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ATTITUDES OF WATERMELON FARMERS IN SALAH AL-DIN GOVERNORATE TOWARDS USING MODERN AGRICULTURAL TECHNIQUES IN SERIVING THE CROP

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Abstract
The study aimed to identify the attitudes of melon farmers towards the use of agricultural techniques related to crop service operations in Tikrit district / Salah al-Din Governorate in general For the agricultural year 2023 , and the descending order of the fields of study according to the percentage weight, and the identification of the matrix of correlations between the fields of study. The research community included all melon farmers in the Tikrit district / Salah al-Din governorate, who are officially registered in the Tikrit Agriculture division, and their number is (654) farmers distributed among the districts of the district. A random sample of 23% was elected in a proportional manner, so that the number of respondents who underwent research procedures was (150) farmers. The results showed that the general level of attitude for melon farmers was negative, tending to the neutral attitude and their percentage is 71.3%. We conclude from this the weak level of the respondents' attitude towards the use of agricultural techniques related to serving the melon crop, which is an indication of the respondents' need for information about the importance of using agricultural techniques through the implementation of various extension activities . In the light of the results and conclusions, the researcher recommended that it is necessary to focus when implementing the indicative device on the extension activities that aim to make a behavioral change on the groups of farmers who have a negative or neutral attitude who appeared in the study.

Keywords: melon crop farmers, agricultural techniques.

Introduction and research problem:

The agricultural sector in undeveloped countries, in particular, occupies the forefront of the concerns of policy makers to make changes in it towards developing it and increasing production, due to its great responsibility in reducing poverty and achieving food security (Ahmed et al., 2016, p.2). The agricultural sector is an important source of Iraqi national income, and the state has given it exceptional importance, and has put policies and development programs to achieve integrated agriculture to raise the standard of living for citizens, because agriculture is the only source on which human relies primarily on obtaining proteins, carbohydrates and fats in quantities and proportions needed by the human race, (Abdullah, 2021: 104). Agricultural development represents the starting point for economic development and breaking the stalemate that the country suffers from. It is also difficult to imagine a fundamental change in the country’s productivity base if agriculture is neglected (Shada et al, 2023: 2). All societies seek to achieve sustainable agricultural development in the agricultural

sector at progressive rates through the rapid transfer of innovative agricultural technologies to the people who need advice, helping them to apply them, rationalizing the use of available agricultural resources (Abdulwahhab et al ,2021 : 114), and absorbing the scientific, communication, technological and informational developments that the world is witnessing now in various societal fields and affecting the agricultural field. Otherwise the technical gap separating this sector from the rest of the other economic and service sectors in society will increase (Amin et al., 2021: 2). Vegetable crops are among the important crops, as most of their farmers depend on them to increase their incomes, and they are the most consumed among most other crops and are among the crops with good economic returns (Muhammad, et al., 23:2010). The melon plant called in English 'melon' and its scientific name is Cucumis melo L. It is called yellow melon or melon in some Arab countries, and it belongs to the Cucurbitaceae family, which is one of the most important vegetable crops, and there is a large group of melon varieties that vary in their production and shape. Size and flavor, they fall into four groups: C.melo cv.reticulatus, C.melo cv. inodorous, C.melo cv. cantalupensis, C.melo cv.aegypticus (Hassan, 2001:11).

Melon has economic importance in the world, as the cultivated area of it exceeded nearly one million hectares, and China is one of the largest producers of melon, as it cultivates 350,000 thousand hectares and produces 8 million tons annually (Yang,: 2007493), while Iraq ranked twelfth in the cultivation of melon crop at the level of The world and ranked second at the level of the Arab world and among the most Arab countries planting melon are Morocco, Iraq and Egypt (FAO 1999). And melon is grown on a large scale in Iraq and at different times and seasons, where the cultivation is irrigated in the central and southern regions, and this begins during the month of March, while cultivation is rainfed agricultural in the northern region, and this takes place in the months of April and May, and melon is also grown in the autumn season on sandy and pebble beaches and river basins in the regions of Salah al-Din, Hit, Anah, Kirkuk, Mosul, and Wasit during the months of June and July (Al-Bayati, 2006: 1).

And the 2007 statistics indicated a decrease in the hectare yield in Iraq to 9.188 tons / hectare in the year 2011, while it was 10.133 tons / hectare in the year 1999 (Haraz, 2012: 3). Agricultural extension follows the method of persuasion and selection in learning to bring about desirable behavioral changes, but on A democratic basis based on evidence and observation in order that the farmers adopt the results of scientific research and thus achieve educational and economic goals (Al-Omar et al., 2012: 22).

