

The Level of Efficiency of Agricultural Extension in Transmitting Agricultural Information to Cucumber Growers in Greenhouses/ Babylon Governorate

Faiz Nima Rashid Al-Janabi

Majeed Hadi Saleh Al-Hamdani

Tikrit University/ College of Agriculture/ Department of Economics and Agricultural Extension

ABSTRACT

The research aimed to identify the level of efficiency of agricultural extension in transmitting agricultural information to growers of cucumber crops in greenhouses in Babylon Governorate in general, as well as in all areas of research studied, and to determine the relationship between the level of efficiency of agricultural extension and the importance of transmitting agricultural information to growers of cucumber crops in greenhouses. The research community included all registered cucumber growers in greenhouses in Babylon Governorate. The number of growers is (318) farmers. A proportionate random sample of (50%) of the total cucumber growers in greenhouses was chosen, with a size of (160) respondents. A preliminary test of the collection tool was conducted. Data on a random sample of 30 respondents from outside the research sample, and field data was collected through a personal interview in August 2023.

The results showed that 53.1% of the respondents fell into the two medium categories. The results showed that the level of efficiency of agricultural extension in the areas of research varied between a high level and an average level, and the averages for the areas of research were (21.5, 17.98, 23.6, 19.02, 14.38, 30.53, 21.03, 19.4) Respectively, there are also positive moral correlations between the level of efficiency of agricultural extension in transmitting extension information to farmers and the importance of transmitting agricultural information. The results of the research recommended the need for the Agricultural Extension Service to pay attention to transferring information to growers of cucumber crops in greenhouses through implementing more extension activities aimed specifically at cucumber growers in greenhouses, identifying categories of farmers who do not benefit from extension activities, and encouraging them to benefit from this information, as well as from It is important that the agricultural extension agency implement extension activities in areas where there has been a decline in the level of efficiency in transferring information to farmers.

Keywords: efficiency of agricultural extension, cucumber yield in greenhouses/Babylon.

Introduction:

Technical progress is considered one of the main and important components of the acceleration of economic, social and cultural growth in various countries of the world, including Iraq, which today faces great challenges in all areas of life, including the agricultural field, due to the great and continuous scientific development and the resulting huge amount of information, ideas and agricultural technology that... It constitutes the greatest common denominator for various economic development processes,

most notably agricultural development (Mustafa, 2012:4).

Accordingly, Iraq seeks to develop the agricultural sector in a rational and effective scientific manner to transfer scientific information and technology that helps in applying agricultural information (Hussein, 2011: 1). On the other hand, the role of agricultural extension is clear in the process of transferring and communicating agricultural technology to peasants and farmers who still follow traditional methods of agriculture (Al-Abbasi, 2014: 21).

Agricultural extension is an activity that depends on the extent of the farmer's readiness and understanding of the extension position, his effort, self-reliance, real participation, and the guide's assistance to him in understanding, absorbing and applying agricultural innovations in his field with confidence and conviction. The Agricultural Extension Service, through the Agricultural Extension and Training Department, develops a large number of agricultural extension programs in many and varied fields, the most important of which are field crops. These programs include several educational activities that provide a large amount of information and modern agricultural practices that lead to increasing agricultural productivity in quantity and quality (cream , 2013:17).

Skills in transferring information are of great importance, especially in the electronic management of organizations, including social media pages, and agricultural extension is of great importance in developing its workers through developing their skills, which significantly affects the development of the agricultural extension organization (Al-Hamdani and Al-Rikabi, 2021: p. 2).

Efficiency is the ability to do a specific job accurately in the shortest possible time and with the least effort expended. It also indicates the good conversion of inputs into outputs. The higher the percentage or value of the product in relation to what was used to achieve this product, the greater the efficiency, that is, efficiency - outputs - inputs, and socially it means the ability to do a specific job accurately with the least effort expended. The shortest time possible, and the greatest amount of psychological satisfaction for the individual, that is, "the ability to achieve goals" (Suwailem, 2003: 116).

No definition, no matter how accurate, can easily define the concept of competency, and therefore identifying competencies requires identification and knowledge of their features, which we define as follows: (Al-Amin, 2013: 3-4)

- Competence has a purpose (purposeful): it uses different knowledge in order to achieve a specific goal or carry out an activity

Certain, a person is competent if he can perform this activity completely.

Efficiency is an abstract concept: it is intangible and invisible. What can be observed are the activities practiced, the means used, and the results of these activities, as they are determined through analysis of the activities.

Competence has a dynamic formation: that is, its acquisition occurs through the interaction of its various elements and components within its dimensions (knowledge, practical knowledge, behavioral knowledge) over time.

