KNOWLEDGE OF PROTECTED VEGETABLE FARMERS IN LARGE PLASTIC HOUSE BY PROPER METHODS IN CONTROLLING AGRICULTURAL PESTS IN BABYLON PROVINCE

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Abstract

The research aims to identify the knowledge level of green vegetable farmers in large plastic houses by sound methods in controlling agricultural pests in the Babylon province in general and to find the correlation between the knowledge level of green vegetable farmers in large plastic houses and a group of independent factors and determine the relationship of regression between the respondents' knowledge and the total of variables ,The independent studied amount, Babylon province was chosen as an area to conduct the research, as the number of protected green vegetable farmers in the large plastic houses for the year 2019 had (325) farmers distributed among (11) agricultural divisions. A random sample (50%) of the agricultural division was chosen by (6) agricultural division after excluding the Alexandria agriculture division as a prospective sample, the number of a vegetable farmer in them (230) agriculture division, After excluding the Alexandria Agriculture Division as an exploratory sample, the number of vegetable farmers in it reached (230) farmers, and a proportional random sample of (45%) of them was selected by (104) farmers, data was collected using a questionnaire, which included two parts: the first included the personal characteristics of the respondents, As for the second part, it included (55) paragraph to test the knowledge level of green vegetable farms in large plastic houses by sound methods in agricultural pest control, then data was collected, blanked and statistically processed using the program Spss, Excel. The results of the research showed that 77.9% of the respondents had a low cognitive level with the proper methods for controlling agricultural pests in general, and the results showed that the knowledge level of green vegetable farmers in large plastic houses with the proper methods in the control of agricultural pests has a positive correlation relationship with each of the factors The following: (educational level, number of years of work in protected agriculture, number of plastic house, sources of information, the Direction towards the use of pesticides), while showing a negative correlation with the variable of years of age. The results of the research showed that 77.9% of the respondents had a low cognitive level with the proper methods for controlling agricultural pests in general, and the results showed that the knowledge level of green vegetable farmers in large plastic houses with the proper methods in the control of agricultural pests has a positive correlation relationship with each of the factors The following: (The educational level, the number of years of work in protected agriculture, the number of plastic house, sources of information, the direction towards the use of pesticides), while showing a negative correlation with the variable of years of age. The researcher recommended that the Ministry of Agriculture represented by the Agricultural Extension and Training Department should pay attention to implementing guiding activities and programs for protected vegetable farms related to sound methods in combating agricultural pests in large plastic house and taking into account the characteristics of the respondents when planning the extension programs and activities because they showed a relationship of relevance and influence at the knowledge level.

*Keywords***:** farmer knowledge, proper methods, chemical control.

Introduction

The global food system faces a huge amount of pressure in the next thirty years, Where the population of the earth is expected to increase to 9,7 billion by 2050 (the United Nations, the Internet), and the wealth of people is expected to increase, leading to increased demand for A more diversified and higher-quality food system requires an increase in productivity and quality (Governance Office of Sciences, 2011), and evidence continues to indicate high levels of hunger in the world where it is estimated that the number of people suffering from nutritional deficiency will increase to 820 million people, i.e. About one in nine people in the world (FAO, 2018), Where the elimination of hunger and extreme poverty is at the forefront of the new Millennium Goals of the United Nations and the aims of sustainable development, and the issue of food security does not depend on the provision of food but rather extends to the extent of its distribution and quality (United Nations, 2017), and the World Food and Agriculture Organization (FAO) has defined food security on It is to provide food to all members of society with the quantity and quality necessary to meet their needs continuously for a healthy and active age (FAO, 2018) As the World Bank (2010) defined it, that all people have access at all times to adequate food for an active and healthy

