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المجلة العراقيه لبحوث السوق وحماية المستهلك

PROBLEMS FACING WHEAT FARMERS BENEFICIARIES FROM SUPPORTIVE AWARNESS PROGRAM TO WINTER PLAN FOR WHEAT IN SALAH-ALDEEN GOVERNORATE

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ABSTRACT

The research aims to diagnose the problems that facing wheat farmers who profit or benefit from the awareness program supporting the wheat crop in the Salah Aldeen Governorate. To achieve this, the research has conducted using the descriptive approach on a random sample consisting of (122) farmers who are benefiting from the awareness program supporting in Salah Aldeen governorate. The informants (farmers) are selected randomly from four agricultural divisions or districts which are: (Tikrit, Samarra, Al-Ishaqi, and Balad), and the data selection is carried out through a questionnaire. Then the appropriate statistical methods are used to achieve the goal of the research. The results have shown the multiplicity and diversity of problems facing wheat farmers, as well as the different levels of impact of these problems, which have prevented farmers from achieving highest effectiveness and efficiency in the agricultural production process from the beginning of wheat cultivation until harvesting and marketing the product. Therefore, it is necessary to raise the level of knowledge, skills and experience of wheat farmers in the field of their agricultural work, in addition to treat and solve all the priority problems which have revealed by the research, through achieving the highest levels of cooperation, coordination and hard and dedicate work among all relevant parties to provide a favorable, peaceful and integrated environment to ensure the success of the process of cultivation, harvesting and marketing of the final product, and ensuring the continuation of this in the future.

Keywords: Wheat, Awareness Program Supporting, Farmers Problems.

المشكلات التي تواجه زراع الحنطة المستفيدين من البرنامج التوعوي الساند للخطة الشتوية لمحصول الحنطة في محافظة صلاح الدين.

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الخلاصة

يستهدف هذا البحث تشخيص المشكلات التي تواجه زراع الحنطة المستفيدين من البرنامج التوعوي الساند لمحصول الحنطة في محافظة صلاح الدين. وتحقيقاً لذلك أجري البحث باستخدام المنهج الوصفي على عينة عشوائية مكونة من (١٢٢) مزارعاً للحنطة من المستفيدين من البرنامج، وتم اختيار عينة المُزارعين عشوائياً من أربع شعب أو أقضية زراعية هي: (تكريت، سامراء، الإسحاقي، وبلد). ثم جُمعت البيانات بوساطة استبيان وزع على العينة المستهدفة، واستخدمت الأساليب الإحصائية المناسبة لتحقيق هدف البحث، وهي المتوسطات الحسابية، الانحراف المعياري، معادلة الفا كرونباخ، الفئات، الاعداد، النسب المئوية، والارتباط الخطي البسيط. وقد أظهرت النتائج تعدد وتنوع المشكلات التي تواجه مُزارعي الحنطة المستفيدين من البرنامج التوعوي الساند للخطة الشتوية لمحصول الحنطة فضلاً عن اختلاف

مستويات تأثير هذه المشكلات، وهو الأمر الذي حال بمجمله دون تحقيق المُزارعين لأعلى فاعلية وكفاءة في عملية الإنتاج الزراعي منذ بداية زراعة الحنطة وحتى حصاد وتسويق المنتج النهائي، وعليه فأن الأمر يحتاج إلى رفع مستوى معارف ومهارات وخبرات مُزارعي الحنطة في مجال عملهم الزراعي فضلاً عن معالجة جميع المشكلات ذات الأولوية التي كشف البحث عنها، عن طريق تحقيق أقصى درجات التعاون والتنسيق والعمل الدؤوب والمتفاني ما بين جميع الجهات ذات العلاقة لتوفير بيئة مواتية وسلمية ومتكاملة لإنجاح عملية الزراعة والحصاد والتسويق للمنتج النهائي مع ضمان استمرار ذلك في المستقبل.

الكلمات المفتاحية: الحنطة، البرنامج التوعوي الساند، مشكلات المُزارعين.

INTRODUCTION

The issue of Arab food security is one of the important issues that facing governments of the Arab world, as governments are responsible for providing food, whether through local agricultural production or through import, and Iraq is one of the countries that has suffered from a large expansion of the food gap for the most important groups of food commodities, including grains, and this matter has had direct effects on the political, economic, and social conditions in Iraq which has associated with the development decisions, so, to bridge this gap, the Iraqi government has been depended on import from global markets, which has cost Iraq's budget more financial and economic burdens, and the most dangerous thing is the survival of Iraqi food security depends on fluctuations in global markets and is subordinate to conditions impose by the food producer, or impose by geopolitical conditions in the world **(Ibrahim & Ajeel, 2013)**

Hence, interest is increasing in the concept of food security and how to achieve sustainability in it, especially after the Corona pandemic crisis, that exceptional event which has stagnated the global economy and almost completely paralyzed it, in addition to that the Russian-Ukrainian military operations that shook the global economy and created great negative repercussions in the entire world, including an escalation of the food demand, and the rise in food prices in the global market (especially grain crops) due to the suspension and disruption of food and grain exports from those two countries (whose grain exports constitute 25% of global needs) as a result of threats related to transport operations, and related to security of ships as well on the security of workers in agriculture; Therefore, the issue of food security still presents itself strongly in light of the severe shortage in strategic stocks and the supply of strategic commodities in the world **(Kovtoniuk & Molchanova, 2022) (Taubadel, 2022)**, so it is necessary now to move towards increasing food production as well as reducing food losses in developing countries, which has been considering among the most important steps to achieving food security for those countries (**Jabara & Ali, 2021**)

