FARMERS RELUCTANCE TO USING PROTECTED CULTIVATION IN BAGHDAD PROVINCE AND WAYS TO ADDRESS IT

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ABSTRACT

The study aimed to identify the reasons behind farmers' reluctance to using protected cultivation in Baghdad province / Al-Karkh and ways to address them. The study community included vegetable farmers who stopped using protected cultivation, distributed among the agricultural divisions affiliated with the Baghdad / Al-Karkh Agriculture Department during 2023. A stratified random sample belonging was chosen namely112farmers. To achieve the study objectives, a questionnaire was prepared consisting of 21 items divided into two areas of reasons and 12 suggestions of treatments. To measure these reasons and treatments, a four-level scale was developed, consisting of four levels according to the importance (strongly agree, agree, somewhat agree and disagree). The following weights were given 4, 3, 2and 1, respectively. Data was collected from farmers during December 2023 and January 2024, and the data was analyzed using the statistical program (SPSS). The results revealed that the reasons for farmers' reluctance to continue using the protected agriculture for vegetables were of high importance, as the areas of reasons received weighted averages of 2.785-3.50, and this score exceeds the hypothesized mean of 2.5 degrees, With a percentage weight of 69.62 - 87.5%. The results of the study also showed that there was high approval by farmers for all the proposed treatments to ensure their using of protected cultivation to grow vegetables in Baghdad province / Al-Karkh. It can be concluded the importance of adopting the results of as a working basis for the purpose of farmers continuing to use protected cultivation for vegetables.

Keywords: Food security, vegetable production, sustainable development
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مجلة العلوم الزراعية العراقية- 2025 :56 (عدد خاص):286-293 علي وفياض

عزوف المزارعين عن استخدام الزراعة المحمية في محافظة بغداد وسبل معالجتها

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المستخلص

هدفت الدراسة الى التعرف على اسباب عزوف المزارعين عن استخدام الزراعة المحمية في محافظة بغداد /الكرخ وسبل معالجتها. شمل مجتمع الدراسة مزارعي الخضر الذين توقفوا عن استخدام الزراعة المحمية موزعين على الشعب الزراعية التابعة لقسم زراعة بغداد /الكرخ لعام 2023. اختيرت عينة طبقية عشوائية بلغ عددها 112 مزارعاً. ولتحقيق اهداف الدراسة اعدت استبانة مكونة من 21 فقرة موزعة على مجالين للأسباب و12 مقترح للمعالجات، ولقياس تلك الاسباب والمعالجات تم وضع مقياس رباعي مكون من اربعة مستويات حسب الاهمية (اتفق بشكل كبير, اتفق, اتفق الى حد ما ولا اتفق) واعطيت الاوزان التالية 4، 3، 2و1على التوالي. تم جمع البيانات من المزارعين خلال شهري كانون الاول عـــام 2023 وشهر كانون الثانـــــي 2024، وتم تحلـــيل البيانات باســـخدام البرنامـــج الاحصـــائي (SPSS) اظهرت نتائج الدراسة ان اسباب عزوف المزارعين عن استخدام الزراعة المحمية للخضر كانت مرتفعة الاهمية إذ حصلت مجالات اسباب عزوف المزارعين على اوساط مرجحة من 2.785– 3.50 وهذه الدرجة تزيد عن الوسط الفرضي البالغ 2.5 درجة , وبوزن مئوي مقداره 69.62 – 87.5% , كما اظهرت نتائج الدراسة حصول موافقة مرتفعة من قبل المزارعين على جميع المعالجات المقترحة لضمان استمرارهم في استخدام الزراعة المحمية لزراعة الخضروات في محافظة بغداد/ الكرخ. يمكن الاستنتاج بأهمية اعتماد النتائج كأساس عمل لغرض استمرار المزارعين باستخدام الزراعة المحمية للخضر.

الكلمات المفتاحية: الامن الغذائي، انتاج الخضروات، التنمية المستدامة.