Competence enables the individual to transform from one work situation to another, which can only be achieved through two levels of competencies, namely the creativity level and the projection level. If the individual is facing a new situation, he is required to be creative, but if it is similar to a previous situation, he is required to perform projection operations. By resorting to analogy, knowing that there is another level, which is imitation, where the worker is satisfied with transfer only.

(Al-Hamdani et al., 2021, p. 3) points out in a study that competence is acquired, as an individual is not born competent to perform a specific activity, but rather acquires this through directed training. It has great importance in agricultural extension work, and through its assessment, the performance of workers can be evaluated, and the deficiency

occurring among workers can be addressed. In the agricultural extension organization, the study indicated that there is a decline in the level of efficiency at the level of agricultural extension organization in Iraq.

Protected cultivation of vegetables means their production in special facilities called greenhouses or greenhouses for the purpose of:

Protecting them from unsuitable weather conditions, thus they can be produced outside of their seasons. The vegetables inside these houses are provided with the environmental conditions that suit them in terms of temperatures and intensity of lighting. Special attention is also given to the environment for root growth and plant nutrition. In modern types of greenhouses, all environmental factors are controlled and modified accordingly. With vegetative growth to give the largest possible yield (Shilabi, 2012:10).

Increasing the agricultural production efficiency of the land and water units is one of the main goals of the sustainable agricultural development strategy. The efficiency of water use in field irrigation works does not exceed 50%, and the efficiency of agricultural soil use is considered low. Greenhouses are considered one of the means by which the economic efficiency of the two land units is increased. And water is characterized by high productivity compared to agriculture in the open field, as the productivity of a square meter under the greenhouse is about (4-8) times the productivity of the open land for the type of crop, production methods and harvest time, in addition to raising the efficiency of water use, as it saves between (50 - 60%) of the water used in traditional methods for open agriculture (Ghoneim, 2017: 44).

We also find that cultivation in greenhouses overcomes the seasonality of production and

protects crops from climate fluctuations (Abdel-Sayed and El-Dali, 2013: 247-256). Protected agriculture is considered an effective and quick method for obtaining high vertical productivity (Al-Dajwi, 1998: 9), and that vegetables occupy the largest space. Under this method of agriculture (Abak:2008:197-204).

Covered agriculture aims to supply the markets with its products outside their natural seasons. Vegetables and flowers are produced inside tunnels or plastic or glass rooms that are heated by solar radiation or stoves, while ensuring the environmental needs of the plants and protecting them from air currents and agricultural pests (Hassan, 1988: 67).

Mini greenhouses are known as cold frame: compared to outdoor production, the closed environment of a greenhouse has its own requirements, as insects, diseases, excessive humidity, and heat must be controlled. (Hefzy, 1991: 98).

The aim of agriculture in greenhouses is to provide people with their needs for various agricultural products outside the official annual times during which these plants grow. Cultivation inside greenhouses has great and great importance, and it is summarized in (Al-Haizai, 2001: 19): Good and excellent quality of plants is provided. As the fruits and crops are more beautiful and fresh in appearance, and they are less exposed to pollution than regular fruits, which helps in selling them whole, which increases farmers' profits, especially since this type of agriculture provides agricultural products at all times of the year, and increases Of the amount of production produced from various crops, it is much more than what is grown in open areas. Vegetables and flowers are provided outside of their natural season and when they are not available. The productivity of a unit of area

exceeds cultivation in open lands, and the specifications of the products are good and distinct, as they are fresher in appearance and less contaminated with dirt particles. This makes it easier to consume all of it, which increases the profitability of this agriculture.

Therefore, this research seeks to determine the extent of the ability of the agricultural extension system to transfer information and new agricultural innovations necessary to improve the productivity and marketing of cucumber crops in greenhouses in quantity and quality in the shortest time and with the least possible effort, and thus determine the degree of its efficiency in this regard by answering the following questions:

- What is the level of efficiency of the agricultural extension agency in transmitting agricultural information to cucumber growers in greenhouses, from their point of view, in Babil Governorate in general?
- What is the level of efficiency of the agricultural extension agency in transmitting agricultural information to growers of cucumber crops in greenhouses from their point of view in Babil Governorate, according to the areas of research, which are (varieties, planting date, preparing the land for planting, planting method, seed rate, irrigation, fertilization, weed control, Pest control (insect and disease), harvesting and marketing?
- What is the level of relationship between the efficiency of agricultural extension and the importance of transmitting agricultural information to cucumber growers in greenhouses?

research aims:

1- Identify the level of efficiency of agricultural extension in transmitting agricultural information to cucumber growers in greenhouses in Babylon Governorate in general.