Accordingly, the agricultural sector is a crucial factor in achieving food security, mainly the grain crop production sector, because of its special importance in agricultural production as it is one of the most important sources of food energy **(Abdel Hafeez, 2021)**, and Cereals grains especially wheat are very often the main source of protein as well as calories for low income groups in developing countries **(Mahdi, 2016)**. Despite this, the grain crops production sector has considered the most vulnerable to the impact of risk factors, as the efficiency and effectiveness of agricultural production does not depend on invested funds and manpower only, but rather depends on climatic conditions, weather, environment, marketing and other factors that have a direct impact on the agricultural production process **(Rossinskaya *et al.*, 2019**). The grain crops are among the main food products in human diets, especially wheat which comes at the forefront of grain crops **(Ezzuldeen & Nasir, 2017)**, as wheat is one of the most widely cultivated crops in the world and the basis of global food security because every day humanity consumes millions of tons of wheat crop in variety forms

of almost endless food products. (**Food and Agriculture Organization of the United Nations, 2022**).

Bread is one of the oldest and most famous wheat products, as it is the first symbol of people's life, and its main importance lies in its daily consumption in the three main meals, **(Hammood & Nasir, 2017),** So wheat has occupied an advanced economic importance in most countries of the world because it has contained various nutrients, most notably carbohydrates, and good calories, as well as it has ranked first in the world in terms of cultivated area and production (**Mohammed & Mudhi, 2016**), and Iraq has considered one of the world countries that has interested in cultivating the wheat crop and increasing the area cultivated from it for several decades to meet the basic needs of the citizens, because of this, the area has cultivated with wheat in Iraq reached four million dunams in one year to face the need or demand of local market, which has increased year by year, despite that areas have declined after that because of lack of rain and scarcity of river water **(Hamad *et al.*, 2017)**

In spite of the large area has cultivated in Iraq with the wheat crop, farmers still suffer from a low rate of wheat productivity per dunam (or hectare) compared to international rates **(Abdul Rahman *et al.*, 2023)**. As the production still has not reached the level of ambition represented by sustainable agricultural production that achieves self-sufficiency, and benefit from it in the local food industries, then trend towards exporting the surplus of production; this may be return to a set of problems have faced wheat farmers during or after agricultural production operations; which may cause or lead to failure in the entire process of cultivation and production of the wheat crop **(Khalaf & Aziz, 2020)**, for example, the problem of water and its scarcity is one of the most important problems that most countries of the world have suffered from, especially developing countries as a result of a continuous increase in population and lack of rainfall **(Ahmed & Al-Taif, 2020)**, in addition to wasting irrigation water by farmers as a result of their misconceptions or non-awareness about the amount of water needed by grain crops, or their incorrect predictions about the possible amount of rain falling (**Ali *et al.*, 2022**) and another example of these problems is the use of pesticides, which have considered a double-edged sword, as excessive amounts of them cause damage to the environment and human health, and failure to use them (in a balanced manner) has led to the spread of agricultural pests **(Hassan, 2014)**, and the same thing with weeds that compete crop on the main growth components in soil **(Al-Latif, 2022)**, and have caused huge losses in agricultural production, so it has considered one of the important economic problems that wheat farmers suffer from it **(Mousa, *et al.*, 2010).** in addition to all the above, the problem of low purchase prices of the wheat crop by the government, and wrong storage methods that eventually have led to a high percentage of losses from the wheat crop, and causing great losses to wheat farmers **(Jabara & Ali, 2021)** .

Hence, it has been noticeable the seriousness of the problems that farmers or producers of wheat have suffered from, and the negative effects and terrible consequences that have resulted from them. From this standpoint, the Iraqi Ministry of Agriculture, has represented by the Directorate of Agricultural Extension and Training, has developed an agricultural program that has helped farmers or producers of wheat in Iraq to develop the quantity and quality of production, and it has tried to help them overcome and solve problems that may arise during production and agricultural harvesting of the wheat crop. The agricultural extension as an educational system aims to achieve the desirable behavioral changes in the knowledge, skills and attitudes of farmers, in addition, the agricultural extension is dealing with many diverse audiences on their personal, social, cultural characteristics, and their economic levels, and the different ability to understand and realize the things, so, many different agricultural extension

programs are implementing to meet the different needs of the diverse audience (**Al-Mashhadani, *et al.*, 2017**). One of these programs has called "The awareness program supporting of the winter plan for the wheat crop" **(Iraqi Ministry of Agriculture, 2021)**.

This program includes a series of scientific and technical axes that have dealt with the development of plans and their implementation in the form of various Agricultural Extension activities throughout the program period, which began in 2017 and continues to the present time, and the program has targeted all governorates of Iraq (except for the Kurdistan region) and among these governorates Salah Aldeen governorate, which has considered one of the main governorates that has targeted to increase productivity and improve the quality of production, so, based on the foregoing, and in order to justify the financial allocations, technical efforts and time allotted for this program (until the period of conducting the research), as well as standing on the nature of the problems that farmers have suffered from it, as well as determining the extent of its impact on the effectiveness and efficiency of their current and future agricultural production work, the current research has come to try to answer the following research question:

What are the problems facing wheat farmers who benefit from the awareness program supporting of the wheat crop, which prevent the application of the scientific recommendations of the program or achieving the highest efficiency and effectiveness in the process of producing the wheat crop in Salah Aldeen governorate?

So, the research aim to:

Diagnosing the problems facing wheat farmers who benefit from the awareness program supporting of the wheat crop, which prevent the application of the scientific recommendations of the program or achieving the highest efficiency and effectiveness in the process of producing the wheat crop in Salah Aldeen governorate.