And despite the cultivation of the melon crop in Iraq in general and in Salah al-Din Governorate In particular, imported plants are still entering the local market to fill the production gap for this crop, i.e. at the provincial level, and the Tikrit region is one of the regions in Saladin Province suitable for growing vegetables, including melons, due to the above The problem of low yield and the importance of cultivation, melon is considered to be one of the crops with multiple values and benefits that helps to increase the income of farmers and the national income. income, and due to the lack of previous indicative studies involving the identification of melon farmers' attitudes towards the use of relevant agricultural technologies in harvesting operations in Tikrit district / Salah al-Din governorate, the idea of this study came to serve as answers to the following research questions:

-What are the attitudes of melon farmers towards the use of agricultural techniques related to crop service operations in Tikrit district / Salah al-Din governorate in general?

- What is the attitude of melon farmers towards the use of agricultural techniques in each field of study?

The Aims Of The Research

First:to determine the attitudes of melon farmers in Tikrit District/Saladin Province towards the use of agricultural technologies.

Secondly: to determine the attitudes of melon farmers in the following areas of Tikrit District/Saladin Province towards the use of agricultural technologies related to harvest services: (selection of hybrid melon seed varieties, use of drip irrigation technology). Watering of melon crops, use of foliar fertilizers, use of sheltered cultivation (greenhouse or tunnel) in melon cultivation, and agricultural pest and disease control techniques.

Third: Descending order of fields of study according to weight percentage.

Fourth: identifying the matrix of correlations between the fields of study.

The Significance of Research:

1 -The results of the study may be a contribution to bridging a research gap for which there was not much information available in the past, which is considered the steadfast base and scientific basis for preparing a good mentoring and training program for it.

2 -The study comes within the framework of modern global attitudes that emphasize the importance of agricultural technology in increasing agricultural production.

3 -This study helps to identify some of the personal, communication and economic characteristics of melon farmers in Tikrit district.

Determining the research community and sample

The research community included all melon farmers in the Tikrit district / Salah al-Din governorate, who are officially registered in the Tikrit Agriculture Division, and their number is (654) farmers * distributed among the districts of the district .A random sample of 23% was elected in a proportional manner, so that the number of respondents who underwent the research procedures became (150) farmers, and the initial test sample of (20) farmers was excluded from the research sample.

Measurement Of The Dependent Variable (Attitude): attitudes were measured through a number of paragraphs, each of which expresses the attitudes of melon farmers towards the use of agricultural techniques related to crop service operations in Tikrit district / Salah al-Din governorate, and alternatives (agree, neutral, disagree) Values (3, 2, 1) were given, respectively, to the positive items, and values (1, 2, 3) to the negative items.

Statistical Methods:

Using the spss statistical analysis program in data analysis for research with a descriptive approach.

Results and Discussion

1. identify the attitudes of melon farmers towards the use of agricultural techniques related to crop service operations in Tikrit district / Salah al-Din governorate in general.

The results showed that the lowest and highest values of respondents' attitudes were 67 and 175, respectively, with an arithmetic mean of 120.18 and a standard deviation of 24.78. When the respondents were divided into three categories using the range rule, the highest percentage was in the negative attitude category, as shown below. in Table (1):

Table (1) Distribution Of Respondents By Attitudes Of Melon Growers

Categories	Frequency	%	Average attitude

Negative(102-67)	56	37.3	92.48
Neutral (138 -103)	51	34.0	122.53
Positive(175 -139)	43	28.7	150.88
Total	150	%100	SD=24.78

It is clear from Table (1) that 37.3% of the respondents fall within the category of negative attitude, which is the highest percentage, followed by the neutral category with a rate of 34%. Therefore, the level of respondents' attitude is described as a negative attitude that tends to a neutral attitude, and this may be due to lack information and experience, which affects the behavioral attitude of the respondents specifically in terms of their attitudes about agricultural techniques which are related to crop service operations, as 71.3% of the respondents are within the categories of negative and neutral attitudes, which is an indication of their lack of interest in agricultural techniques and the extent to which they need extension activities and events to provide them with information and experiences to bring about behavioral changes towards the use of agricultural techniques related to melon crop service operations.

2. **identify the attitudes of melon farmers towards the use of agricultural techniques in each of the following areas:**

- **selection of hybrid seeds of melon varieties:**

The results showed that the lowest and highest values of respondents' attitudes were 14 and 39, respectively, with an arithmetic mean of 24.55 and a standard deviation of 6.35. When the respondents were divided into three categories by the range law, the highest percentage was neutral. in Table (2).

