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The Level of Usage of Modern Technologies by The Tomato Farmers in Plastic Spending in The District of Samarra / Saladin Governorate

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ABSTRACT

The research aims to determine the level of usage of modern agricultural techniques by the farmers of the tomato crop in the plastic spending in the district of Samarra / Saladin, and to find the differences between the level of the usage of agricultural techniques, was selected Samarra district to conduct the research, and included three agricultural sector people representing 75% of all people In the judiciary, the population of research included all farmers of the selected agricultural division of 700 farmers. The research included a sample of 115 respondents. The questionnaire used a data collection tool. The questionnaire consisted of two parts. The first part included some variables related to the respondents. The second part included (9) paragraphs For the axis of a For biotechnologies to measure the level of use of modern agricultural techniques in the field of biotechnology, and to achieve honesty, the form was first presented to a group of agricultural extension experts to achieve the validity and experts in the Department of Plant Protection to achieve the validity of content, the method used Alphcronbach to measure the realibity of (0.97) The results of this study indicate that most of the respondents do not know this type of fertilizers because of the lack of availability in the market, because farmers are not satisfied with the results of their use, It is concluded that most farmers do not know that mixing the pesticide with a chemical pesticide increases its effectiveness because biocides are used as a chemical pesticide. Systemic pesticides do not kill insects quickly. The researcher recommended that the agricultural extension system should carry out learning activities to cultivate the tomato crop in plastic tunnels in all fields of study.

INTRODUCTION AND RESEARCH PROBLEM

Agriculture in the last century was the cornerstone of economic and food development in Iraq and was largely adopted in the late 1990s. Agriculture provided employment for a large proportion of the population and provided them with food and raw materials for agriculture-based industries. Is largely below the consumption line. It is noted that farmers were not satisfied with agricultural production because Iraq is an agricultural country but imports food and agricultural products from other countries (al-omar et al , 2012: 13). There are many reasons for the decline in agricultural production under the consumption line of the country's population, including strong competition for imported agricultural products, farmers' lack of knowledge of modern agriculture techniques and how to use them to improve their production (Safdar, 2005: 158). The lack of permanent food and

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agricultural products is often blamed for ineffective agricultural research, poor implementation by agricultural workers, poor communication between research centers, extension workers and farmers because they are responsible for delivering innovations to farmers (Adesoji, 2012: 25). the role of general agricultural extension is to provide an important link between agricultural research and rural communities (FAO, 2004: 1-11). Agricultural extension is an organization for the introduction of modern agricultural techniques and agricultural ideas suitable for farmers and their introduction in their agricultural practices, because agricultural extension not only affects farmers in improving their land and the preparation of modern agricultural patterns, but encourages them to usage modern agricultural practices and adopt these agricultural practices according to their economic level (Khrshid, 2015: 164). The use of modern agricultural techniques introduced in the form of high yielding varieties of seeds, fertilizers and pesticides over the past years has greatly increased production (pingali, 2012: 123). Protected agriculture by tunnels or houses is one of the latest technologies that spread in the late 1940s. This technique was adopted by many vegetable and fruit growers in the United States of America to increase the production unit and to see the difference resulting from the cultivation of high-yielding varieties that require special conditions (Jensen: 1995). Since then, protected agriculture has been spread by households and plastic tunnels in the world. It has been suitable for growing vegetables and fruits even before the time, because it is known that protected agriculture is known by this name because it is produced before planting due to control of environmental conditions in the reserve (Orzolek: 2013) . Agriculture in plastic tunnels or houses is also somewhat economical because it protects the plants from external damage from environmental conditions or agricultural pests and thus reduces the costs of control (Kasperbauer, 2014: 22). Protected agriculture technology was introduced into Iraq in the mid-1970s through the Ministry of Agriculture in an effort to increase agricultural production (Sadik, 2005: 4). The area cultivated with protected facilities at the time amounted to 790 dunums / glass house only (Barbaz 2012: 2-25). The agricultural sector was able to secure the need of the Iraqi consumer for vegetables for the period (1980-2006). Afterward, the local production did not meet the demand. Thus, the gap Between both production volume and consumption of vegetables (Salim & Hamid, 2011: 225). Najib's study indicated that despite the large area cultivated with protected vegetables compared to the years before 2003, the productivity of this type of agriculture is very low and does not meet the country's need for various vegetable crops (Najib, 2008: 5). One of the most important crops grown in plastic tunnels is the tomato crop. Tomato is considered one of the main commercial vegetables grown in the country. It is considered to be the main food of the consumer since it has high nutritional value (Yuan et al. 2016). As a result of the importance of the crop should be the role of agricultural research institutions to try to transfer modern agricultural techniques to farmers through an applied mechanism is to conduct research and experiments on the impediments to the cultivation and production of tomato crop in universities and research centers and transfer the final results of field application that showed through research and Experiments to the field of farms with the supervision of researchers to follow up and take advantage of the observations that appear in the field and the adoption of farmers to the modern technology transferred to them after conviction and implementation by them and here came the following questions:

1-Determining the level of the usage of modern agricultural techniques by the farmer of the tomato crop in plastic spending in the field of biotechnology

2-To find the differences between the level of the use of modern agricultural techniques by the farmer of the tomato crop in plastic spending in each field of study

Research Objectives

1-To identify the level of usage of modern agricultural techniques by the farmers of the crop of tomatoes in plastic spending in the district of Samarra in the field of biotechnology

2-To find the difference between the level of the use of modern agricultural techniques by the farmer of the tomato crop in plastic spending in each field of study.

Operational:

Modern agricultural techniques: It is a set of means used by the farmer in his production to obtain his requirements and represents the first key to agricultural development.

Protected agriculture: is the production of vegetables or plants in private facilities called tunnels or green houses to protect them from adverse weather conditions, because of the possibility of production in the off season, where there are environmental conditions that are compatible with the growth of the fruit and vegetables in terms of intensity of light and temperature, Control of environmental factors.

Plastic tunnels: are one of the modern agricultural innovations. They are semi-cylindrical greenhouses used to protect vegetables and plants from unsuitable weather conditions such as low temperatures, frosts and wind, but they allow sunlight to enter. **Tomato crop**: It is a crop of the family of the origin of the plant origin of South America and grown in the temperate and warm areas and succeeded in planting in the reserves of spending and greenhouses, a source of vitamin C and mineral salts.

RESEARCH METHOD

Description of the study:

Use the descriptive approach in conducting the research to uncover the reality as the appropriate method to reach the detailed facts and identify the level of use of modern technologies by the farmer of the crop of tomatoes in plastic tunnels (Asadi, 2008: 51) by categorizing these facts and analyzing them accurately and knowledge of variance, To extract evidence and to obtain accurate results on the phenomenon and the subject of this research (Rachid, 16: 2003).

Search area:

The research area of agricultural areas of the agricultural people in the district of Samarra and the villages and areas of the judiciary because it is known that the Samarra is famous for the cultivation of the crop of tomatoes and areas are very large, making it suitable for this study.

Population and Sample Search:

The research community included the tomato crop in the plastic tunnels (700). * Farms distributed to four agricultural people (Samarra, Mutasim, Degla, Al-Dur). A random sample of 75% (28) farmers included in the first examination of the form on 2/1/2018 as shown in table (1) and thus the total number of members of the community (672) farmers, took (20%). Thus, the number of those surveyed reached (135) farmers, distributed s The final questionnaire was completed in the target areas, and 115 samples were collected from the total. The remaining 20 were not filled by respondents due to lack of cooperation with the researcher on the grounds of fear of the directorates of agriculture not to equip them with materials needed for agricultural production.

Measurements:

It is a process by which numerical values are obtained for the variables of research (Al-Khafaji, 1996: 72), which is the level of use of modern techniques by the tomato crop in plastic tunnels.

The steps followed in measuring the validity of the questionnaire

A- The validty of the measure: The ability of the meter to measure what was set for it and the attribute to be measured (Kubaisi, 2007: 192) was measured by a group of experts in agricultural extension for the purpose of verifying, which means ensuring that the test paragraphs actually measure the phenomenon to be measured

B - The validity of the content: It means the extent of clarity of each of the paragraphs of the scale in terms of formulation and meaning and design, ie that the items represent the sub-areas or their dimensions and the balance between these areas to become logical (Maamriya, 2009: 211) Through the presentation of the form to a group of professors specialized in the Department of and Horticulture.