2- Identifying the level of efficiency of the agricultural extension system in transmitting agricultural information to growers of cucumber crops in greenhouses from their point of view in Babil Governorate, according to the areas of research, which are (varieties, planting date, preparing the land for planting, planting method, seed rate, irrigation, fertilization, and weed control). Pest control (insect and disease), harvesting and marketing.

3- Determine the relationship between the level of efficiency of agricultural extension and the importance of transmitting agricultural information to cucumber growers in greenhouses.

Research hypothesis:

Is there no relationship between the efficiency of agricultural extension and the importance of transmitting agricultural information to cucumber growers in greenhouses?

Research Methodology

The research method in any study is determined according to the type and nature of the study and the goals it is concerned with and which are to be achieved. There is a set of standards and procedures determined by the scientific method in order for the research to achieve its goals (Oluwataya, 2012: 391). The goal of the research is to identify the efficiency of agricultural extension in Transferring information to growers of cucumber crops in greenhouses. Therefore, the researcher followed the descriptive approach because it suits the nature of the research and its objectives. In addition, the descriptive approach is concerned with providing information and facts about the current reality of the phenomenon, and understanding the present for the sake of the future by providing data and facts that relate to the phenomenon and clarifying the relationships between The resulting phenomena and the components of

the phenomenon itself and helps predict the future of the phenomenon (Dwidari, 2002: 18).

Research population and sample:

Babil Governorate was chosen as a region to conduct the research, due to the widespread cultivation of cucumbers in greenhouses, as recent years have witnessed a widespread demand for cultivating this crop in greenhouses. The number of greenhouses reached 1,619 in Babylon Governorate, which made the province occupies a distinguished rank among the provinces, and due to the lack of Previous studies on the efficiency of agricultural extension in transmitting information to cucumber growers in greenhouses were chosen for this research.

The research community in the field of statistics is defined as all possible terms and measurements for the phenomenon under study (Al-Qaisi, 2006: 49). The research community included all cucumber growers in greenhouses in Babylon Governorate who were officially registered in the agricultural divisions, which numbered (16) agricultural divisions, which were excluded. Among them are (4) agricultural branches due to the absence of cucumber growers in greenhouses. Thus, the number of agricultural branches with cucumber growers in greenhouses has become (12) agricultural branches, from which a 50% random sample was drawn, with a size of (6) branches. Agricultural areas included in the current research procedures, the number of farmers in which was (318) farmers. A proportional random sample of (50%) of the total cucumber growers in greenhouses was chosen, and its size was (160) respondents. A preliminary test of the data collection tool was conducted on a random sample of 30. Respondents from outside the research sample

and from within the research community, and after conducting honesty and taking into account expert modifications such as deletion, addition or modification, the number of items in the scale became (76) items distributed over (8) areas, by (9) to measure the efficiency of guidance information on greenhouse management, and (7) paragraphs on the efficiency of guidance information on cucumber varieties and planting dates, (11) standard paragraphs to measure the efficiency of guidance information on preparing the land for planting, (9) paragraphs to measure the efficiency of guidance information on the method of planting and the quantity of seeds, and (8) paragraphs to measure the efficiency Guidance information on the irrigation process, (14) paragraphs to measure the efficiency of guidance information on the fertilization process, (9) paragraphs to measure the efficiency of guidance information on the control process, (9) paragraphs to measure the efficiency of guidance information on the production and marketing process, and a scale for assessing the efficiency of guidance. Agricultural information is transferred to the growers of the cucumber crop in greenhouses in its final form.

Face validity was tested, which represents the extent to which the scale meets the specific purposes and uses for which it was designed (Mikhail, 2015: 255). A measure is honest when it measures what it was designed to measure (Odeh, 2010: 330). The apparent validity was verified by presenting the questionnaire to a number of specialists in agricultural extension, education, and psychology. The content validity was, which is a measure of the extent to which the scale represents the aspects of the measured aspect (Abdel Hafeez and Bahi, 2000: 175), and for

the purpose of ensuring the validity of the items developed in their form. The preliminary test was presented to specialists and experts in horticulture to express their observations and opinions on the areas and paragraphs of the data collection tool, as well as to evaluate each item of the scale and indicate the extent to which it measures the content of the research topic and achieves its objectives. A pre-test was conducted on an exploratory sample of cucumber growers in greenhouses of the size of (30) respondents during August 2023, and the stability of the data collection tool was calculated. The concept of stability refers to the extent of the consistency of the results of the measure, that is, the extent to which it is possible to obtain the same results if we apply the same measure several times to the same subjects, (Abu Allam 2006: 448), as well as Stability means the stability of the results if the measure is repeated after a while on the same group of individuals (Al-Sammak, 2019: 189). The stability of the measure means obtaining consistent results if it is used repeatedly on the same individuals. To find stability, a random exploratory sample of the size of (30) respondents was chosen. From the research community outside the sample, the split-half method was used to find reliability, as it is suitable for obtaining a reliability coefficient from a special data set for one measure. The values of the test items were divided into two groups: odd items, and even items, and the simple correlation coefficient (Pearson) was calculated between The value of the odd and even items was (0.76), which