Table (2) Distribution Of Respondents By Level Of Selection Of Hybrid Seeds

Categories	frequency	%	Attitude average
negative(14 - 22)	45	30.0	16.96
neutral(31-23)	68	45.3	25.15
positive) and more(32	37	24.7	32.70
Total	150	%100	SD=6.35

It is clear from Table (2) that 45.3% of the respondents are within the neutral category, which is the highest percentage, followed by the negative attitude category, at 30%. Therefore, the level of the respondents' attitude is described as a neutral attitude that tends to a negative attitude, and the reason for this may be that the respondents have become accustomed to some items since their practice of growing melon crops and they do not like to change these varieties with hybrid varieties for fear of risk and losses, so that 75.3% of the respondents are within the categories of neutral and negative attitude , which is a large percentage and is an indication of the extent of their need for information and experience to bring about behavioral changes in their attitude towards the use of modern varieties and hybrids of melon seeds.

- **The Use Of Drip Irrigation Technology In Watering The Melon Crop**

The results showed that the lowest and highest values of respondents' attitudes were 10 and 30, respectively, with an arithmetic mean of 18.27 and a standard deviation of 5.14. When the respondents were divided into three categories using the range rule, the highest percentage was in the negative attitude category, as shown below. in Table (3):

Table (3) Classes of drip irrigation technology in watering watermelon crops

Categories	Frequency	%	Average attitude
negative(10 -16)	75	50.0	13.80
Neutral (23-17)	40	26.7	20.70
positive(30-24)	35	23.3	25.09
Total	150	%100	SD=5.14

It is clear from Table (3) that 50% of the respondents fall into a negative category, followed by a neutral attitude category with a rate of 26.7%. Therefore, the level of the respondents' attitude is described as a negative attitude that tends to the neutral attitude. This may be due to reasons including that drip irrigation as a technology requires material costs In addition to problems caused by clogged emitters or clogged filters, farmers may not be able to use it, which has been one of the biggest problems in recent years after falling groundwater levels caused massive sand leaks in well water. This means that 76.7% of the respondents fell into the "neutral" and "negative attitude" categories. Rationalize water consumption and integrate experience with the technology.

- **The Use Of Foliar Fertilizers (Foliar Stimulants)**

The results showed that the lowest and highest values of respondents' attitudes were 12 and 33, respectively, with an arithmetic mean of 21.20 and a standard deviation of 5.86. When the respondents were divided into three categories using the range rule, the highest percentage was in the negative attitude category, as shown below. in Table (4):

Table (4) Classes of use of foliar fertilizers (foliar stimulants):

Categories	Frequency	%	Attitude average
Negative (18-12)	66	44.0	15.59
Neutral (19-25)	51	34.0	22.98
26- more) Positive (	33	22.0	29.70
Total	150	%100	SD=5.86

It is clear from Table (4) that 44% of the respondents are in the negative category, which is the highest percentage, followed by the neutral attitude category with a rate of 34%. Therefore, the level of the respondents' attitude is described as a negative attitude that tends to the neutral attitude, and the reason for this may be that the respondents, melon farmers, use animal fertilizers or chemicals in the ground, as well as the reason may be their lack of knowledge of the benefits of foliar fertilizers, as 78% of the respondents are within the categories of the neutral and negative attitude and It is a large percentage and gives an indication of the absence of a non-positive attitude among most farmers towards the use of this type of fertilizer. Therefore, farmers must be educated about the importance of these fertilizers and the economic feasibility of using them, noting that 22% of the respondents have a positive attitude towards this technology, and this is an indication that there are those who have adopted it. Technology, but we need to strengthen the attitude towards it.

- **the use of protected agriculture (greenhouses or tunnels) in the cultivation of melon:**

The results showed that the lowest and highest values of respondents' attitudes were 13 and 35, respectively, with an arithmetic mean of 24.34 and a standard deviation of 5.03. When the respondents were divided into three categories by the range rule, the highest percentage was neutral. in table (5):

Table (5) Classes of Views on the Use of Protected Agriculture

Categories	Frequency	%	Average Attitude
Negative(19 -13)	41	27.3	17.44
Neutral (26 -20)	44	29.3	23.86
Positive) and more(27	65	43.4	32.78
Total	150	%100	SD=5.03

It is clear from Table (5) that 43.4% of the respondents are within the positive attitude category, which is the highest percentage followed by the neutral attitude category with a rate of 29.3%. Therefore, the level of the respondents' attitude is described as a positive attitude that tends towards the neutral attitude in the field of using protected agriculture, and the reason for this may be that protected agriculture is the best agricultural method in terms of production and timing to provide a good financial return (interest), and nearly half of the respondents use protected agriculture, and as a result of their practice of this agricultural process, their experience and information about the use of protected agriculture increased, which made the positive attitude grow well towards this technology.