age, and according to this definition, food security is based on three principles: food abundance, stability, and providing it for people (Al-Mashat and Salwa, 2019). Protected agriculture is one of the agriculture intensive in which the plant has all its nutritional and environmental needs appropriate for growth and production and therefore it is an appropriate medium for attacking insects and diseases that find the environment suitable for growth, development and causing damage (Pape, 2001), This drives farmers who engage in this type of agricultural activity to use chemical pesticides in a large and wide way to reduce these pests that affect protected vegetable crops, which causes many negative side effects on humans and the environment (Khafji, 2013), Agricultural food circulated in the market can be divided into three ranks, the first level that contains pesticide residues above the permissible level, the second level that contains pesticide residues within the permissible range, and the third level that does not contain any residues (Pesticides Committee, 2014), The problem of pesticide residues poses an enormous challenge by its presence in agricultural products, as survey studies on vegetable crops indicate that (50%) of the samples found the residual effect of the pesticide more than the permissible limit which is estimated at (1 mg / kg) as well as the deterioration of the nutrient ratio

In it (Ali, 2013), One of the surveys in Iraq has found that the residual effect of the fungicide (Thiophanate-methyl) on the yield of cucumbers, whether on the leaves or fruits as well as the soil within the recommended concentrations, and this is not suitable for human health and the environment (Al-Obaidy, 2018a) Some of the bee losses, which is one of the main pollinators of plants, are due to exposure to chemical pesticides and most of the bee colony losses lie near crops with agricultural pesticides even in low doses. One of the studies in Baghdad province found that the results of the pesticide residues (Imidacloprid) on honey bee colonies and its products have reached (3.07 mg/kg) in honey, which is more than the value of the highest level of the globally determined residues.

A percentage of these residues also appeared on pollen and the body of the bee (Hamad, 2019b). The excessive use of pesticides incorrectly led to the emergence of the characteristic of resistance in agricultural pests by the action of those pesticides and the killing of bio natural enemies of pests, which led to an increase in the number of secondary pests and their transformation from unimportant pests into economic pests and weakening of the biological enemies control over the preparation of agricultural pests, as well as their direct impact on Beneficial insects and their elimination, such as honeybees (Abu Daqqa, 2006). The problem of damage resulting from the use of chemical pesticides by farmers in an incorrect way is largely related to the degree of farmers awareness of preserving natural resources and their neglect of the moral responsibility towards harming the environment through excess or wrongful use of pesticides, A large number of poisoning cases among peoples have been diagnosed as a result of the neglect or ignorance of some farmers of the sound basis for chemical control (Makhoul, 2013). Therefore, the process of educating and farmers awareness about the environmental damages of pesticides and their easy access to information that helps them to overcome them and avoid their damages is extremely important, as farmers must know what to do in the process of pest control and prevent side effects that arise as a result of the weak or insufficient awareness of farmers of the dangerous effects caused On the Random Uses of Chemical Pesticides (FAO, 2012). Therefore, the use of chemical pesticides randomly and excessively is a real problem facing agriculture, people and the environment both and requires stopping at them, especially by the agricultural extension agencies and its programs directed towards farmers as they are the users of these pesticides, and as is known, the agricultural extension has the greatest burden on educating farmers, educating them and developing their abilities, developing their skills, changing their attitudes and way of thinking so that they can take full advantage of scientific and technical progress in agriculture (Khalil Wadham, 2015), This, in turn, requires identifying the actual level of information and knowledge possessed by farmers, especially green vegetable farmers in the proper use of chemical pesticides in order to prepare indicative programs that are based on the reality of the need of farmers from this information, as we avoided wasting efforts and indicative capabilities through random indicative programs and activities unrealistic.

Hence the idea of the current research came to answer the following research questions:

1. What is the cognitive level of green vegetable farmers in large plastic house with proper methods for controlling agricultural pests in Babylon province?
2. What is the relationship between the knowledge of protected vegetable farmers and each of the following independent variables (years of age, educational level, number of years of work in protected agriculture, number of plastic house owned by the farmer, relevant sources of information, the direction of protected vegetable farmers towards the use of chemical pesticides).
3. What is the relationship of regression between the knowledge of vegetable farmers and the total quantitative factors studied?