Data collection method

A questionnaire was used as a tool to obtain the data needed to achieve the research objectives and in a personal interview with the respondents. It was statistically analyzed after classifying them

using the following statistical methods: frequencies, percentages, Alphcronbach, arithmetic average, weighted average and long term

Measurement of search variables

1. Educational level: The educational level was measured according to the following levels)Read and write, primary, middle, middle, graduate, graduate, graduate). For the purpose of measurement, the following numeric values were given (1,2,3,4,5,6,7), respectively
2. Number of plastic tunnels: It was measured by the number of plastic expenditures owned by the respondent
3. Workers in plastic tunnels: Labor was measured by classifying workers in plastic waste farming and serving them into two categories (family members, paid workers) and given numerical values (1,2), respectively.
4. 4. Physical sources: The physical sources (fertilizers, pesticides, seeds, machines and agricultural machinery) were measured in three paragraphs (agricultural equipment, local markets, civil society organizations) gave a quadratic scale (always, sometimes, rarely, do not get) and was given numeric values (0,1,2,3) respectively.
5. 5. Sources of information: Measured in nine paragraphs, a quadratic scale was given with numerical values (0,1,2,3), respectively.

RESULTS AND DISCUSSION

A-Determining the level of use of modern agricultural techniques by the tomato crop in the field of biotechnology.

Bio Fertilizers

The results showed that the weighted mean values in the bio-fertilizer axis ranged from 0.76 to 0.91 with an average of 0.83. The paragraphs were arranged according to the weighted mean as shown in Table (1).

Table (1) The descending order of the bio-fertilizer axis by the weighted mean

A P	Alternatives / statement	Not use		Use only a few		Use medium		Use high		Weighted average	S
		fre	%	fre	%	fre	%	fre	%		
5	The use of Bacillus bacteria for root reproduction	58	50.4	25	21.8	16	13.9	16	13.9	0.91	1
1	Use of nitrogenous fertilizer to stabilize nitrogen in the soil	58	50.4	27	23.4	17	14.9	13	11.3	0.86	2
2	Use endosperm fertilizer to stabilize nitrogen in soil	57	49.5	28	24.3	20	17.4	10	7.8	0.85	3
4	The use of Bacillus bacteria for root reproduction	60	52.1	28	24.3	17	14.9	10	7.8	0.8	4
3	Use of rhizobium legumes to stabilize nitrogen in the soil	63	54.8	28	24.3	12	10.4	12	10.4	0.75	5

It is clear from Table (1) that the use of potassium phosphate and Potassium phosphate stabilizer to increase flowering and root increase was ranked first with an average of (0.91) and that the highest percentage of the respondents' answers was in an alternative that was not used. A large number of tomato crops in plastic tunnels may not know the existence of this fertilizer or not to try the tomato crop and not know the importance of the crop or may be an important reason is the difficulty of obtaining it or not available in the local markets. The use of nitrogen fertilizer to stabilize the nitrogen in the soil was ranked second with an average of (0.86) and the highest percentage of the responses of the respondents in an alternative was not used. This may be due to the fact that farmers are not convinced of the results of the use of the bacterial azotobacter fertilizer or not use it in the markets . While the use of rhizobium to fix nitrogen in the soil was ranked last with an average of 0.76 and the highest percentage of the responses of the respondents in an alternative was not used. The reason may not be the use of biological fertilizers by crop farmers Tomato dates back to several points:

1-Most farmers do not know about bio fertilizers.
2-Farmers are not satisfied with the results obtained from the use of bio-fertilizers.
3-Difficulty obtaining or not available for bio-fertilizer or high prices of purchase in agricultural offices.

Bio pesticides

The results showed that the weighted mean values in the biocides axis ranged from 0.63 to 1.17 with an average of 0.97. The paragraphs were arranged according to the weighted mean as shown in Table (2).

Table (2) The descending order of the biocides axis by the weighted mean.

A P	Alternatives / statement	Not use		Use only a few		Use medium		Use high		Weighted average	S
		fre	%	fre	%	fre	%	fr	%		
2	The use of a chemical pesticide with the biocide (maltage and tricycle) to increase efficiency	41	35.7	28	24.3	31	27	15	13	1.17	1
3	Use the extract of the neem plant on the seedlings of the tomato by 50 ml to 100 liters of water to kill the biting insects	48	41.7	17	14.8	38	32.2	13	11.3	1.13	2
1	Use insecticide inhibitors (malt ages and tricids) at 100 ml per 100 liters of water	47	40.9	35	30.4	18	15.7	15	13	1.01	3
4	Use the plant extract on the tomato seedlings by 50 ml on 100 liters of water to kill the insect bite	54	47	32	27.8	14	12.2	15	13	0.91	4
5	The use of licorice extract as a disinfectant to kill and kill insects	71	61.7	18	15.7	13	11.3	13	11.3	0.63	5