-melon pest control technology:

The results showed that the lowest and highest values of respondents' attitudes were 19 and 51, respectively, with an arithmetic mean of 31.92 and a standard deviation of 8.92. When the respondents were divided into three categories by the range rule, the highest percentage was in the negative category, as follows. in table (6):

Table (6) Categories of watermelon pest control technology

Categories	Frequency	%	Average Attitude
Negative(29 -19)	68	45.3	23.99
Neutral(40 -30)	42	28.0	34.26
Positive(51 -41)	40	26.7	43.76
Total	150	%100	SD=8.92

It is clear from Table (6) that 45.3% of the respondents are in the negative category, which is the highest percentage followed by the neutral attitude category with a rate of 28%. Therefore, the attitude of the respondents towards the technical field of melon pest and disease control is described as negative, tending towards a neutral attitude. The reason for this may be that the pest control process involves many procedures and preparations that farmers may not be aware of, so they tend to control traditional behavioral patterns such as mechanical treatment of bushes and believe that these pesticides will affect production. And the economic cost is also high. Therefore, 73.3% of the respondents were divided into two categories. A large proportion of neutral and negative attitudes shows the importance of teaching them the correct methods of agricultural pest control.

3. Descending order of fields of study according to weight percentage

The descending order of research areas resulted in Protected Agriculture in first place, with the area of variety selection last. in table (7):

Table (7) Arrange the research fields in descending.

Fields	Paragraphs Number	Average Attitude	maximum Degree	Weight percent	Standard Deviation	Arrangement
cultivar	14	24.55	42	58.45	6.35	5

Drip	10	18.27	30	60.90	5.14	2
Foliar	12	21.20	36	58.88	5.86	4
Protected	12	24.24	36	67.33	5.03	1
Control	18	31.92	54	59.11	8.92	3

It is clear from Table (7) that the field of using protected agriculture came in the first place with a percentage weight of 67.33 This may be due to the fact that the respondent farmers have been practicing protective farming methods, especially tunnel farming, for a long time, and as a result, they have gained experience and knowledge of this type of farming, which has increased their attitude in this field. The reason for this is that respondent farmers are accustomed to growing certain varieties and may be reluctant to replace them with other varieties that have not been previously known and tested for fear of not being the same variety, not being preferred in the market, or being less productive,exposing them to loss of melon harvest and farming season The reason for this is that the market is not yet ready for the new varieties.

4 **. Identify The Matrix Of Correlation Between The Fields Of Study**.

The results of the correlation matrix between the fields of the study showed that the lowest pearson correlation value was 0.464 between the field of protected agriculture and the field of melon pest control with a covariance value of 20.21, while the highest correlation strength was 0.732 between the field of protected agriculture and the use of drip irrigation 26.32, which indicates the strength of the correlation of the respondents' answers in The two fields of protected agriculture and the use of drip irrigation. The results of the correlation matrix between the research fields are shown as shown in Table (8).

Table (8) the results of the correlation matrix between the research fields.

Fields	Cultivar	Drip	Foliar	Protected	Control
Cultivar	1				
Covariance					
Drip	**0.630	1			
Covariance	19.44				
Foliar	**0.693	**0.601	1		
Covariance	24.39	18.15			
Protected	**0.531	**0.732	**0.494	1	
covariance	16.03	26.32	14.58		
Control	**0.547	**0.548	**0.543	**0.464	1
Covariance	28.48	24.44	27.60	20.21	

It is evident from Table (8) that there is a strong, significant correlation at the level of probability 0.01 between the field of using protected agriculture and drip irrigation, with a covariance of 26.32, which is a strong degree to represent the relationship between the two fields. This may be due to the fact that respondents who use protective farming methods, especially tunnel cultivation, naturally require drip irrigation techniques to irrigate the crop with irrigation methods and fertilization processes, which would be difficult if flood irrigation methods were used. On the other hand, the least significant correlation was found between the melon pest control plots and the protected cultivation plots, even at the level of probability 0.01, with a degree of covariance of 20.21, which is a strong indication of the degree of relationship between the two plots. This may be due to two reasons: some procedures of the

control process, such as pest diagnosis, type of pesticide, and the right time of control, are difficult to perform, and it is especially difficult to perform sprinkler and manual control when growing under tunnels; otherwise, the relationship between the two plots is ranked The following is a summary of the results.