Research aims

1- Recognizing the knowledge level of green vegetable farmers in large plastic house by sound methods for controlling agricultural pests in Babylon province general.
2- Finding the correlation between the knowledge of green vegetable farmers and each of the following independent variables (years of age, educational level, number of years of work in protected agriculture, number of plastic house owned by farmers, sources of information ,the direction of protected vegetable farmers towards the use of chemical pesticides.
1- Determining the regression relationship between the level of knowledge of green vegetable farmers in large plastic houses in the proper methods of controlling agricultural pests in Babylon province and the total of the independent variables included in the study.

Research Importance

Because of the problems that the world suffers today from the problems of serious environmental pollution threatening man and his age, This research comes within the framework of global trends that focus on the importance of raising the awareness of farmers in the field of chemical pesticides and how to reduce their use in order to reduce their negative effects on humans, plants, living organisms and the environment in general. The results of the research provide more information on the harms of improper use of chemical pesticides. It contributes to bridging a research gap in which more information is not available under the current local conditions, especially in the field of agriculture, and to provide data to assist researchers in conducting subsequent research, and is a springboard for new studies in the field of awareness of the damages resulting from improper use of chemical pesticides, is one of the modern directions to provide information that can be used in providing decision-makers in the field of agriculture in general and agricultural extension in particular to be the basis for building educational and extension programs that meet the knowledge needs of farmers in this field.

Research Hypotheses

1- There is no significant correlation between the cognitive level of green vegetable farmers in large plastic house by sound methods for controlling agricultural pests and years of age.
2- There is no significant correlation between the cognitive level of green vegetable farmers in large plastic house by proper methods of agricultural pest control and educational level.
3- There is no significant correlation between the cognitive level of green vegetable farmers in large plastic house by

the proper methods of agricultural pest control and the number of years of work in protected agriculture.

4- There is no significant correlation between the cognitive level of green vegetable farmers in large plastic house by the proper methods of controlling agricultural pests and the number of houses owned by farms.

5- There is no significant correlation between the cognitive level of protected vegetable farmers with the proper methods of agricultural pest control and the relevant information sources.

6- There is no significant correlation between the cognitive level of green vegetable farmers in large plastic house with proper methods for controlling agricultural pests and the farmers 'attitude towards the use of chemical pesticides.

Operational definition

1- **Knowledge:** The collection of information and facts that protected vegetable farmers in Babylon province possess about proper methods of combating agricultural pests.

2- **Protected vegetable farmers:** farmers practicing vegetable cultivation activities in large plastic house system in Babylon province.

3- **Agricultural pests:** insects, diseases and bushes that cause economic damage to vegetable crops grown in large plastic house and require chemical, agricultural or physical intervention by farmers to eliminate them.

4- **Chemical control:** the use of chemical pesticides by green vegetable farmers in large plastic house in Babylon province to reduce or eliminate agricultural pests that affect the crop.

Materials and Methods

Research Methodology

The descriptive approach was used to achieve the goals of the research because it is one of the best approaches used in this type of studies, through studying the phenomenon and obtaining data, which helps to describe the phenomenon in an accurate description to extract its implications and reach adequate results (Al-Rashidi, 2002), This approach is considered appropriate in conducting research, leading to the detection of reality and giving specific indications, results and generalizations that are adequate and accurate.

The area of conducting the research

Babylon province has chosen a region to conduct the current research for the following reasons:

1. The presence of a large number of green vegetable farmers in large plastic house.

2. Protected agriculture is an important economic resource for farmers.

3. The proximity of the research area to the work of the researcher and his knowledge of the areas where protected vegetables are cultivated.