MATERIALS AND METHODS:

The analytical diagnostic method has used (which is one of the descriptive approach methods) to conduct the research, which was suitable for analyzing, defining and describing what was in the reality, then interpreting the reality in light of the possible reasons behind it **(Al-Mahmoudi, 2019)** and then reaching objective conclusions. Accordingly, this was helped to reach objective judgments and conclusions about the problems that wheat farmers suffered from, with an indication of the extent (or the range) of the impact of these problems on their agricultural production work, to be addressed and overcome by the executive authority or decision makers in the Iraqi Ministry of Agriculture, the Directorate of Agricultural Extension and Training, and its field departments in the Republic of Iraq; which will lead to achieve the greatest possible efficiency and effectiveness in the work of wheat farmers or producers at present and in the future. Therefore, the material and methods of the research followed the following steps:

Determine population and sample of the research:

Salah Aldeen governorate was chosen as an area for conducting the research, as it is one of the most important governorates covered by the Agricultural Extension activities in this program since its implementation in 2017 until the time of conducting the research. Salah Aldeen governorate ranked third in terms of the cultivated and harvested area as well as the quantity of production for the year 2020 **(Iraqi Ministry of Planning, 2020)**, and it ranked fourth in 2021 **(Iraqi Ministry of Planning, Report of the quantity of wheat and barley production in Iraq, 2021)**. In addition, it had ranked first in terms of the number of farmers in general, and in

terms of farmers of strategic crops, including the wheat crop in particular. Hence, the research population (Community) included fifteen agricultural divisions (or districts) in Salah Aldeen Governorate, and the population also included (1631) farmers distributed among the fifteen agricultural divisions. The required sample size of farmers was determined from the total population according to the (Steven Thompson) equation, so, the proposed sample size was (311) farmers from all fifteen agricultural divisions. Accordingly, a random sample was taken at a rate of approximately (27%) of the total agricultural divisions, so, the sample included four agricultural divisions: (Tikrit, Samarra, Al-Ishaqi, and Balad), then a random sample has taken at a rate of (39%) approximately from the size of the proposed sample for the total population of (311) farmers, so, the research sample reached (122) farmers within the four agricultural divisions (the research sample determined according to the time, effort and money available to the researchers), and accordingly the research has been conducted on (122) farmers who benefited and participated in the agricultural extension activities (methods) of the Awareness Program Supporting of the Winter Plan for Wheat Crop in Salah Aldeen Governorate.

Research method:

In order to build a scale for diagnosing the problems facing wheat farmers who benefit from the awareness program supporting the winter plan for the wheat crop, a group of scientific sources specialized in wheat crop have relied upon, as well as the opinions of a group of experts specialized in the wheat crop in the College of Agricultural Engineering Sciences, Field Crop Department, and the Directorate of Agricultural Extension and Training. Accordingly, four research axes have identified in order to diagnose the problems facing wheat farmers benefiting from the awareness program supporting the winter plan for the wheat crop, as follows:

1. Diagnosis of problems related to Agricultural Extension: This axis has included (6) problems.
2. Diagnosis of problems related to the agricultural environment: This axis has included (8) problems.
3. Diagnosis of problems related to agricultural production inputs: This axis has included (13) problems.
4. Diagnosis of problems related to agricultural harvesting and marketing: This axis has included (6) problems.

The problems in four axis have measured by asking the farmer about the existence or non-existence of the problem, and a score (1) has determined if the problem existed, and a score (0) has determined in the absence of the problem, then in the case of the existence of the problem, the farmer has asked to specify the extent (the range) of the impact of each problem on the process of planting and producing the wheat crop, based on a gradual scale consisting of three levels: high effect, medium effect, low effect, and the following weights have given to them (3, 2, 1) degrees, respectively.

Questionnaire validity:

The method of content validity and apparent validity **(Bhattacherjee, 2012)** has used to measure the questionnaire validity by presenting it to (16) experts in the field of Agricultural Extension, field crops, plant protection, and soil sciences, then necessary modifications were made in the questionnaire. Then, a pretest of the questionnaire was conducted on a random sample consisting of (30) wheat farmers in the agriculture division (or district) of (Al-Alam) in

Salah Aldeen Governorate (they were excluded from the final research population), and Cronbach's Alpha (α) equation has used to check the stability of the results, hence, the results have shown that the stability coefficient of the four axis related to diagnosing the problems facing the wheat farmers was high, as the minimum correlation coefficient was (0.725) while the upper limit was (0.868), and this has indicated that the questionnaire has had a high degree of stability and can be relied upon it to achieve the objectives of the research; this is according to Nannally and Bernstein scale, which adopted (0.7) as a minimum for stability **(Nunnally & Bernstein, 1994)**, then Pearson Linear Correlation Coefficient has used to examine the validity of the internal consistency between each problem of the axis, and the total degree of the same axis, thus, the results have shown that all Pearson correlation coefficients degrees were statistically significant at the level of significance (0.01) and (0.05); as the results have showed that the minimum level of the correlation coefficients was (0.444) while the upper limit was (0.871), so, all problems within each axis have had internally consistent with their axis.

Questionnaire application:

The questionnaire has distributed to the research sample in the agricultural divisions or districts (Tikrit, Samarra, Al-Ishaqi, and Balad), and data has collected from (122) farmers, and the data collection period extended from 9/14/2022 to 10/19/2022.

Statistical analysis:

Appropriate statistical methods have used to achieve the research aim, which are arithmetic means, standard deviation, categories, numbers and percentages, Pearson Linear Correlation Coefficient, Cronbach's alpha coefficient, and finally (Steven K. Thompson) equation to determine the required sample size from the target population.