Conclusions

1 -The results showed that the general level of the respondents' attitude was negative, tending to a neutral attitude, and their percentage reached 71.3%.

We conclude from this the weak level of the respondents' attitude towards the use of agricultural techniques related to serving the melon crop, which is an indicator of the respondents' need for information on the importance of using agricultural techniques through the implementation of various extension activities.

2-The level of attitude of the respondents varied in the fields of study, as follows:

A- The results showed that the attitude level is negative and tends to be neutral in the field of using drip irrigation technology to water the melon crop, as well as in the field of using foliar fertilizers, and in the field of melon pest control. We conclude from this that the economic importance of these technologies is not known by melon farmers.

B - The results showed that the respondents' attitude is neutral and tends to be negative in the field of cultivar selection. We conclude from this the respondents' need for experience in new varieties and methods of cultivation their superiority in production and the economic return from their cultivation.

C - It appeared that the level of positive attitude tends to be neutral in the field of using protected agriculture.

3 -There was a significant correlation between the fields of study, where the strongest correlation was between the field of protected agriculture and the field of using drip irrigation technology. We conclude from this that the respondents who use the protected cultivation technique have a positive attitude towards the use of the drip irrigation technique, while there is less correlation between the protected cultivation technique and the melon pest control technique due to the difficulty and cost of this technology when applied to protected cultivation.

4- As a result, the areas of variety selection and foliar fertilizer technology occupied the bottom two positions. From this it can be concluded that the respondents' attitude toward modern variety selection is weak, as is their attitude toward the use of foliar fertilizers, and that extension efforts are needed to change the level of respondents' attitudes toward variety selection and foliar fertilizer use to a positive one.

Recommendations:

1 -When planning any extension program, focus and attention must be paid to the areas of research that ranked first.

2 -It is necessary to the Directorate of Agriculture to approach the Ministry for the purpose of providing and facilitating concessionary and interest-free loans for melon farmers in support of this crop.

3- It is necessary to provide farmers with information and theoretical and practical experience in selecting melon seed varieties and hybrids characterized by excellent specifications, suitable for the conditions of the study area. The use of fertilizers and foliar stimulants is also important for growth and crop production.

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اتجاهات زراع البطيخ في محافظة صلاح الدين نحو استخدام التقنيات الزراعية الحديثة في خدمة المحصول

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الخلاصة
هدفت الدراسة إلى التعرف على اتجاهات مزارعي البطيخ نحو استخدام التقنيات الزراعية المتعلقة بعمليات خدمة المحصول للعام الزراعي 2023 ، والتعرف على اتجاهات مزارعي البطيخ في كل من المجالات التالية: (اختيار أصناف البذور الهجينة

، استخدام تقنية الري بالتنقيط ، استخدام الأسمدة الورقية، استخدام الزراعة المحمية في زراعة البطيخ، تكنولوجيا مكافحة الآفات الزراعية) ، والترتيب التنازلي لمجالات الدراسة وفق الوزن النسبي، وتحديد مصفوفة الارتباطات بين مجالات الدراسة. و شمل مجتمع البحث جميع مزارعي البطيخ في قضاء تكريت / محافظة صلاح الدين المسجلين رسمياً في دائرة زراعة تكريت، ويبلغ عددهم (654) مزارعاً ، موزعين على مناطق القضاء. تم اختيار عينة عشوائية بنسبة 23% بطريقة تناسبية ، بحيث بلغ عدد أفراد العينة الذين خضعوا لإجراءات البحث (150) مزارعاً. وأظهرت النتائج أن المستوى العام للاتجاه لدى مزارعي البطيخ كان سلبياً ويميلون إلى الاتجاه المحايد حيث بلغت نسبتهم 71.3%. ونستنتج من ذلك ضعف مستوى اتجاه أفراد العينة نحو استخدام التقنيات الزراعية المتعلقة بخدمة محصول البطيخ، مما يدل على حاجة أفراد العينة إلى معلومات حول أهمية استخدام التقنيات الزراعية من خلال تنفيذ الأنشطة الإرشادية المختلفة. . وفي ضوء النتائج والاستنتاجات أوصى الباحث بضرورة التركيز عند تطبيق الأنشطة الإرشادية على المجالات التي اظهر اتجاه سلبي من اجل إحداث تغيير في سلوك المزارعين الذين لديهم اتجاهات سلبية أو محايدة.
الكلمات المفتاحية: زراع محصول البطيخ، التقنيات الزراعية.