The approach community and its sampling:

The approach community in the field of statistics knows that all the vocabulary and possible measurements of the phenomenon under study (Al-Qaisi, 2006). The approach community included all protected vegetable farmers in the areas belonging to the agricultural division of Directorate of Agriculture in Babylon and the number (16) agricultural division, namely (Al-Mahawil, Al-Madhatia, Al-Saddah, Alexandria, Al-Shomali, Al-Qasim, Al-Hashimiya, Al-Nile, Al-Musaib project, Al-Imam, Al-Musaib, Al-Tale'a, Abi Ghark, province Center, Al-Kifl and Jurf Al-Nasr. agricultural divisions have been excluded(province Center,

Al-Kifl, Altaliea and Jurf Al-Nasr) due to the absence of green vegetables protected in it, and thus the number of agricultural divisions covered by the research became (12) divisions from which the Alexandria agriculture division was excluded as an exploratory sample, and thus the number of agricultural divisions covered by the research reached (11) agricultural divisions, A simple random sample was elected from it (50%), the number of which was (6) agricultural division, namely: (Al-Mahawil, Al-Saddah, Al-Nile, Al-Imam, Al-Musaib project and Al-Musaib). The number of farmers in it reached (230) protected vegetable crops, from which a proportional random sample was withdrawn from them (45)% reached (104) respondents, as shown in Table (1).

Table 1 : The distribution of sample numbers of protected vegetable farmers in large plastic houses within the agricultural divisions of the Directorate of Agricultural in Babylon

Agricultural division	The number of farmers	The percentage of 45% from the farmers
Al-Mahawil	60	27
Al-Musaib project	64	29
Al-Saddah	23	10
Al-Shomali	8	4
Al-Nile	19	9
Al-Imam	56	25
Total	230	104

Preparing the data collection tool

1- Preparing the preliminary scheme of the research tool:

For the purpose of achieving the objectives of the research, a questionnaire was prepared as a tool for collecting data from the respondents, consisting of two main parts:

- This part included a number of questions related to independent variables related to protected vegetable cultivation in large plastic house, namely: years of age, educational level, number of years of work in protected agriculture, number of plastic houses owned by farms, relevant information sources, direction of green farmers Protected towards the use of chemical pesticides.

- The preliminary scheme of the data collection tool was prepared to measure the cognitive level of green vegetable farmers in large plastic house in the field of sound methods in agricultural pest control, by reviewing a number of scientific sources and previous studies and literature on pest control in greenhouse protection in large plastic house and a survey of the views of some specialists, and by that (66) paragraph were determined in their preliminary form, and the researcher determined the degree of the desired level of (100) degrees.

1. Determination of the cutting threshold:

The cutting threshold means the degree to which the proposed areas and paragraphs of the questionnaire are sufficient for any of them to remain in their final form. The cutting threshold has been set at 75%, and the paragraphs agreed upon by experts with a score of less than 75% have been deleted.

Blum mentioned that obtaining agreement from one or more arbitrators indicates the veracity of the instrument, and it is possible to feel comfortable about its authenticity (Darwazah, 2005).

2. Examination of validity and Stability of scales:

A- Face validity: it means measuring the suitability of each paragraph of the tool's paragraphs with the aim for which it was set (Melhem, 2012). The Face validity has been achieved by presenting the questionnaire form to a group of professors specializing in agricultural extension and educational psychology, This is to identify the extent to which the questionnaire has achieved the objectives for which it was prepared, its clarity and the degree of accuracy written therein, and the necessary adjustments have been made in the light of expert opinions and guidance.

Measuring the independent factor:

The knowledge of protected vegetable farmers in large plastic houses was measured by the proper methods of controlling agricultural pests through a multiple-choice test that includes (55) a paragraph, each of which has three answers, one of which is correct, and a degree has been determined according to the relative importance of the question according to what the experts determined and the extent reached Theoretical scale as a whole (0-100) degrees.

Measuring the independent factors:

The specific characteristics of the questionnaire were measured for green vegetable farmers in the large plastic house in Babylon province, which are included in the first part of the questionnaire, as follows:

- **Years of Age:** The number of years of the respondent's age was calculated when collecting data.
- **The educational level:** It was measured according to the following levels: (illiterate, read and write, elementary, Intermediate school, Middle school, institute, college, Postgraduate graduate) and numerical values were given (1, 2, 3, 4, 5, 6, 7, 8) Respectively .
- **Number of working years:** It was calculated according to the number of years the researcher spent in protected agriculture and was directly measured.
- **The number of plastic house:** It was measured by the number of plastic house owned by the respondent.
- **Related Information Sources:** This variable was measured through 10 paragraphs that were placed within a triple scale (always, sometimes, rarely) and numeric values were given to him (3, 2, 1), respectively. Thus, the theoretical range of information sources was limited to (10- 30).
- 2- The direction of protected vegetable farmers towards the use of chemical pesticides: this variable was measured by 12 paragraph placed within a triple scale (approval, neutral, Non-approval) half of it is positive and the other half is negative, numerical values were given for the positive paragraphs (3, 2, 1) on Respectively and its reversal of negative paragraphs, and thus the theoretical extent of it (12-36).