RESULTS AND DISCUSSION

This section deals with a presentation of the problems extent as well as their impact extent, which wheat farmers have suffered from during their agricultural process, and have prevented them to follow-up and implementation the agricultural recommendations that have transmitted by the awareness program supporting the winter plan for the wheat crop in Salah Aldeen governorate, as follows:

Diagnosis of problems related to agricultural extension:

The research results have showed that the answers of wheat farmers have been somewhat similar in determining the existence of problems related to Agricultural Extension, so, the problem of (absence or limited extension leaflets related to the field of fertilization types, their correct concentrations and the correct methods of adding them) has ranked first in terms of the existence, and the problem of (absence or limited guidance leaflets for controlling common diseases in the wheat crop) has ranked in the last place of existence, also the results have showed that the overall average effect of this axis has reached (1.716) degrees, which has almost described as a medium effect, as shown in table (1).

Table (1): Distribution of wheat farmers according to their answers that related to Agricultural Extension problems.

NO.	Agri. Extension Problems	Freq. & Perc.	Problem Existence		Freq. & Perc.	Problem Effect			Weighted Average	Rank
			No	Yes		Low	Medium	High		
1.	Absence or limited leaflets related to the types of fertilization, their correct concentrations, and the correct methods of adding them.	Freq.	٣٧,٠٠	٨٥,٠٠	١٢٢	33.00	36.00	16.00	1.8	2
		(%)	٣٠,٣٣	٦٩,٦٧	100	38.82	42.35	18.82		
2.	Absence or limited guidance leaflets for the control of thin and wide wheat weeds	Freq.	45.00	77.00	١٢٢	28.00	38.00	11.00	1.779	3
		(%)	36.89	63.11	100	36.36	49.35	14.29		
3.	Absence or limited guidance leaflets for the control of common diseases in wheat crop.	Freq.	52.00	70.00	١٢٢	29.00	30.00	11.00	1.743	4
		(%)	42.62	57.38	100	41.43	42.86	15.71		
4.	Lack of Extension activities related to the program, such as field demonstrations, scientific symposium, field and home visits, and television programs	Freq.	38.00	84.00	١٢٢	23.00	43.00	18.00	1.940	١
		(%)	31.15	68.85	100	27.38	51.19	21.43		
5.	Poor response to the needs and problems of wheat farmers by workers in Extension units.	Freq.	40.00	82.00	١٢٢	48.00	29.00	5.00	1.476	6
		(%)	32.79	67.21	100	58.54	35.37	6.10		
6.	Poor performance of workers in Agricultural Extension units in providing Extension services for the wheat crop to beneficiary farmers.	Freq.	47.00	75.00	١٢٢	39.00	30.00	6.00	1.560	5
		(%)	38.52	61.48	100	52.00	40.00	8.00		
Overall Average Effect = ١,٧١٦										

Also, the results in table (1) have shown that the problem of (Lack of Extension activities related to the program, such as field demonstrations, scientific symposium, field and home visits, and television programs) has been considered the most important problem that has affected the work of wheat farmers with a weighted average of (1.94) degrees, so, that may be attributed to (traced back to) the lack of Agricultural Extension agents compared to a large scope of supervision that falls under their responsibilities as well as the lack of financial allocations that necessary to organize, prepare and implement various Agricultural Extension activities targeting all farmers in the target area, and the problem of (Absence or limited

leaflets related to the types of fertilization, their correct concentrations, and the correct methods of adding them) has occupied second place with a weighted average (1.80) degrees, so, that may be attributed to the lack of financial allocations or the absence of effective plans to distribute them (if they available) to all targeted areas or because of the weakness of the knowledge and skills of some Agricultural Extension agents that necessary to prepare Agricultural Extension leaflets of all kinds.

Finally, the problem of (Poor response to the needs and problems of wheat farmers by workers in Extension units) has occupied last rank (in terms of effect) with a weighted average of (1.476) degrees, so, that may be attributed to the multiplicity of farmers' problems on the one hand, and their complexity on the other, as well as the connection of their treatment to multiple departments (or multiple ministries), which has made solved and processed them all at the same time a great challenge for workers in Agricultural Extension, and may be that attributed to negligence of some Agricultural Extension agents (as a result of their lack in knowledge and skill) to meet the priority needs and problems of wheat farmers.

Consequently, some of these problems (in terms of existence and effect) may justify part of the failures and weaknesses in the level of knowledge, skills and experience of wheat farmers to respond to the scientific recommendations that have transmitted and disseminated by the awareness program in Salah Aldeen governorate.

Diagnosis of problems related to the agricultural environment:

The research results have showed that the answers of wheat farmers have been somewhat similar in determining the existence of problems related to the agricultural environment, so, the problem of (change in climatic conditions such as high temperature, dust storms and lack of rain, which greatly affect the type and quantity of the crop) has ranked first in terms of the existence, and the problem of (the spread of locusts and other insects of all kinds in fields planted with wheat and the difficulty of controlling them by the farmer alone) in addition to the problem of (the difficulty of using agricultural machinery and equipment due to the steepness and tortuosity of the land), has ranked in the last place of existence, also the results have showed that the overall average effect of this axis has reached (1.686) degrees, which has almost described as a medium effect, as shown in table (2).

