting the questionnaire to a number of agricultural guidance department lecturers and psychology lecturers 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 questionnaire was presented to the subject specialists as in Appendix (T). After some paragraphs were modified until it became ready for the initial test, 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 chose 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

The degree of consistency in the scores obtained on the assessment instrument over time is referred to as stability (15), as is the consistency of the outcomes if the test is administered again to the same group of people after some time. that the tool gives the same results if it is repeated on the same individuals under the same conditions (16) and to find stability, the Cronbach's alpha method was used and the value of the stability coefficient reached (0.91) and 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).

For the purpose of putting the questionnaire in its final form and collecting the research data, the value of the ease and difficulty coefficient and the power of discrimination for the scale paragraphs were extracted through the answers of the survey sample members and two paragraphs were deleted, one due to ease and the other due to difficulty, thus the number of final scale paragraphs became (43) paragraphs.

Measuring the independent variables

a) **Academic achievement:** It was measured according to the following alternatives (preparatory agriculture, diploma, bachelor's degree, master's degree, doctorate) and the values (1, 2, 3, 4, 5) were given to them respectively.
b) **Academic specialization:** The scale was set for it (Specialized in agricultural extension, not specialized in agricultural extension) and the values (2, 1) were given to it respectively.
c) **Administrative position:** It was measured according to the alternatives (Department manager, section manager, agricultural extension) and the values (3, 2, 1) were given to it respectively.
d) **Attitude towards modern agricultural technologies:** The scale consisted of (6) statements with the alternatives (agree, neutral, disagree) and the values (3, 2, 1) were given to the positive statements and (1, 2, 3) to the negative statements 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 for the yellow corn crop was measured through (43) paragraphs distributed over the research areas, each of which was given the alternatives (yes, no) 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 correlation coefficient (Spearman) and the test.

Results and Discussion

The findings were examined in light of the following study goals:

1. **First objective:** Determining The degree of expertise of agricultural workers in the planning process for transferring agricultural technologies for the yellow corn crop in Kirkuk Governorate in general:

   The values that indicate the degree of expertise of agricultural workers in the planning process for

transferring agricultural technologies for the yellow corn crop in Kirkuk Governorate were generally 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 (1).

Table 1: 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 (1) 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 degree of expertise of agricultural workers 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.

2. The second objective: Putting the research's phases and paragraphs in descending order:
A. Based on the percentage weight, the study phases were organised in descending order, and Table (2) shows the findings.

Table 2: Arranging the stages of the research in descending order

Stage	Average	Number of paragraphs	Percentage weight	Rank
Planning Stage	9.74	14	69.57	1
Implementation Stage	5.31	8	66.37	2
Preliminary Stage	9.57	15	63.80	3
Evaluation Stage	3.63	6	60.50	4

It is clear from Table (2) that the planning stage ranked first with a percentage weight of (69.57). The reason may be that agricultural employees know the varieties of yellow corn grown in the region, their productivity, and the problems facing crop farmers, which makes them arrange these problems and find appropriate solutions for them when developing the guidance program plan.
B- The research paragraphs were arranged in descending order according to the arithmetic mean of the paragraphs of each stage of the research, and they were as follows:

1- The first stage: The preliminary stage
The paragraphs of the first stage (The preliminary stage) were arranged in descending order according to the arithmetic mean, and they were as shown in Table (3).

Table 3: Arrangement of the paragraphs of the preliminary stage in descending order

T	Paragraph	Average	Rank
12	Is identifying agricultural personnel responsible for implementing technology transfer programmes for maize important for the success of the extension programme?	0.726	1.5
15	Is it necessary to diagnose the training needs of workers in the field of transferring agricultural technologies specific to the yellow maize crop?	0.726	1.5
14	Is it necessary to use maize farmers to implement extension programmes for the crop in the region?	0.717	3
9	Do you make the farmer aware of the importance of planning to solve the problems he faces when growing yellow corn in your area?	0.670	4
2	Do you think that farmers' participation is not necessary in planning the extension programme for maize crop in your area?	0.660	5.5
13	Is it necessary to involve subject matter experts in developing technology transfer programmes for maize crops?	0.660	5.5
6	Is it necessary to inform farmers about the importance of yellow corn to the national economy?	0.651	7
8	Do you encourage yellow corn growers to use hybrid seeds in your area?	0.632	8
11	Do you know the reasons for the failure or success of previous guidance programs With yellow corn crop in your business area?	0.613	9
3	Should the opinions of agricultural extension workers be taken into account when developing plans for the yellow corn crop?	0.604	10
7	Do you encourage farmers to maintain the traditional farming pattern of yellow maize crop?	0.594	11.5
10	Do you think it is important to know the previous extension activities for maize crop in your work area?	0.594	11.5
1	Do you think that setting the general framework for the extension programme for the maize crop is not important for the success of the programme planning process?	0.584	13
5	Do you think that the policy setting of the programme ensures the achievement of the objectives of the extension programme for the yellow maize crop?	0.575	14
4	Is it necessary to take the opinions of distinguished farmers when making plans for growing yellow corn in your area?	0.566	15