Results and Discussion

The first aim: Determining the knowledge level of green vegetable farmers in large plastic house by sound methods to control agricultural pests in Babylon province.

The results of the research showed that the degrees of respondents' knowledge, in general, ranged between (19.98-67.6) degrees, with an average of 32.58 degrees, and a standard deviation of 7.30, on a scale whose degrees ranged between (0-100) degrees, and the respondents were divided into three categories using the Range law, The highest percentage was in a low category, as shown in Table (1). It is clear from Table (1) that the highest average amounted to 77.9% of the respondents falls within the category of low knowledge, followed by the middle category with 19.2%, so the level of knowledge of the respondents is described as generally low, and this may be due to the weakness of the traditional experiences and information that farmers inherited from those who preceded them. In the methods of pest control or from the owners of local agricultural offices who do not have sufficient agricultural experience or are not specialized in agriculture, which was the reason for the apparent low level of their level of knowledge in the proper methods of pest control and perhaps weak indicative activities in the research area.

Table 1 : Distribution of the respondents according to the categories of degrees of knowledge of the proper methods for controlling agricultural pests in Babylon in general**.**

Average knowledge	%	Number	Categories
29.99	77.9	81	Low (19.98 - 35.75)
40.38	19.2	20	Medium (35.76 - 51.53)
58.37	2.9	3	High (51.54 - and above)
SD=7.30	%100	104	Total

The second aim: Determining the correlation between the level of knowledge of green vegetable farmers in large plastic house with proper methods to control agricultural pests and the following independent variables:

1 - years of age

The results of the research showed that the ages of green vegetable farmers in large plastic houses were limited between (20-74) years, with an average of (44.98) years and a standard deviation of 10.00, and the respondents were divided into three categories using the law of range, as shown in Table (2). It is clear from Table (2) that the highest percentage amounted to 65.4% of the respondents are in the intermediate Category, and to find the correlation relationship between the level of knowledge and the variable of years of age, use the Pearson correlation coefficient, which has a value of (0.207-), and indicates a negative relationship between the two variables, and to test the relationship morale, use a test (t) whose calculated value is (2.13-), which is higher than the tabular value (t) of (1.660) and this indicates a negative correlation between the two variables at the probability level (0.05), and thus rejects the imposition of nothingness and accepts the alternative assumption that Stipulates (there is a significant correlation between the two variables), That is, the level of knowledge and information of the respondents with the proper methods for controlling agricultural pests varies according to the age groups of the respondents, as the lower the level of age the greater the knowledge level of the respondents, and the reason for this may be due to the respondents from the low age groups, as the youth category is more familiar with the proper methods of pest control and more related The sources of information, especially those obtained from modern means of communication (the Internet) unlike the researchers of high ages who often adhere to the traditional methods of pest control, especially chemical.

Table 2 : Distribution of respondents according to the categories of years of age variable

Significant	t-Calculated	r	average	%	number	Categories
0.05	*2.13-	-0.207	36.37	19.2	20	Low (19.98 - 35.75)
			32.00	65.4	68	Medium (35.76 - 51.53)
			32.43	15.4	16	High (51.54 - and above)
Significant at 0.05 probability level*				%100	104	Total

2- The educational level

The results of the study showed that the respondents were distributed according to the variable of the educational level into seven categories, where the highest percentage was 22% within the primary education category and the lowest percentage was 5.77% within the category of higher degrees as shown in Table (3) It is clear from Table (3) that the highest percentage of 22.11% of respondents is within the primary category. To find the correlation between the cognitive level of the respondents and the educational level variable, use the Spearman rank correlation coefficient of

value (0.44) and indicates a positive relationship between the two variables, and to test the relationship morale Using a t-test with a value of (4.94) and comparing it with the tabular value of t (2.364), it was found to be significant at the 0.01 probability level, Thus, he rejects the Null hypothesis and accepts the alternative hypothesis which states (there is a correlation between the two variables) and the reason for this may be that the respondents with a higher educational level have more knowledge and information of proper methods related to controlling.