Table (2): Distribution of wheat farmers according to their answers that related to agricultural environment problems

NO.	Agri. Environment Problems	Freq. & Perc.	Problem Existence		Freq. & Perc.	Problem Effect			Weighted Average	Rank
			No	Yes		Low	Medium	High		
1.	Changes in climatic conditions such as high temperature, dust storms and lack of rain, which greatly affects the type and quantity of the crop.	Freq.	18.00	104.00	١٢٢	64.00	33.00	7.00	١,٤٥٢	٧
		(%)	14.75	85.25	100	61.54	31.73	6.73		
2.	Increase salinity in the land.	Freq.	30.00	92.00	١٢٢	64.00	17.00	11.00	١,٤٢٤	٨
		(%)	24.59	75.41	100	69.57	18.48	11.96		
3.	Difficulty of using agricultural machinery and equipment due to the steepness and tortuosity of the land	Freq.	50.00	72.00	١٢٢	36.00	25.00	11.00	١,٦٥٣	٥
		(%)	40.98	59.02	100	50.00	34.72	15.28		
4.	Soil fertility decreases due to lack of land set-aside.	Freq.	35.00	87.00	١٢٢	23.00	51.00	13.00	١,٨٨٥	٢
		(%)	28.69	71.31	100	26.44	58.62	14.94		
5.	Limited areas of land cultivated with wheat crop.	Freq.	40.00	82.00	١٢٢	28.00	42.00	12.00	١,٨٠٥	٣
		(%)	32.79	67.21	100	34.15	51.22	14.63		
6.	Spread of weeds of all kinds in the fields planted with wheat, and the difficulty of controlling it by the farmer alone	Freq.	36.00	86.00	١٢٢	42.00	35.00	9.00	١,٦١٦	٦
		(%)	29.51	70.49	100	48.84	40.70	10.47		
7.	Spread of diseases of all kinds in the fields planted with wheat, and the difficulty of controlling them by the farmer alone.	Freq.	36.00	86.00	١٢٢	39.00	33.00	14.00	١,٧٠٩	٤
		(%)	29.51	70.49	100	45.35	38.37	16.28		
8.	Spread of locusts and other insects of all kinds in the fields planted with wheat, and the difficulty of controlling them by the farmer alone.	Freq.	50.00	72.00	١٢٢	24.00	28.00	20.00	١,٩٤٤	١
		(%)	40.98	59.02	100	33.33	38.89	27.78		
Overall Average Effect = 1.686										

Also, the results in table (2) have shown that the problem of (The spread of locusts and other insects of all kinds in the fields planted with wheat, and the difficulty of controlling them by the farmer alone) has been considered the most important problem that has affected the work of wheat farmers with a weighted average of (1.944) degrees (although it has come in the last rank in terms of presence), so, that may be attributed to (traced back to) the failure to explore the field periodically, especially during favorable periods for infection and spread, as well as the weakness of the control measures followed by farmers, and the problem of (Soil fertility decreases due to lack of land set-aside) has occupied second place with a weighted average (1.885) degrees, so, that may be attributed to the continuous depletion of organic material and other nutrients from the soil due to frequent cultivation, and irrigation in large quantities that excess of the actual need of the crop, which has caused the loss of some elements, damage to soil properties, poor drainage, and high groundwater in it, also, the problem of (Limited areas of land cultivated with wheat crop) has occupied third place with a weighted average (1.805) degrees, so, that may be attributed to the deterioration of some soils as a result of erosion (soil degradation), desertification and climatic changes, In addition to reduce the percentage of areas which has allowed to be cultivated with wheat crop by the Iraqi Ministry of Agriculture as a result of water scarcity.

Finally, the problem of (Increase salinity in the land) has occupied last rank (in terms of effect) with a weighted average of (1.424) degrees, so, that may be attributed to the irrigation of some lands with saline water from some water wells (especially during periods of water scarcity) or due to frequent irrigation at short and close periods, that has not allowed water to reach below the root zone, which has contributed to increase the concentration of salts and accumulated them in the soil.

Consequently, some of these problems (in terms of existence and effect) may justify part of the failures and weaknesses in the level of knowledge, skills and experience of wheat farmers to respond to the scientific recommendations that have transmitted and disseminated by the awareness program in Salah Aldeen governorate.

Diagnosis of problems related to agricultural production input

The research results have showed that the answers of wheat farmers have been separate or somewhat different in determining the existence of problems related to the agricultural production inputs, so, the problem of (High price and poor quality of pesticides) has ranked first in terms of the existence, and the problem of (Lack of knowledge in calibrating (standardizing) sprinklers and maintaining them correctly), has ranked in the last place of existence, also the results have showed that the overall average effect of this axis has reached (1.528) degrees, which has almost described as a medium effect, as shown in table (3).

Table (3): Distribution of wheat farmers according to their answers that related to the problems of agricultural production inputs