It is clear from Table (2) that the use of a chemical pesticide with the biochemical agent (maltage and tricycle) to increase efficiency was ranked first with an average of 1.17 and that the highest percentage of the respondents' answers was in an alternative that was not used. The farmers do not know that mixing the chemical pesticide with a chemical pesticide increases efficiency because biocides do not kill quickly, unlike chemical pesticides. The use of Neem extract on tomato seedlings to kill biting insects was ranked second with an average of 1.13 and 41.7% of the responses of the respondents in an alternative was not used. The reason is that the Neem extract is available in the markets in small quantities Very much that most farmers do not know. While the use of licorice extract as an insect feeder and killer was ranked last with an average of 0.63 and the highest response rate was 61.7% of the responses of the respondents in an alternative that was not used. It is vital that farmers prefer to use chemical pesticides instead of pesticides because they kill the pests quickly, unlike biocides, and the unavailability of biocides on an ongoing basis in large amounts, ignoring the damage caused by chemical pesticides, as opposed to biocides that do not cause harm to humans and their environment.
B-To find the difference between the level of the usage of modern agricultural techniques by the farmer of the tomato crop in plastic spending in each field of study.

Educational level:

The results of the analysis of variance showed that there was no significant difference between the respondents according to the variable of achievement, as shown in Table (3)

Table (3) Results of analysis of variance among respondents according to the variable level of education.

Source of variation	Total squares	df	Averages	Values F	P-value
Between groups	31437.863	5	6287.573	0.359	1.111
Within groups	616899.059	109	5659.624		
Total	648336.922	114	----------		

Table (3) shows that there is no significant difference between the mean values of the use of the agricultural techniques compared to the value of the least significant difference LSD, where the calculated value of F is 1.11 which is not significant according to the value of P.value = 0.359, Of all levels of education do not differ from each other with the expertise they have and information on the level of use of modern technologies or may rely on similar experiences and information is the source of owners of agricultural offices or friends and neighbors

Number of plastic tunnels:

The results of the analysis of variance showed no significant difference between the respondents according to the variable number of plastic expenditure, as shown in Table (4).

Table (4) Results of analysis of the variance of the difference between the respondents according to the variable number of plastic tunnels.

Source of variation	Total squares	df	Averages	Values F	P-value
Between groups	16450.175	2	8225.088	1.458	0.237
Within groups	631886.746	112	5641.846		
Total	648336.922	114	----------		

Table (4) shows that there is no significant difference between the mean values of the use of the agricultural techniques compared to the value of the least significant difference of LSD, where the value of F calculated 1,158 is insignificant according to the value of P.value = 0.237, and may be due to farmers who create Many plastic tunnels for cultivating the tomato crop are no different from those with low plastic spending in the use of agricultural techniques because they believe that the pattern of agriculture is not different from one person and another person, but agriculture is done in the form of large plastic tunnels according to the possibilities available.

Workers in plastic tunnels:

The results of the analysis of variance showed no significant difference between the respondents according to the variable of labor, as shown in Table (5).

Table (5) Results of analysis of the variance of the difference between the respondents according to the variable labor.

Source of variation	Total squares	df	Averages	Values F	P-value
Between groups	19621.266	1	19621.266	3.527	0.063
Within groups	628715.655	113	5563.855		
Total	648336.922	114	----------		

Table (5) shows that there is no significant difference between the mean values of the use of the agricultural techniques compared to the value of the least significant difference of LSD, where the value of F calculated 3.527 is not significant according to the value of P-value = 0.063. The owners of the farm do not differ from their other farmers. Most of the workers are not graduates or at least have no agricultural information, or are they from the same area and therefore have no information that is different from the others in their area.

Physical sources:

The results of the analysis of variance showed a significant difference between the respondents according to the variable of physical sources, as shown in Table (6).

Table (6) Results of the analysis of the variance of the difference between the subjects according to the variable material sources.

Source of variation	Total squares	df	Averages	Values F	P-value
Between groups	57490.656	3	19163.552	3.500	0.016
Within groups	590846.266	111	5322.939		
Total	648336.922	114	----------		

Table (6) shows that there is a significant difference between the mean values of the use of agricultural technology for the subjects compared with the value of the least significant difference of LSD, where the value of F calculated at 3,500 is significant at the level of probability 0.05, where the value of p-value = 0.016, That the agricultural offices provide the latest agricultural techniques and the best unlike the agricultural people, therefore we find a heavy demand on agricultural offices and the reluctance of the agricultural people

Sources of information:

The results of the analysis of variance showed a significant difference between the respondents according to the variable of information sources, as shown in Table (7).

Table (7) Results of the analysis of the variance of the difference between the respondents according to the variable sources of information.