Table 3 : Distribution of respondents according to the categories of the educational level variable

Significant	t-Calculated	r	Average	%	Number	Acquisition categories	No.
0.01	**4.94	0.44	28.63	7.70	8	illiterate	1.
			29.67	13.46	14	read and write	2.
			32.31	22.11	23	elementary	3.
			31.62	25	26	Intermediate school	4.
			32.68	16.35	17	Middle school	5.
			44.70	9.61	10	institute	6.
			47.56	5.77	6	Postgraduate graduate	7.
Significant at 0.01 probability level**				100	104	Total	

3. The number of years working in protected agriculture:

The results of the research showed that the values expressing the number of years the vegetable farmers worked in large plastic house were confined between (2-14) years with an average mean of (7.16) years, with a standard deviation (2.92), and the respondents were divided into three categories using the range law, and as shown in Table (4). It is clear from Table (4) that the highest percentage of 43.61% of respondents is within the low category. To find the correlation between the level of knowledge and the variable of the number of working years, use the Pearson correlation coefficient, which has a value of (0.301), and indicates a

positive relationship between the two variables. (T) whose value is (3.18), It is higher than the tabular value (t) of its value (2.364), and this indicates a positive correlation between the two variables at a probability level (0.01). Thus, we reject the null hypothesis and accept the alternative hypothesis that states (there is a correlation between the two variables), and the reason may be due In that, the accumulated experience of the number of years of work in this field has increased the knowledge of the large protected vegetable farmers in the proper methods of agricultural pest control.

Table 4 : Distribution of respondents according to their categories, number of years of work

significant	t-Calculated	r	Average knowledge	%	number	Categories
0.01	**3.18	0.301	30.37	34.61	36	Low (2-5) years
			33.12	32.70	34	Medium (6-9) years
			35.37	32.69	34	High (10-14) years
Significant at 0.01 probability level**				%100	104	Total

4. Number of plastic house

The results of the research showed that the values expressing the number of plastic house owned by the respondents were confined between (2-14) plastic house with an average mean of 7.16, and a standard deviation of 2.049, and the respondents were divided into three categories using the law of range as shown in Table (5)

It is clear from Table (5) that the highest percentage of 67.30% of respondents is within the low category. To find the correlation relationship between the level of knowledge

and the number of plastic houses variable, use the Pearson correlation coefficient, which has a value of (0.178) and indicates a positive relationship between the two variables. To test the significance of the relationship between the two variables, use the test (t), as the calculated value of (t) is (1.82), which is less than the tabular value (t) of (1.660), This result indicates a positive correlation between the two variables at the level of (0.05), and thus rejects the null hypothesis and accepts the alternative assumption that states (there is a significant correlation between the two variables),

and the reason for this may be that the protected vegetable farmers who have a greater number From plastic house it is more searching for knowledge in their field of activity and this knowledge is diverse and multi-source, unlike those who have a limited number of plastic houses, they are less impulsive to obtain knowledge.