NO.	Problems of Agri. Production Inputs	Freq. & Perc.	Problem Existence		Freq. & Perc.	Problem Effect			Weighted Average	Rank
			No	Yes		Low	Medium	High		
1.	High fuel prices to operate agricultural machinery and harvesters	Freq.	17.00	105.00	122.00	71.00	32.00	2.00	1.34٣	١٣
		(%)	13.93	86.07	100.00	67.62	30.48	1.90		
2.	High prices of seeds that has processed by some government institutions.	Freq.	14.00	108.00	122.00	70.00	35.00	3.00	1.3٨٠	١٢
		(%)	11.48	88.52	100.00	64.81	32.41	2.78		
3.	High prices for purchasing agricultural machineries, equipment and spare tools.	Freq.	15.00	107.00	122.00	69.00	33.00	5.00	1.40٢	١٠,٥
		(%)	12.30	87.70	100.00	64.49	30.84	4.67		
4.	High price and poor quality of pesticides.	Freq.	12.00	110.00	122.00	72.00	30.00	8.00	1.4١٨	٩
		(%)	9.84	90.16	100.00	65.45	27.27	7.27		
5.	Lack availability and high prices of mechanical seeders.	Freq.	34.00	88.00	122.00	51.00	30.00	7.00	1.5٠٠	٧
		(%)	27.87	72.13	100.00	57.95	34.09	7.95		
6.	Lack of availability and high prices of chemical fertilizers in the local markets.	Freq.	20.00	102.00	122.00	70.00	23.00	9.00	1.40٢	١٠,٥
		(%)	16.39	83.61	100.00	68.63	22.55	8.82		
7.	Delay in receiving the fertilizer portion at the appropriate time in addition to the low quantity supplied.	Freq.	13.00	109.00	122.00	63.00	37.00	9.00	1.50٥	٦
		(%)	10.66	89.34	100.00	57.80	33.94	8.26		
8.	Lack of irrigation water portion.	Freq.	44.00	78.00	122.00	40.00	38.00	0.00	1.4٨٧	٨
		(%)	36.07	63.93	100.00	51.28	48.72	0.00		
9.	Weakness and deterioration of the trocars or water discharges networks.	Freq.	57.00	65.00	122.00	32.00	33.00	٠	1.50٨	٥
		(%)	46.72	53.28	100.00	49.23	50.77	٠		
10.	Neglecting and not cleaning the riverbeds from which agricultural lands have irrigated.	Freq.	60.00	62.00	122.00	29.00	27.00	6.00	1.6٢٩	٣
		(%)	49.18	50.82	100.00	46.77	43.55	9.68		
11.	Low irrigation efficiency due to wind and low humidity.	Freq.	52.0.0	70.00	122.00	20.00	39.00	١١,٠٠	1.87١	١
		(%)	42.62	57.38	100.00	28.57	55.71	15.7		
12.	High costs of establishing modern irrigation networks.	Freq.	45.00	77.00	122.00	40.00	30.00	7.00	1.57١	٤
		(%)	36.89	63.11	100.00	51.95	38.96	9.09		
13.	Lack of knowledge in calibrating (standardizing) sprinklers and maintaining them correctly.	Freq.	67.00	55.00	122.00	25.00	13.00	١٧,٠٠	1.85٥	٢
		(%)	54.92	45.08	100.00	45.45	23.64	30.9		
Overall Average Effect = 1.528										

Also, the results in table (3) have shown that the problem of (Low irrigation efficiency due to wind and low humidity) has been considered the most important problem that has affected the work of wheat farmers with a weighted average of (1.871) degrees, so, that may be attributed to the fact that winds and low humidity (due to high temperatures) increase the transpiration process, and necessarily increase the crop's need for water which is reflected on the low quantity and poor quality of the produced crop of wheat, and the problem of (Lack of knowledge in calibrating (standardizing) sprinklers and maintaining them correctly) has occupied second place with a weighted average (1.855) degrees, so, that may be attributed to the weak informational support that specialized in sprinkler irrigation systems, in addition to the engineering nature of sprinkler irrigation systems (especially pivotal ones), which consist of multiple and complex mechanical and

electrical parts, and that thing has made the maintaining process by a wheat farmer very difficult, on the other hand, the high financial cost and the fear of causing damage to the sprinkler irrigation system has made the wheat farmer prefer to ask help from specialized experts (who available in very few numbers) to carry out the maintenance process of the sprinkler irrigation system, instead of trying that by himself.

Also, the problem of (Neglecting and not cleaning the riverbeds from which agricultural lands have irrigated) has occupied third place with a weighted average (1.629) degrees, so, that may be attributed to the weakness of the governmental role in this field, as well as the weakness or absence of the civil role that has represented by the farmers themselves or nongovernment organizations in this field.

Consequently, some of these problems (in terms of existence and effect) may justify part of the failures and weaknesses in the level of knowledge, skills and experience of wheat farmers to respond to the scientific recommendations that have transmitted and disseminated by the awareness program in Salah Aldeen governorate, which may have resulted from some failures and weaknesses in the performance of some Agricultural Extension agents or from the departments supporting their work.

Diagnosis of problems related to agricultural harvesting and marketing:

The research results have showed that the answers of wheat farmers have been separate or somewhat different in determining the existence of problems related harvesting and agricultural marketing, so, the problem of (Delayed payment of financial dues or entitlements after receiving the harvest by the government, which affects the cultivation and production process in the next season) has ranked first in terms of the existence, and the problem of (Difficulty in transporting the seeds into the silos), has ranked in the last place of existence, also the results have showed that the overall average effect of this axis has reached (1.741) degrees, which has almost described as a medium effect, as shown in table (4).

Table (4): Distribution of wheat farmers according to their answers that related to the problems of agricultural harvesting and marketing

NO.	Problems of Agri. Harvesting & Marketing	Freq. & Perc.	Problem Existence		Freq. & Perc.	Problem Effect			Weighted Average	Rank
			No	Yes		Low	Medium	High		
1.	Refused to receive the wheat crop due to the large number of weeds in it.	Freq.	21.00	101.00	122.00	53.00	42.00	6.00	1.53٥	٥
		%	17.21	82.79	100.00	52.48	41.58	5.94		
2.	High cost of harvesting with a combine harvester.	Freq.	32.00	90.00	122.00	35.00	34.00	21.00	1.84٤	٤
		%	26.23	73.77	100.00	38.89	37.78	23.33		
3.	Lack of suitable transport vehicles to transport the wheat crop.	Freq.	50.00	72.00	122.00	21.00	32.00	19.00	1.97٢	١
		(%)	40.98	59.02	100.00	29.17	44.44	26.39		
4.	Lack of efficient agricultural harvesting machines.	Freq.	45.00	77.00	122.00	29.00	29.00	19.00	1.87٠	٣
		(%)	36.89	63.11	100.00	37.66	37.66	24.68		
5.	Difficulty in transporting the seeds into the silos.	Freq.	61.00	61.00	122.00	19.00	25.00	17.00	1.96٧	٢
		(%)	50.00	50.00	100.00	31.15	40.98	27.87		
6.	Delayed payment of financial dues or entitlements after receiving the harvest by the government, which affects the cultivation and production process in the next season.	Freq.	10.00	112.00	122.00	88.00	19.00	5.00	1.2٥٩	٦
		(%)	8.20	91.80	100.00	78.57	16.96	4.46		
Overall Average Effect = 1.741										