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INTRODUCTION

Providing food security is one of the most important challenges of the twenty-first century facing agriculture in our world today (34,8), as many countries have made the issue of providing food their first concern (19), and even made it a strategic goal that they seek to achieve continuous and sustainable increases (5). In agricultural production, the agricultural sector is considered directly responsible for providing food to the population (1). The increase in population is one of the most serious problems facing agriculture in Iraq due to its need to increase the provision of food (22), whether the food products are plant or animal, which requires securing sufficient funds to keep pace with the increasing population(31), as expectations show that the population in Iraq may reach 50.5 million people in 2025(6), and thus requires the need to achieve an increase in food production commensurate with the increase in population (12). Vegetables are one of the most important nutrients source that the population needs on a daily basis (4), but local agricultural production only meets 30% of the population's need for agricultural products (7, 13, 16), and therefore local vegetable production is no longer sufficient to meet the population's need, which forced the import of vegetables from neighboring countries (9), as many countries, including Iraq, depend on importing large quantities of vegetables (20,10) to fill the shortfall in their local production. To fill the shortage with food and make it available throughout the year, protected cultivation was used as a method of producing it, which is one of the new technological methods used in growing vegetables (30). The protected cultivation has given humanity an opportunity to significantly increase their agricultural products, especially vegetables (33). Vegetable cultivation has contributed to increasing agricultural products at other times and throughout the year, in addition to high profits (29,27), and the use of protected cultivation will lead to rationalization The amount of water, as the efficiency of water use in protected cultivation reached more than 60% compared to traditional methods (33), to reduce the amount of water consumption through the use of protected cultivation for vegetables, and the importance of this technique lies vegetables are also a major source of livelihood for many farmers (23, 3 and 21), as protected cultivation achieves five times the productivity of traditional agriculture per unit area (2, 15), which contributed to the improvement and recovery of the national economy by increasing the domestic product. The total number of the agricultural sector to confront agricultural challenges in general and vegetable farmers in particular (11,25).

productivity in general, including vegetable productivity in particular, is the result of several interacting factors, including financial, material, protected, and human factors (14). But many countries are more vulnerable to the changing effects of climate on agriculture and food(18), so the development of countries based on protected cultivation, including Iraq, will not keep pace with the changes to be achieved except through concerted efforts to achieve the best living conditions for the population (26). Despite the importance of protected cultivation in providing agricultural products of vegetables at other times of the year and in high quarters, many vegetable growers who use protected cultivation have retreated or stopped using it in the production of vegetable crops, as indicated in the records of the province Baghdad / Al-Karkh Agriculture Department during 2023, 88% of vegetable growers have stopped using protected cultivation. This was confirmed by (24) that protected cultivation of vegetables in Iraq has not witnessed development at the present time due to the reluctance of a large number of farmers to continue adopting agriculture, protected vegetables. Therefore, the current study came to answer the following study question: What are the reasons for farmers' reluctance to using protected cultivation for vegetables in Baghdad province? The study aimed to identifying the reasons for farmers' reluctance to using protected cultivation for vegetables in Baghdad province; And propose appropriate treatments to ensure the continuation of vegetable growers using protected cultivation in Baghdad province.

MATERIALS AND METHODS

Experimental sampling: Baghdad province was chosen as a region to conduct the study

because of the presence of large numbers of farmers who used protected cultivation to produce vegetables and then stopped using it. The study community included all protected vegetable growers who stopped using this method cultivation in growing vegetables in Baghdad province, namely 1867 farmers in 2023 (Baghdad province Agriculture Directorate, 2023), distributed among the Baghdad province /Karkh Agriculture Department and its affiliated agricultural divisions(17). Choosing a percentage 50% of the agricultural divisions belonging to the Baghdad / Al-Karkh Agriculture Department, which are (Al-Kadhimiya Agriculture Division, Al-Karkh Center Agriculture Division, Abu Ghraib Agriculture Division, Al-Nasr and Al-Salam Agriculture Division, Al-Mashhadah Agriculture Division, Tarmiyah Agriculture Division, Al-Abayji Agriculture Division) to be a community. To conduct the study, the number of farmers there was 1122 farmers, after which a stratified random sample of approximately 10% was taken from the farmers in those selected agricultural divisions, and the number reached 112 farmers.