Table 5 : The distribution of respondents according to the number of plastic houses they own

Significant	t-Calculated	r	Average knowledge	%	Numbers	Categories
0.05	*1.82	0.178	31.87	67.30	73	Low (2-5)
			30.87	25	23	Medium (6-9)
			36.90	7.70	8	High (10-14)
Significant at 0.05 probability level*				100	104	Total

5. Sources of relevant information

The results of the research showed that the values expressing the sources of information were confined between (13-25) degrees, with an arithmetic average of (18.95) degrees, and a standard deviation of (2.39), according to a triple scale whose degrees ranged between (10-30) degrees, and the respondents were distributed Into three categories using the term law as shown in table (6) It is clear from Table (6) that the highest percentage of 35.99% of respondents is within the many category. To find the correlation between the respondents' knowledge and the variable of information sources, use the Pearson correlation coefficient, which has a value of (0.268) and indicates a positive relationship between the two variables. To test the significance of the relationship between the two variables, use the test (t) as the calculated value of (t) was (2.80), which is less than the tabular value (t) of (2.364), This result indicates a positive correlation between the two variables at the level of (0.01), and thus rejects the null hypothesis and accepts the alternative assumption that states (there is a significant correlation between the two variables), and this may be due to the fact that whenever the diversity and multiplicity of information sources from which farmers get On knowledge in their field of activity the more and more diverse their knowledge.

Table 6 : Distribution of respondents according to information sources

Significant	t-Calculated	r	Average knowledge	%	Number	Categories
0.01	**2.80	0.268	30.24	32.69	21	Low (13-16)
			31.85	63.46	49	Medium (17-20)
			35.99	3.85	34	Many (21-25)
Significant at 0.01 probability level**				%100	104	Total

6. The direction of protected vegetable farmers towards the use of chemical pesticides

The results of the research showed that the values expressing the direction of the vegetable farmers were confined between (12-30) and an arithmetic average (18.55), and a standard deviation (3.60) degrees according to a triple scale whose degrees ranged between (12-36), the respondents were divided into three categories using the range law Theoretical, as shown in Table (7)

Table (7) showed that the highest percentage of 64,43% of the respondents is in a neutral category. To find the correlation between the level of knowledge and the variable directions of green protected vegetable farmers in plastic house towards the use of chemical pesticides, use the Pearson correlation coefficient, which has a value of (0.338) and indicates a relationship Positive between the two variables. To test the significance of the relationship between the two variables, use the test (t), as the calculated value (t) reached (1.82), which is less than the tabular value (t) whose value is (1.660). This result indicates a positive correlation between the two variables at a level (0.05), and thus rejects the Null hypothesis and accepts the alternative hypothesis that states (there is a significant correlation between the two variables), and the reason for this may be that whenever the farmers 'tendencies are large towards the use of Alternative methods of chemical control The greater their knowledge in the field of agricultural pest control and thus their desire to search for alternative methods of control such as agricultural, physical, and others.

Table 7 : Distribution of respondents according to the variable of trend towards the use of chemical pesticides

Significant	t-Calculated	r	Average knowledge	%	Numbers	Categories
0.05	**1.82	0,338	15.85	25.96	27	Negative (12-19)
			20.61	64.43	67	Neutral (20-27)
			25.6	9.61	10	Positive (28-36)
Significant at 0.05 probability level*				%100	104	Total

The third aim: To identify the regression relationship between the level of knowledge of green vegetable farmers in large plastic house by the proper methods of controlling agricultural pests and the total quantitative factors studied.

The Regression Analysis was used for the purpose of explaining the regression relationship between the level of knowledge and the set of independent quantitative variables included in the analysis and to know the effect of each variable individually and its effect with the presence of other variables at the level of knowledge, as well as to know the amount of total variance that all variables explain in the level of knowledge, and the results of the analysis were as It is shown in Table (8).

Table 8 : Relationship of regression between the respondents' knowledge and the group of independent factors with all possible possibilities

Variables	R	R^2	Adj R^2	M.S.E	B	F	Sig
Constant Years of work	0.301	0.286	0.250	44.374	26.626 1.473**	20.142	**
Constant Years of work Sources of information	0.385	0.373	0.315	39.582	20.267 1.238** 1.286**	18.774	**
Constant Years of work Sources of information The number of plastic house	0.454	0.424	0.382	37.132	18.185 1.228** 1.127** 0.983	17.682	**
Constant Years of work Sources of information The number of plastic house Direction	0.547	0.524	0.493	6.112	7.637 1.128** 1.027** 1.016** 0.998*	15.853	**