Table (3) shows that the paragraph (Is identifying agricultural employees responsible for implementing technology transfer programs for the yellow corn crop important for the success of the extension program?) ranked first, and the reason for this may be that selecting qualified employees ensures efficient implementation of the program as they have the experience and skills necessary to transfer knowledge in a correct manner.
While the paragraph (Is it necessary to take into account the opinions of distinguished farmers when developing plans for planting the yellow corn crop in your work area?) ranked last, and the reason may be the lack of involvement of farmers in the process of planning programs for their areas.

2. The second stage: The planning stage
The paragraphs of the second stage (the planning stage) were arranged in descending order according to the arithmetic mean, as shown in Table (4).

Table 4: Arrangement of the paragraphs of the planning stage in descending order

T	Paragraph	Average	Rank
27	Can you prioritize the problems facing maize farmers when developing an extension program plan?	0.745	1
18	Do you think it is necessary to know the varieties that are widely grown in your work area?	0.736	2.5
22	Is it necessary to know the per acre yield of yellow corn crop in your area of operation?	0.736	2.5
16	Do you think it is necessary to know the number of maize farmers to develop the extension program in your work area?	0.717	4.5
24	Should data be tabulated according to the plan set for the guidance program?	0.717	4.5
19	Do you need to know the methods of growing yellow corn in the region?	0.708	6.5
25	Do you benefit from analyzing the data available on the yellow corn crop in the region?	0.708	6.5
29	Should the extension workers responsible for implementing extension activities on the use of modern technologies in growing and servicing the maize crop be named?	0.698	8
17	Is knowing the area allocated for growing maize important for developing an extension program plan in your work area?	0.689	9
21	Do you know the numbers and types of modern machines and equipment for planting and serving the yellow corn crop in your work area?	0.679	10
26	Do you determine the desired status of yellow corn productivity based on the results of the available data analysis?	0.670	11
28	Do you think it is necessary for the guidance program to be a written document?	0.660	12
23	Is it necessary to put the available data on the yellow corn crop in special tables?	0.651	13
30	Do you anticipate problems arising when implementing the extension programme for maize cultivation and service?	0.642	14

Table (4) shows that the paragraph (Are you able to prioritize the problems facing yellow corn farmers when developing the extension program plan?) ranked first, and the reason for this may be communication with farmers and knowing the problems of growing yellow corn in their work areas.

While the paragraph (Do you expect problems to arise when implementing the extension program for growing and serving yellow corn?) ranked last, and the reason may be that those in charge of implementing the extension programs develop alternative plans and there is flexibility in work in addition to coordination between the concerned parties such as farmers, agricultural extension agents, and government agencies, which reduces the impact of problems that appear during the implementation of the extension program.

3. The third stage: The implementation stage

The paragraphs of the third stage (The implementation stage) were arranged in descending order according to the arithmetic mean and were as shown in Table (5).

Table 5: Arrangement of the paragraphs of the implementation stage in descending order.

T	Paragraph	Average	Rank
33	Do you think that the extension meetings are sufficient to implement all the extension activities related to the cultivation and service of yellow maize crop in your work area?	0.698	1
38	Should farmers be informed about how to store yellow corn grains after harvest?	0.679	2
35	Is it necessary to train the arm to use mechanical farming in growing yellow corn?	0.670	3
31	Do you think that the extension activity for growing and servicing the yellow maize crop can be implemented at any time of the season?	0.660	4.5
39	Do you think it is necessary to adopt modern agricultural technologies in growing yellow corn as an integrated technology package?	0.660	4.5
36	Do you see the need to introduce farmers to modern techniques in irrigating the yellow corn crop?	0.651	6.5
37	Are you working to spread the use of mechanical harvesters (harvesters) to harvest corn cobs in your area?	0.651	6.5
34	Is it necessary to provide machinery for implementing the extension programme for using modern technologies in growing and servicing the yellow corn crop?	0.642	8

Table (5) shows that the paragraph (Do you think that the advisory meetings are sufficient to implement all advisory activities related to growing and serving the yellow corn crop in your work area?) ranked first. The reason may be that some farmers find it difficult to absorb information from meetings only and need field follow-up, so it must be supported by other means such as demonstration fields and advisory visits to ensure the success of implementing advisory activities. While the paragraph (Is it necessary to provide machines for implementing the advisory program for using modern technologies in growing and serving the yellow corn crop?) ranked last due to the lack of these machines among agricultural employees, and some farmers are assisted when implementing advisory programs related to using modern technologies in growing yellow corn.