Source of variation	Total squares	df	Averages	Values F	P-value
Between groups	82019.739	2	41009.869		
Within groups	566317.183	112	5056.403		
Total	648336.922	114	----------		

Table (7) shows a significant difference between the mean values of the use of the subjects of agricultural techniques when compared with the value of the least significant difference LSD where the value of calculated F is 8,110 which is significant at the level of probability 0.01, where the value of p-value = 0.001, , As the extension system is disabled at this time, farmers are turning to the source of the closest and reliable information such as friends, neighbors or agricultural offices because of their lack of confidence in the extension system and the agricultural guide for its ineffectiveness.

CONCLUSION

1- The results showed that the use of compost of basil bacteria in the bio-fertilizer axis was ranked first with a weighted mean of 0.91. Most of the respondents did not know this type of fertilizers because of their lack of availability in the market. By the government agencies, and the paragraph of the use of a chemical pesticide with the biodegradable insecticide in the pivot of biocides ranked first with an average of (1,17). We conclude that most farmers do not know that mixing the pesticide with a chemical pesticide increases its effectiveness because biocides are systemic pesticides to Insects quickly kill.

2- The results of the analysis of variance showed a significant difference in the level of use of agricultural techniques among the respondents. It was found that there was a significant difference in the use of agricultural techniques according to the following variables (physical sources, sources of information), and no significant difference for the following variables (educational level, Plastic spending).

RECOMMENDATIONS

1-The importance of taking into consideration the variables that showed significant differences in the use of agricultural techniques in the preparation of educational extension activities of importance in the level of use of modern agricultural techniques

2-The researcher recommends that the agricultural extension system should carry out instructional educational activities to cultivate the tomato crop in plastic spending in the field of biotechnology.

3- Conduct a similar study on different crops.

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مستوى استخدام التقنيات الحديثة من قبل زراع الطماطة في الانفاق البلاستيكية في قضاء سامراء / محافظة صلاح الدين

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المستخلص

يهدف البحث تحديد مستوى استخدام التقنيات الزراعية الحديثة من قبل زراع محصول الطماطة في الانفاق البلاستيكية في قضاء سامراء / صلاح الدين ، و ايجاد الفروق بين مستوى استخدام التقنيات الزراعية ، اختير قضاء سامراء منطقة لإجراء البحث ، وشمل البحث ثلاث شعب زراعية تمثل 75% من جميع الشعب في القضاء ، شمل البحث جميع المزارعين التابعين للشعب الزراعية المنتخبة البالغ عددهم 700 مزارع ، شمل البحث عينة حجمها (115) مبحوث استخدم الاستبيان اداة لجمع البيانات ، تكونت الاستمارة في جزئيين ، الجزء الاول بعض المتغيرات المتعلقة بالمبحوثين ، وتضمن الجزء الثاني من (9) فقرات لمحور التقنيات الحيوية لقياس مستوى استخدام التقنيات الزراعية الحديثة في مجال التقنيات الحيوية ، ولتحقيق الصدق عرضت الاستمارة بشكلها الاولى على مجموعة من خبراء الارشاد الزراعي لتحقيق الصدق الظاهري و خبراء في قسم وقاية النبات لتحقيق صدق المحتوى ، استخدمت طريقة الفاكرنباخ لقياس الثبات حيث بلغ (0.97) ، اظهرت النتائج وان فقرة استخدام سماد بكتريا الباسلس في محور الاسمدة الحيوية احتلت المرتبة الاولى بمتوسط موزون مقداره (0,91) نستنتج من ذلك ان اغلب المبحوثين لا يعرفون هذا النوع من الاسمدة لقلة توفره في الاسواق و لعدم اقتناع الزراع بنتائج استخدامه و لعدم توعية المزارعين باستخدامه من قبل الجهات الحكومية ، وان فقرة استخدام مبيد كيميائي مع المبيد الحيوي التريكالد في محور المبيدات الحيوية احتلت المرتبة الاولى بمتوسط مقداره (1,17) نستنتج من ذلك ان اغلب الزراع لا يعرفون ان خلط المبيد الحيوي بمبيد كيمائي يزيد من فاعليته لان المبيدات الحيوية مبيدات جهازية لا تقتل الحشرات بسرعة ، وقد اوصى الباحث بضرورة قيام جهاز الارشاد الزراعي بتنفيذ انشطة ارشادية تعليمية لزراعة محصول الطماطة في الانفاق البلاستيكية في جميع مجالات الدراسة .

الكلمات المفتاحية: تقانات زراعية حديثة، تقنيات زراعية حديثة، مبتكرات زراعية حديثة.