represents the reliability of half the scale. In order for the scale as a whole, the reliability coefficient was corrected using the Spearman-Brown equation, which reached a value of (0.86). Then the validity of the data collection tool was extracted by taking the root of the reliability coefficient, where the validity value reached (0.927).), and (Al-Mahmoudi, 2019: 234) stated that if the value of the reliability coefficient reaches more than (0.70), it is considered acceptable, and thus the questionnaire has acquired validity, reliability, and validity, and is therefore valid for collecting research data. The data was collected in October 2023, and was analyzed and arranged into tables. The Spss program was used to analyze the data as well as some statistical methods.

Results:

1- The level of efficiency of agricultural extension in transmitting agricultural information to cucumber growers in greenhouses in Babylon Governorate in general.

The results showed that the lowest value expressing the efficiency of agricultural extension in transmitting extension information from the point of view of cucumber growers in greenhouses is (138) and the highest value is (196) with an arithmetic mean of (167.47) and a standard deviation of (11.22). The respondents were divided into three. Categories using the range law. It appeared that a percentage of the respondents fell into the medium category, as in Table 1.

Table 1. Distribution of respondents according to categories for assessing the efficiency of agricultural extension in general.

Categories	Frequency	%	\bar{X}
Low (138-156)	25	15.6	150.84
Average (157-175)	85	53.1	164.75
High (176- or less)	50	31.3	180.42

Total	160	100	Sd=11.22
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It is clear from Table 1 that more than half of the respondents fall into the medium category, followed by the high category with a percentage of (31.3).

Therefore, the level of efficiency of agricultural extension in transmitting extension information from the point of view of cucumber growers in greenhouses is described as average and tends to rise, and the result indicates Agricultural extension in the research area carries out extension activities for cucumber growers, and the reason for the appearance of more than (68%) in the low and medium categories may be that either the farmers are not interested in the extension activities carried out for them, or they do not attend some of the activities, or they believe that the information they have is better. Of the extension activity information, or the information about the extension activities may not meet their information needs, and some of the extension activities carried out to transfer the extension information to cucumber crop growers in the greenhouse may be related to some areas of research and not others, and this is considered an indicator of weakness in the extension activities. Agriculture or farmers' failure to pay attention and attend these extension activities.

2- The level of efficiency of agricultural extension in transmitting agricultural information to cucumber growers in greenhouses in all areas of research:

The results showed that the lowest value expressing the efficiency of agricultural extension from the farmers' point of view in the field of extension information on greenhouse management is 15, and the highest value is 26, with an arithmetic mean of (21.50) and a standard deviation of 2.39, and that the

least value expressing the efficiency of agricultural extension is in the field of extension information. Regarding cucumber varieties and planting dates, it is (12), and the highest value is (21), with an arithmetic mean of (17.98) and a standard deviation of (2.53). The lowest value expressing the efficiency of agricultural extension in the field of extension information on preparing land for agriculture is (18), and the highest value is (18). (29) With an arithmetic mean of (23.60) and (23.41) and a standard deviation of (3.02), the lowest value expressing the efficiency of agricultural extension in the field of extension information on the method of cultivation and the quantity of seeds is (14) and the highest value is (24) with an arithmetic mean of (19.02). And a standard deviation of (3.28). The lowest value expressing the efficiency of agricultural extension in the field of extension information about the irrigation process is (9), and the highest value is (21), with an arithmetic mean of (14.38) and a standard deviation of (3.62). The lowest value expressing the efficiency of extension The agricultural extension in the field of extension information on the fertilization process is (23) and the highest value is (37) with an arithmetic mean of (30.53) and a standard deviation of (4.17). The lowest value expressing the efficiency of agricultural extension in the field of extension information on the control process is (15) and the highest The value is (24) with an arithmetic mean of (21.03) and a standard deviation of (2.77). The lowest value expressing the efficiency of agricultural extension in the field of extension information on the production and marketing process is (16) and the highest value is (24) with an arithmetic mean of (19.40) and a deviation

Standard (2.59), the respondents were divided into three categories using the range law, and it appeared that a percentage of the

respondents fell into the average category, as in Table 2.