4. The fourth stage: The evaluation stage

The paragraphs of the fourth stage (the evaluation stage) were arranged in descending order according to the arithmetic mean and were as in Table (6).

Table 6: Arrangement of the paragraphs of the evaluation stage in descending order

T	Paragraph	Average	Rank
42	Is it necessary to know the productivity per acre for farmers who did not participate in the extension program for growing and servicing the yellow corn crop?	0.642	1
41	Do you know the productivity per acre of farmers who have implemented the recommendations of the extension program for growing and servicing the yellow corn crop?	0.632	2
40	Do you know how many farmers have adopted modern agricultural techniques in growing maize crop after implementing the extension programme in your area?	0.613	3
45	Can you identify the reasons that prevented farmers from benefiting from the extension programme for growing and servicing the yellow maize crop?	0.594	4
44	Is it necessary to know the number of farmers who rejected the idea of a special extension program for growing and servicing the yellow maize crop in your area?	0.585	5
43	Do you think that determining the difference between current and expected maize production is important for evaluating the extension programme?	0.557	6

Table (6) shows that the paragraph (Is it necessary to identify the productivity of the dunum among farmers who did not participate in the extension program for planting and serving the yellow corn crop?) ranked first, as identifying productivity is important to evaluate the success of the program, identify problems, and find the best ways to convince farmers and achieve higher productivity.
While the paragraph (Do you think that determining the difference between the current production and the expected production of the yellow corn crop is important to evaluate the extension program?) ranked last, and the reason may be that the production of the crop is not determined by the provision of supplies, but rather environmental conditions play a major role in influencing productivity.

4. The third objective: Determining the relationship between the agricultural workers' degree of expertise and the planning procedure for agricultural technologies for the yellow corn crop in Kirkuk Governorate and the variables specific to employees, represented by:

1. **Educational attainment:** The results showed that the smallest category of respondents were those with a doctorate degree, as their percentage reached 4.72%, and the largest category of respondents were those with a bachelor's degree, as their percentage reached 48.11%, as shown in Table (7).

Table 7: Distribution of respondents according to academic achievement categories

Categories	Number	Percentage	Average knowledge	Value rs	value t
Preparatory	15	14.15	21.56	0.28**	2.977
Diploma	17	16.04	27.82		
Bachelor's	51	48.11	28.74		
Master's	18	16.98	28.23		
PhD	5	4.72	38.6		Morale 0.01
Total	106	100%			

** shows that at a probability threshold of 0.01 the link is significant.

According to Table (7), the largest percentage of respondents (48.11%) hold a bachelor's degree, followed by master's degree holders (16.98%), diploma holders (16.04%), preparatory students (14.15%), and doctorate holders (4.72%), who hold the lowest percentage. The Spearman's correlation coefficient, which had a value of 0.28, was utilised to determine the relationship between the employees' degree of knowledge and academic accomplishment. The calculated (t) value reached 2.977, which is more than the tabular (t) value at a probability threshold of (0.01), confirming the relevance of the link, According to the statistical hypothesis, academic accomplishment and the degree of agricultural employees' knowledge regarding the planning process for transferring agricultural technology for the yellow maize crop in Kirkuk Governorate do not significantly correlate. However, we reject this hypothesis. This could be because personnel with higher levels of education had greater understanding about a variety of subjects, such as planning and the value of technology use. Contemporary crop production, which increases their understanding of the planning process at every level.

2. Academic specialization: The results showed that the smallest category of respondents were from the agricultural extension specialization category, which amounted to 41 respondents, and the largest category of respondents was from the non-extension specialization category, which amounted to 65 respondents, as shown in Table (8).