Research tools: The descriptive approach was used to conduct the current study, as this approach is considered appropriate in describing reality and accessing facts and information in detail about the phenomenon studied and at a specific time through collecting data (31,35). A questionnaire form was used as a tool to collect data from farmers who stopped using protected cultivation to grow vegetables. It consisted of two parts: the first part was related to the reasons for abstention including 21 reasons distributed into two areas: (reasons related to production costs and reasons related to the availability and quality of production requirements). The second part was related to proposing treatments and consisted of 12 proposals. A four-level scale was developed, consisting of four levels according to importance (strongly agree, agree, somewhat agree and disagree) and the following weights were given 4, 3, 2and1 were given. After completing the process of collecting data from farmers, which was during the months of December 2023 and January 2024, the data was unpacked and tabulated, and then the data was analyzed using the statistical program (SPSS), as well as using manual analysis and accordingly, several statistical methods were used to achieve the study aims, such as frequencies, percentages, Cronbach's alpha equation, the hypothetical mean and weighted average.

RESULTS AND DISCUSSION

Based on the answers of the vegetable growers surveyed about the reasons behind stop using protective cultivation in the production of vegetable crops in Baghdad province / Al-Karkh. reasons were identified as follows:

1. **Reasons related to production costs**

Eleven reasons related to the production costs received weighted means according to their degree of importance to the vegetable growers surveyed, ranging from 3.053 - 3.50 degrees, with percentage weights ranging from 76.32 - 87.5%, with an average weighted means of 3.350 degrees, with a percentage weight of 83.75%, and this score exceeds the hypothesized mean of 2.5 degrees. Accordingly, all the reasons related to the production costs were an obstacle to the vegetable growers using protected cultivation despite the slight difference in their weighted means, as in Table (1). Table (1) revealed that the rising prices of chemical fertilizers and improved seeds ranked first in terms of importance to the farmers surveyed, as it received a weighted average of 3.5 degrees with a percentage weight of 87.5%. The reason behind that may be due to the lack of farmers are unable to purchase chemical fertilizers due to their limited financial capabilities, which were not taken into account when using protective cultivation, which causes a loss for the farmers, as protected cultivation of vegetables requires continuous fertilization throughout the production period. The paragraph the high costs of transporting and marketing the vegetable crop from the farm to the markets, which came in last place in terms of the level of importance to the farmers studied, obtained a weighted average of 3.053 degrees with a percentage weight of 76.32%, despite ranked last. It has a high level of importance compared to the hypothetical mean level of importance of 2.5 degrees, as it is also a problem of high importance suffered by farmers who using protected cultivation for

vegetables. The reason behind that may be due to the lack of means some farmers using protected cultivation, which requires them to rent a car for transporting the crop to the markets, and thus an additional financial cost to the farmers that was not consider by them.

Table 1. The reasons in descending order according to the weighted average of their importance to farmers

Sort by questionnaire	Reasons	Weighted mean	Percentage weight	Ranking according to importance
7	High prices of chemical fertilizers and improved seeds	3.5	87.5	1
3	High costs of the drip irrigation system and its requirements	3.455	86.37	2
11	Weak government support for the sustainable use of protected cultivation	3.446	86.15	3
2	High prices of nylon covering for protected cultivation	3.419	85.47	4
1	High costs of purchasing metal structures for greenhouse farming	3.401	85.02	5
6	High costs of organic fertilizers	3.392	84.8	6
4	Higher wages for skilled workers in protected cultivation management	3.348	83.7	7
8	High costs of conducting control several times per season and the type of pesticide used	3.339	83.47	8
10	Protected cultivation requires constant renewal of production requirements, which increases production costs at the expense of profits	3.267	81.67	9
5	High costs of soil preparation, from plowing to opening the tillers	3.232	80.8	10
9	High costs of transporting and marketing vegetable crops from the farm to the markets	3.053	76.32	11
	Overall means	3.350	83.75	