Significance of variance analysis model = ** at probability level 0.01, * at probability level 0.05

Table (8) showed that the regression relationship of the best coefficients when entering the variables alone, which was differentiated by relying on the differential measures based on the significance of the model F and the lowest experimental error MSE and the highest value of the coefficient of determination R2, as it was found that the best independent factors in its effect of the changes in the level of knowledge When entering by itself the number of years of work, one unit of work years will be noticed, the value of the knowledge level increases significantly by 1.473 and the value of R2 has equal to 0.286 as this factor explains 28.6% of the changes taking place in the level of knowledge, as shown in the following equation:

$$\hat{Y} = 26.626 + 1.473 \text{ }_{\text{Years number}}$$

Upon entering the bi-interaction of the independent factors, it is noted that the best equation based on the values of R2 and the significance of the model (F) and the least experimental error MSE in the interpretation of changes in the level of knowledge was for both years of work and sources of information where the value of 0.394 R2, which means that 39.4% of the changes The level of knowledge was the result of these two variables, And by increasing the work years by one unit in the presence of the variable of information sources, the level of knowledge increases significantly by 1.238 and the increase in information sources is one unit with the presence of the variable of working years, the level of knowledge increases significantly by 1.286, as shown in the following equation.

$$\hat{Y} = 20.267 \underset{\text{Years numbers}}{+ 1.238} \underset{\text{Information sours}}{+ 1.286}$$

When entering the triple combinations of the independent factors, it is noted that the best equation based on the values of R2 and the significance of the model (F) and the least experimental error MSE in the interpretation of changes in the level of knowledge was for both years of work and sources of information as the value of 0.424 R2, which means that 42.4% of the changes The level of knowledge obtained was the result of these variables, as shown in the following equation.

$$\hat{Y} = 18.185 + 1.228 \text{ Years numbers} + 1.127 \text{ Information sours} + 0.983 \text{ numbers of greenhouse}$$

Upon entering all the studied variables to explain the variance, the variables that showed a significant increase in the probability level 0.01 are the income, information sources and years of service, as shown in the following equation:

$$\hat{Y} = 18.185 + 1.128 \text{Years numbers} + 1.027 \text{Information} + 1.016 \text{greenhouse} + 0.998 \text{ Attitude}$$

The total of studied factors included in the analysis explained 52.4% of the changes taking place in the level of knowledge where the value of R2 has 0.524, and that the result of the interpretation indicates that the remaining percentage may be due to other quantitative variables that are not studied or for some descriptive factors not included in the analysis, and the variables differed. In the extent of its interpretation of the variation in the level of knowledge according to the power of influence of each of the factors studied and in each stage of the regression with all possible possibilities.

Conclusions

- The results showed that the general knowledge level of the respondents is low and inclined to the mean, that results from the weakness of the information of the respondents in the control measures in the proper ways to avoid harm to humans, plants and the environment, which indicates the respondents need to have indicative activities related to the content of its material in the proper methods to control the pests of agriculture.
- There were significant correlations between the respondents' knowledge and some independent variables. It follows from this, that it is important to consider these variables when preparing guiding activities.
- The results showed that the variable of the number of working years is one of the most influential variables in the level of respondents 'knowledge. From this it follows that the variable is important in determining the level of respondents' knowledge.
- The total quantitative variables have explained 52.4% of the variables that occur in the level of respondents' knowledge, and it follows from this the importance of those variables when conducting indicative activities or other similar studies.

Recommendations

- The necessity for the extension apparatus, represented by the Directorate of Agriculture of Babylon and its agricultural divisions, to implement extension activities related to the proper methods of conducting chemical

control in order to provide farmers with the information and knowledge necessary to combat agricultural pests.

- The necessity of taking into consideration the independent variables that showed positive moral relationships when preparing the indicative activities because it is an indication of the respondents who are supposed to be included in the indicative activities

- It is important to conduct other similar studies in other regions and to take into account the variables that have shown a significant impact on the level of researchers' knowledge, provided that these studies include determining the knowledge level of farmers in using the proper methods of control.

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