Also, the results in table (4) have shown that the problem of (Lack of suitable transport vehicles to transport the wheat crop) has been considered the most important problem that has affected the work of wheat farmers with a weighted average of (1.972) degrees, so, that may be attributed to the limited numbers of the carrying vehicles to transport the produced wheat crop, in addition to the high prices required for transporting the crop, especially in the case of a delay in receiving the crop by the government storage silos, which may be continuous for several days, and the problem of (Difficulty in transporting the seeds into the silos) has occupied second place with a weighted average (1.967) degrees, so, that may be attributed to the long distance between the farms producing the wheat crop and the government storage silos, in addition to the bad, old and worn out roads leading to the silos, which may result in traffic accidents that may cost the farmer huge financial losses.

Furthermore, the problem of (Lack of efficient agricultural harvesting machines) has occupied third place with a weighted average (1.870) degrees, so, that may be attributed to the high prices of purchasing harvesting machines, on the other hand, the high maintenance costs and the limited availability of spare parts from the original manufacturer, which has led to considering some harvesters out of field service. Finally, the problem of (Delayed payment of financial dues or entitlements after receiving the harvest by the government, which affects the cultivation and production process in the next season) has occupied last rank (in terms of effect) with a weighted average of (1.259) degrees (although most wheat farmers has acknowledged or confessed the existence of this problem) so, that may be attributed to the unjustified and irresponsible delay in approving the government's general budget for several years, which results in delaying the payment of crop dues or entitlements to wheat farmers, which negatively affects the preparation process for planting the crop in the next season, as well as its reflection on the decision to continue cultivating the wheat crop in the future or not.

Consequently, some of these problems (in terms of existence and impact) may justify part of the failures of wheat farmers in the process of producing the crop, and achieving the highest economic efficiency and social effectiveness behind its production process, as a result of problems beyond the self-control of wheat farmers, because some of the problems are partly related to the Ministry of Agriculture, while the bulk or the most of them are related to other government ministries that are supposed to be at the highest levels of coordination and cooperation with the Ministry of Agriculture and its affiliated departments in order to overcome all problems related to production, harvesting and agricultural marketing of the strategic wheat crop.

CONCLUSIONS

Based on the research results that have been achieved, the following have concluded:

1) The results of the research have showed a convergence (or closeness) in the general impact of the problems that have been suffered by wheat farmers in Salah Aldeen governorate, which have related to the problems of Agricultural Extension, the problems of the agricultural environment, the problems of agricultural production inputs, as well as the problems of harvesting and marketing, which has had a medium impact on the process of cultivation, production, and marketing the wheat crop.
2) The results of the research have showed that the highest problem of agricultural extension affecting wheat farmers was the lack of Extension activities related to the program, such as field demonstrations, scientific symposium, field and home visits, and television programs, as well as the problem of absence or limited leaflets related to the types of fertilization, their correct concentrations, and the correct methods of adding them.
3) The results of the research showed that the highest problems related to the agricultural environment affecting wheat farmers were the spread of locusts and other insects of all kinds in the fields planted with wheat, and the difficulty of controlling them by the farmer alone, as well as the problem of low soil fertility and lack of land set-aside.
4) The results of the research have showed that the problem of low irrigation efficiency due to wind and low humidity, and the problem of ignorance (lack of knowledge) in calibrating

sprinklers and maintaining them correctly, were among the most influential problems related to agricultural production inputs.

5) The results of the research have showed that the problem of lack of suitable transport vehicles to transport the wheat crop to local markets, and the problem of difficulty in transporting the seeds into the silos, were among the most important problems affecting wheat farmers, which have related to the problems of agricultural harvesting and marketing.

RECOMMENDATIONS

According to the results and conclusions that have been revealed by the research, the following have recommended:

1) It is necessary for the Ministry of Agriculture and its affiliated departments to overcome and solve the problems that wheat farmers have suffered from in Salah Aldeen governorate, by increasing the number of extension activities (with keeping their quality and goodness), especially field demonstrations, and scientific symposium which are focusing on correcting and improving the knowledge and skill levels of wheat farmers.
2) Implementing specialized training courses on how to properly and safely control insects in general and the locust insect in particular, as this matter has a direct impact on the quantity and quality of the wheat crop.
3) The need to coordinate and cooperate between the Ministry of Agriculture and the Ministry of Water Resources to increase the water portion of wheat farmers, or to implement specialized training courses on innovative methods of water harvesting and storage, to face the problems of water scarcity, low humidity and desertification.
4) The need to coordinate and cooperate between the Ministry of Agriculture, Ministry of Trade, and the Ministry of Transportation to provide appropriate transport vehicles in appropriate quantities and timings (with subsidized prices) to ensure that the wheat crop is transport smoothly to local markets, government silos, or warehouses, as well as receive the wheat crop easily and quickly without complicate procedures.
5) It is absolutely necessary to solve all other problems which have been indicated by the results of the research in some detail through the departments of the Ministry of Agriculture or in coordination and cooperation with other relevant ministries, to ensure the achievement of the highest efficiency and effectiveness in the process of producing, harvesting and marketing the strategic wheat crop.