Table 2. Distribution of respondents according to research fields, and general average values for each field.

	Domains	\bar{x}
1	Efficient guidance information on greenhouse management	21.50
2	Efficiency of guidance information on cucumber varieties and planting dates	17.98
3	Efficient guidance information on preparing land for agriculture	23.60
4	Efficient guidance information on planting method and quantity of seeds	19.02
5	Efficient guidance information on the irrigation process	14.38
6	Efficient guidance information on the fertilization process	30.53
7	Efficiency of guidance information about the control process	21.03
8	Efficient guidance information about the production and marketing process	19.40

It is clear from Table 2. Estimating the efficiency of agricultural extension in transmitting agricultural information to growers of cucumber crops in greenhouses in each field of research, that the average efficiency of agricultural extension workers varies from one field to another from the farmers' point of view, and this may be due to several reasons, including: It came with moderate extension information that tends to decrease in knowledge of the varieties and timing of planting, as well as the method of planting and the quantity of seeds from the point of view of growers of cucumber crops in greenhouses, as well as a lack of interest in the production and marketing process and a lack of extension activities, or that agricultural extension activities carried out activities without the growers of cucumber crops benefiting from them. Because of their lack of

interest in the information, their lack of attendance at activities, or their belief that the information they have is better than agricultural extension information.

3- The relationship between the efficiency of agricultural extension and the importance of transmitting agricultural information to cucumber growers in greenhouses.

The results of the research showed that the values expressing farmers' appreciation of the importance of agricultural extension information related to growing cucumber crops in greenhouses were limited to (14-20), with an arithmetic mean of (17.66), and a standard deviation of (2.03). The respondents were distributed into three categories using the law Range: It appeared that the highest percentage of respondents were in the high category, as shown in Table 3.

Table 3. Distribution of respondents according to the categories of the variable assessing the importance of guidance information related to growing cucumber crops in greenhouses.

Categories	Frequency	%	\bar{x}	R	t	Moral
Low (14-15)	27	16.9	154.52	**0.391	3.229	0.01
Average (15-17)	48	30.0	162.90			

High (18-20)	85	53.1	166.51			
Total	160	100		**Significant at 0.01 probability level		

Table 3 indicates that to find the correlation between the efficiency of agricultural extension from the farmers' point of view and the variable importance of transmitting agricultural information in extension activities, the Pearson correlation coefficient was used, the value of which was (0.391) and indicates a positive relationship between the two variables. To test the significance of the relationship, the t test was used, as its calculated value was (3.229), which is greater than the tabular t value of (2.576) at the probability level (0.01), and this result indicates the existence of a positive significant correlation between the two variables at the probability level (0.01). Thus, the null hypothesis is rejected and the alternative hypothesis is accepted, which states: (There is a significant correlation between the two variables), and this may be due to the higher the level of respondents' appreciation for extension activities, the more they realize the importance of this information and its great benefit to crop productivity in terms of quantity and quality, and thus this is reflected in their level of appreciation for extension activities, which is higher in proportion to their level of interest in that extension information.

Conclusions:

1- The results showed that the percentage of 78.7% fell within the medium and low categories. From this, it can be concluded that either the respondents' weak interest in some extension activities and the extension information transmitted to them from the agricultural extension agency, or their lack of attendance at extension activities. Therefore, it can be concluded that the extension agency's weak interest in transmitting agricultural

information regarding crop cultivation Cucumbers in greenhouses in extension activities, Babylon Governorate.

2- The results showed that the level of efficiency of agricultural extension in the fields of research varied between the fields of research, and the field of efficiency of extension information on the fertilization process was the best field, as the average efficiency of the extension system was 30.53 degrees, and the lowest average in the field of efficiency of extension information on the irrigation process was 14.38 degrees. .

3- It is concluded that there is a positive relationship between the efficiency of agricultural extension and the importance of transmitting agricultural information to growers of cucumber crops in greenhouses. That is, the greater the efficiency of the extension system, the greater the importance of transmitting agricultural information to achieve benefit from it.

Recommendations:

1- The need for the Agricultural Extension Service to pay attention to transferring information to cucumber growers in greenhouses by implementing more targeted extension activities with their information, specifically targeting cucumber growers in greenhouses, identifying categories of farmers who do not benefit from extension activities and encouraging them to benefit from that information.

2- It is important for the Agricultural Extension Service to implement extension activities in areas where there has been a decline in the level of efficiency in transferring information to farmers. Therefore, it is necessary to direct and encourage farmers to pay attention to all extension activities and

information and apply them in growing cucumber crops in greenhouses.

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