2- Reasons related to the availability and quality of production requirements : The reasons related to the availability and quality of production requirements, which 10 reasons, obtained weighted means according to their degree of importance to the vegetable growers surveyed, ranging from 2.785 - 3.232 degrees, with percentage weights ranging from 69.62 - 80.8%, with an average weighted means of 3.053 degrees with percentage weights. Its amount is 76.32%, and this score is more than the hypothesized mean of 2.5 degrees. Accordingly, all the reasons related to the availability and quality of production requirements were an obstacle to the vegetable growers continuing to use protected cultivation despite the slight difference in their weighted means, as in Table (2). Table (2) revealed that the insecticides and fungicides available in the market are weak in effectiveness and do not conform to the specifications stated on the package was in first place in terms of importance to the farmers surveyed, as it obtained a weighted average of 3.232 scores with a percentage weight of 80.8%. The reason behind that may be due to fraud in some cases, and weak monitoring by the relevant government agencies of pesticide dealers and owners of agricultural offices. Therefore, it is necessary to import effective and proven pesticides to avoid harm, quality of vegetable crops. Also, the metal wires and nylon available on the markets are of poor quality, which are used as a cover for the metal structure in protected agriculture, coming in last place in terms of level of importance to the farmers surveyed, obtained a weighted average of 2.785 degree with a percentage weight of 69.62%, despite last rank, it has a high level of importance compared to the hypothetical mean of the level of importance of 2.5 degrees, as it is also a problem of high importance that farmers who use protected cultivation for vegetables suffer from, The reason for this is due to price manipulation, and the owners of some agricultural offices exploit the need of some farmers for these supplies and convincing them that they are original and of good quality despite their poor quality, in addition to weak oversight by the relevant government agencies over merchants or owners of agricultural offices.

Table 2. Arranging the reasons in descending order according to the weighted average of their degree of importance to farmers

Sort by questionnaire	Reasons	Weighted mean	Percentage weigh	Ranking according to importance
9	Insecticides and fungicides available on the market are weakl Effective and do not conform to the specifications stated on th package	3.232	80.8	1
4	Lack of fuel and fuel availability in the quantities that the farm needs to operate or heat the irrigation system for his crops	3.178	79.45	2.5
8	Chemical fertilizers (solid and liquid) available in the market a weak in effectiveness and do not conform to the specification stated on the package.	3.178	79.45	2.5
6	Poor quality of seeds and low productivity due to cases of frau practiced by some owners of agricultural offices	3.169	79.22	4
7	Lack of good quality organic fertilizers available in the marke	3.098	77.45	5.5
10	Protected cultivation requirements are rarely provided in a timely manner	3.098	77.45	5.5
5	Lack of availability of agricultural tractors and their necessar tools to prepare the soil for agriculture	3.089	77.22	7
1	Poor quality of metal structures available in local markets	2.857	71.42	8
3	The poor quality of some drip irrigation supplies is available a they quickly deteriorate, leading to repeated maintenance	2.848	71.2	9
2	Poor quality of nylon and metal wire available in local marke and used as a cover for metal structures in protected cultivation	2.785	69.62	10
	Overall means	3.053	76.32	