References

1. Abdel Hafeez, K. (2021). *Policies to achieve food security in the oil-producing Arab countries in light of oil price fluctuations.* Algeria: PhD thesis, Faculty of Economics and Management Sciences, University of Algiers.
2. Abdul Rahman T.F, Osamah K.J, & Bilal, K. J. (2023). impact of improved seeds and some modern technologies on increasing the supply of wheat crop in iraq for the agricultural season 2019-2020. *Iraqi Journal of Agricultural Sciences, 54*(1), 176 -188.

3. Ahmed, A. B., & Al-Taif, B. I. (2020). The Problem of Water in Cities and its Impact on Sustainable Development. *Alustath Journal for Human and Social Sciences, 59*(1), 108-122.
4. Ali, E. H., Baker, Y. T., & Al-Douri, B. F. (2022). effect of supplementary irrigation system on wheat production efficiency using a stochastic frontier analysis. *Iraqi Journal of Agricultural Sciences, 53*(2), 353 -364.
5. Al-Latif, M. (2022). impact of chemical herbicides to bread wheat genotypes (Triticum aestivum L). *Iraqi Journal of Agricultural Sciences, 53*(1), 91 -98.
6. Al-Mahmoudi, M. S. (2019). *Research Methodology.* Republic of Yemen: Book House (Gulf Research Center).
7. Al-Mashhadani, A. J., Magd, Z. H., & Keshta, A. E.-H. (2017). Levels of Use and Importance of Extension Methods and Aids in the Process of Dissemination of Agricultural Technologies in the Republic of Iraq. *Journal of Agriculture and Veterinary Science, 10*(5), 1-6. doi:10.9790/2380-1005020106
8. Bhattacherjee, A. (2012). *Social Science Research: Principles, Methods, and Practices.* Tampa, Florida, USA: Anol Bhattacherjee.
9. Ezzuldeen K Hammood و ،Jassim M Nasir .(٢٠١٧) . the effect of fermentation andbaking processes on the phyatedegradation during the process of manufacturing wholewheat flour bread .*Iraqi Journal of Market Research and Consumer Protection* ، ٩ (٢)، ١٠٠-١٠٩.
10. Ezzuldeen, H. K., & Nasir, J. M. (2017). Effect of fermentation and baking processes on phytate decomposition during whole wheat flour bread manufacturing processes. *Iraqi Journal of Market Research and Consumer Protection, 9*(2), 101-109.
11. *Food and Agriculture Organization of the United Nations*. (2022).
12. Hamad, A., Taly, A., & Hazzay, G. (2017). the use geographic information systems (gis) to produce land evaluation map for wheat crop in south of iraq. *Iraqi Research Journal of Agriculture, 22*(1), 55-66.
13. Hammood, E. K., & Nasir, J. M. (2017). the effect of fermentation andbaking processes on the phyatedegradation during the process of manufacturing wholewheat flour bread. *Iraqi Journal of Market Research and Consumer Protection, 9*(2), 100-109.
14. Hassan, K. F. (2014). Biodegradation of some Pesticides Concentrations in. *Iraqi Journal of Biotechnology, 13*(2), 25-33.
15. Ibrahim, A. J., & Ajeel, A. H. (2013). The reality and future of food security in Iraq in light of the production and consumption of strategic crops. *Al-Kout Journal of Economics and Administrative Sciences, 5*(9), 129-148.
16. Iraqi Ministry of Agriculture, D. A. (2021). Data on the awareness program supporting the winter plan for the wheat crop in Iraq. (T. A. Awwad, Interviewer)
17. Iraqi Ministry of Planning. (2020). *Report of the quantity of wheat and barley production in Iraq.* Baghdad: Central Statistical Organization, Directorate of Statistics.
18. Iraqi Ministry of Planning. (2021). *Report of the quantity of wheat and barley production in Iraq.* Baghdad: Central Statistical Organization, Directorate of Agricultural Statistics.
19. Jabara, O. k., & Ali, H. S. (2021). an economic study of post-harvest losses for wheat farmers in iraq baghdad governorate –case study-. *Iraqi Journal of Agricultural Sciences, 52*(5), 1267-1275.

20. Kovtoniuk, K., & Molchanova, E. (2022). identification and levelling of crisis phenomena in the world grain market in the 2022/23 marketing year. *Economics, 10*(1), 129 -144.
21. Khalaf, M. A., & Aziz, R. A. (2020). *Journal of Baghdad College of Economic sciences University, 1*(60), 69-90.
22. Mahdi, K. M. (2016). detection of iron availabitity of wheat flour produced inbaghdad city mills. *Iraqi Journal of Market Research and Consumer Protection, 8*(2), 83-86.
23. MOHAMMED, N. J., & MUDHI, A. A. (2016). analyzing the impact of price policy on wheat production in iraq by using policy analysis matrix (PAM). *The Iraqi Journal of Agricultural Sciences, 47*(2), 552-562.
24. Mousa, M. A., Abd A-Hamid, E., & Al- Anbiki, N. (2010). he effect of Sunn bug Eurygaster intgriceps infection of wheat on the Capability of bread making. *Baghdad Science, 7*(2), 895 -900.
25. Nunnally, J. C., & Bernstein, I. H. (1994). *psychometric theory* (3 ed.). new york: mcgraw-hill, inc.
26. Rossinskaya, M., N.A.Saveleva, & V.V.Rokotyanskaya. (2019). tools for improving operational risk management in agriculture. *Iraqi Journal of Agricultural Sciences, 50*(Special Issue), 134 -142.
27. Taubadel, S. v. (2022). *Russia's invasion of Ukraine–implications for grain markets and food security.* Berlin: Ger. J. Agric. Econ.
28. von Cramon-Taubadel, Stephan. (2022). Russia's invasion of Ukraine–implications for grain markets and food security. *Ger. J. Agric. Econ.*