Table 8: Distribution of respondents according to academic specialization categories

Categories	Number	Percentage	Average knowledge	Value Rs	value t
Guidance	41	38.68	30.77	0.17	1.707
Non-Guidance	65	61.32	26.56		
Total	106	100%			Morale 0.05

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

According to Table (8), the largest percentage of respondents (61.32%) belonged to the category of agricultural extension non-specialists, followed by the category of extension specialists (38.68%). Spearman's correlation coefficient, which had a value of 0.17, was utilised to determine the relationship between academic specialisation and the degree of knowledge had by agricultural workers. The (t) test was employed to verify the significance of the association, and at a probability threshold of 0.05, its computed value came to 1.707, which is higher than the tabular (t) value. Therefore, we disprove the statistical hypothesis that claims there is no meaningful relationship between agricultural workers' knowledge levels and in the planning process for transferring agricultural technologies for the yellow corn crop in Kirkuk Governorate and academic specialization). The reason for this may be that employees from the extension specialization have information and knowledge about the planning process as a result of their extension work, in addition to the academic information they obtained during the study, so their level of knowledge was higher than that of non-specialists.

3. Administrative position: The results showed that the smallest category of respondents was the department manager category, with a number of 12 respondents, and the largest category of respondents was the employee category, with a number of 74 respondents, as shown in Table (9)

Table 9: Distribution of respondents according to administrative position

Categories	Number	Percentage	Average knowledge	Value rs	value t
Agricultural Employee	74	69.81	29.85	-0.19*	1.977
Department Manager	12	11.32	26.58		
Division Manager	20	18.87	23.4		Moral
Total	106	100%			

Table (9) shows that 69.81% of the largest percentage of respondents fell into the category of agricultural employees, followed by division managers (18.87%) and department managers (11.32%), which had the lowest percentages.

Spearman's correlation coefficient, which had a value of 0.19, was utilised to determine the relationship between the administrative position and the degree of staff expertise. The two variables seemed to have an inverse relationship with one another. The (t) test, which was performed to determine whether the association was significant, yielded a result of 1.977, which is higher than the tabular (t) value at the probability level (0.05). Therefore, we disprove the statistical claim that there is no meaningful relationship between the degree of agricultural workers' knowledge in the planning process for transferring agricultural technologies for the yellow corn crop in Kirkuk Governorate and the administrative position). The reason may be that agricultural employees are in direct contact with farmers and have more knowledge than managers of agricultural departments or divisions about farmers' capabilities, their problems, and the extent of their acceptance of adopting modern technologies and what they lack. Training in the application of these technologies.

4. Trend towards modern agricultural technologies: The results showed that the lowest trend score obtained by the respondents was 8 and the highest trend score was 16. The respondents were divided into three categories according to the range law, as shown in Table (10).

Table 10: Distribution of respondents according to categories of trend towards modern agricultural technologies.

Categories	Number	Percentage	Average knowledge	Value rs	value t
Negative (8-10)	10	9.43	19.5	0.33 **	3.174
Neutral (11-13)	78	73.59	28.80		
Positive (14-16)	18	16.98	30.78		Morale 0.01
Total	106	100%			

** indicates that, at the 0.01 probability level, the link is significant.

According to Table (10), the largest percentage of respondents (73.59%) fell into the neutral category, followed by the positive category (16.98%) and the negative category (9.43%) of respondents. Spearman's correlation coefficient, which has a value of 0.33, was utilised to determine the relationship between the movement towards contemporary agricultural technologies and the degree of knowledge had by agricultural workers. At a probability level of (0.01), the computed result of the (t) test, which was used to assess the significance of the correlation between the two variables, was 3.174, more than the tabular (t) value. Therefore, we disprove the statistical theory that claims the tendency towards modern agricultural technologies and the level of expertise of agricultural workers in the planning process for transferring agricultural technology for the yellow maize crop in Kirkuk Governorate do not significantly correlate. The reason could be because employees with a positive attitude are more knowledgeable than those with a negative or neutral attitude since they always try to get in touch with information sources and take part in planning-related training courses.

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 knowledge of agricultural employees in the implementation phase of programs for transferring agricultural technologies for the yellow corn crop is medium and tends to decline. We conclude from this that there is a lack of extension activities in the research area.
3. According to the findings, farm workers' level of expertise was highest during the planning stage. 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.
4. According to the findings, farm workers' knowledge of the evaluation step came in last. 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.
5. The findings demonstrated a clear relationship between agricultural workers' knowledge and each of the individual characteristics indicated by academic achievement, gender, and academic specialisation, participation in the transfer of agricultural technologies, and the trend towards modern 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.
6. The findings demonstrated a substantial inverse relationship between each of the personal characteristics represented by (age, administrative position) and the degree of knowledge possessed by agricultural workers. We conclude from this the need to provide elderly employees and 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. Enhance farm workers' understanding of program evaluation and provide clarification 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 senior employees and 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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