Second Aim: Proposing appropriate treatments to ensure the continuation of vegetable growers using protected cultivation: Twelve proposals were identified to address the reasons that led to vegetable growers' reluctance to use protected cultivation in Baghdad province. These proposals were presented to vegetable growers to determine the extent of their agreement with them to ensure their continued using of protected cultivation when growing vegetables. The proposed treatments received weighted averages according to its importance to vegetable growers ranged from 3.294 - 3.446 degrees, with percentage weights ranging from 82.35 - 86.15, with a mean average of 3.380 degrees and a percentile weight of 84.5%. As shown in Table 3, this score exceeds the hypothesized mean of 2.5 degrees, and accordingly, all proposed treatments obtained the approval of all vegetable growers with a high degree. This confirms the importance of these proposals to ensure that vegetable growers continue to use protected cultivation in Baghdad province / Al-Karkh despite the simple difference in their weighted means, as in Table (3). Table (3) revealed that the proposal concerning providing improved seeds and good fertilizers in outlets approved by the government to prevent cases of fraud and tampering with materials came in first place in terms of degree of importance for vegetable growers, as it obtained a weighted average of 3.446 scores with a percentage weight of 86.15. The reason behind that may be due to the presence of a major problem that farmers suffer from obtaining seeds and fertilizers of good quality as a result of price manipulation and fraud by the owners of agricultural offices. Therefore, it ranked first, which indicates that the problems and solutions express the needs and challenges facing farmers who are agricultural users. The reserve is for vegetables, so the decision-making authorities are required to look at the growing needs of farmers for fertilizers and seeds with high and effective productivity to ensure their continued use of protected cultivation. Other proposals came sequentially in order of importance, arriving at the proposal, providing the necessary equipment to prepare and equip the soil for protected cultivation through associations. agricultural sector at reasonable prices which came in last place in terms of the level of importance for vegetable growers, as it received a weighted average score of 3.294 with a percentage weight of 82.35, and despite coming in last

place, its level of importance is high compared to the hypothetical average of the extreme level of importance 2.5 degree. It is also a problem that most farmers who using protective cultivation for vegetables suffer from. The reason is that some farmers do not have agricultural tractors to manage agricultural operations, and also there are no agricultural tractors affiliated with agricultural associations that operate at prices commensurate with the income of farmers who use protected cultivation in preparing and preparing the land. For agriculture, this entails high financial costs for farmers. Based on the above, vegetable growers suffer from many reasons, including those related to production costs, such as the high prices of production requirements, fertilizers, pesticides, and improved seeds, as well as weak government financial support, etc. By the owners of agricultural offices and others, all of which were realistic reasons for farmers' reluctance to continue using protected cultivation in growing vegetable crops. Also, the proposed solutions were realistic and contribute to ensuring that vegetable farmers continue to use protected agriculture to grow vegetables.

Table 3. Arranging the proposed in descending order according to the weighted average of their degree of importance to farmers

Sort by questionnaire	Reasons	Weighted mean	Percentage weight	Ranking according to importance
7	Providing improved seeds and good fertilizers through government-approved outlets to prevent cases of fraud and tampering with materials	3.446	86.15	1
8	Providing appropriate and good pesticides that treat agricultural diseases and pests in outlets controlled by the government and subject to continuous supervision to prevent cases of fraud with the substance	3.437	85.92	2
3	Providing good quality plastic covers that are thick and purity at reasonable prices by the Ministry of Agriculture	3.428	85.7	3
6	Providing agricultural tractors and their necessary tools to prepare The soil for agriculture at reasonable prices, paid in convenient installments through the Ministry of Agriculture's outlets	3.419	85.47	4
4	Providing drip irrigation systems and their supplies by the state at reasonable prices, paid in convenient installments	3.410	85.25	5
5	Organizing cards to obtain fuel and fuel in the quantities that the farmer needs for the purpose of irrigating or heating his crops	3.392	84.8	6
10	Working to provide teams from the Agricultural Protection Department to carry out control operations against diseases, insects and agricultural pests in exchange for reasonable prices	3.366	84.15	7
1	The government must work to provide the necessary loans to farmers to purchase protected cultivation supplies to ensure its continui	3.357	83.92	8
2	Providing good quality metal structures for protected cultivation at reasonable prices through outlets approved by the Ministry of Agricultu	3.348	83.7	9
9	Providing protected cultivation supplies in sufficient quantities and At the right time	3.339	83.47	10
11	The Ministry of Agriculture and the supporting bodies follow up on agricultural offices importing seeds, fertilizers and pesticides and prevent their circulation except after obtaining approval from the Ministry.	3.330	83.25	11
12	Providing the necessary equipment to prepare and prepare the soil for protected cultivation through agricultural associations at reasonable prices	3.294	82.35	12
	Overall means	3.380	84.5	

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