The Knowledge Level of Grape Orchard Owners Regarding Extension Recommendations for Crop Pest Control in Al-Hajjaj Subdistrict / Salah al-Din

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Abstract

The aim of the research is to identify the knowledge level of grape growers regarding extension recommendations related to grape pest control in Al-Hajjaj sub-district/Saladin in general. The research Study population included all grape growers in Al-Hajjaj sub-district/Saladin, Totaling (100) farmers. All individuals in the population were selected due to ease of access to all individuals, thus the number of respondents reached (100). A questionnaire was used as a tool to collect data from farmers to obtain data and information. The questionnaire form consists of three areas related to grape pest control, Amounting to (45) items distributed across the three areas. For data analysis, the statistical analysis program (SPSS), and a set of statistical methods were employed to analyze the data, such as (range, frequency distribution, percentage, mean, Pearson correlation coefficient, Spearman correlation coefficient, and t-test). The study results showed that the knowledge level of grape growers regarding extension recommendations related to grape pest control in Al-Hajjaj sub-district/Saladin in The overall level can be classified as moderate, yet leaning slightly toward a low level. The results also showed that the customary level of grape growers in the field of (diseases) is described as moderate, tending towards high, while in the field of (weeds) it is described as generally moderate, and in the field of (insects) it is described as moderate, tending towards low. The study results, according to the percentage weight, showed that the field of (weed control) came in first place with a percentage weight of (80.56). The research results recommended the necessity of increasing extension activities in the research area in the field of grape pest control and focusing on the areas and items where farmers' knowledge levels were low. It is also necessary to prepare comprehensive educational programs and activities for extension services related to grape pest control and to provide theoretical and practical information and expertise related to grape pest control, as well as increasing government support for grape growers and providing control supplies.

Keywords: Farmers' knowledge, grape pests, control, Al-Hajjaj sub-district/Salhaldin

Introduction and research problem

Agriculture is the basis of all civilizational progress, human stability and prosperity, and security for human life since its existence on this earth. It is humanity's first profession from which food, clothing, and shelter were obtained (Omar, 1992: 1). Agriculture is not only a source of food but also an important source of raw materials for many industries, some of which cannot be expected to find

alternatives to others despite the tremendous scientific and technological progress the world is witnessing. However, failure to develop this sector creates a number of potential problems, and in particular, it will not only lead to difficulty in providing sufficient quantities of food for the country's population, but it will also jeopardize the country's food security. Since agriculture is one of the most important basic commodity sectors, these countries need to develop this sector and increase the share of local production (Al-Hayali, 2019: 13). Agriculture is the main resource on which the human element depends, and the development of the human element can only be achieved through science and knowledge and raising the level of farmers' knowledge, by developing agricultural methods using modern technologies and delivering the progress achieved by scientific research in agriculture, and abandoning the traditional system in agriculture with the aim of increasing agricultural production and meeting human needs and reducing the food gap (Al-Zubaidi et al, 2001: 1). Iraq is unique among other countries in having many components that help it to be unique and distinguished in agricultural crop production, as the presence of the two rivers alongside fertile agricultural lands is one of the most important factors necessary for the growth of the agricultural sector. The main problem facing the production process in Iraq is the spread of traditional production methods that continue to the present day, and the scarcity of modern agricultural mechanization (Arab Organization for Agricultural Development, 1997: 46). Here appears the role of agricultural extension, which is considered the main conveyor of these technologies (Wazzan, 1998: 155). The

agricultural extension apparatus is considered one of the important educational apparatuses that plays an important role in achieving rural development since its inception, which aims to raise the economic efficiency of agricultural production through education and training activities and the transfer of technological information, which leads to improving agricultural production and increasing farmers' income and improving working and living conditions for agricultural workers (Al-Adhbi, 1989: 55). Agricultural extension transfers the results of research and agricultural innovations in order to raise their standard of living and also actively contributes to increasing productivity. The agricultural extension apparatus is characterized by the unique quality of the extension services it provides to its clients (Seevers et al, 2007: 10.(

The grape crop is one of the most important fruit crops, whether from an economic, medical, or commercial perspective. From an economic perspective, it is considered a crop used to utilize lands unsuitable for other types of fruit, such as sandy lands and low-fertility lands .

It is also important in stabilizing soil and preventing erosion, and canes are used in the propagation process from which cuttings are taken, and seeds are used as animal feed after extracting oil from them. In addition, it is a desired fruit for various social classes, and most of the crop is used fresh, and a portion of the seedless crop is also used for drying and making raisins, while another portion is used for making fresh juice (Al-Sarwani, 2008: 23-24, and Agricultural Extension Department, 2008: 27). Iraq is characterized by a long grape production period, extending from June

to the end of November, due to the suitability of climatic conditions for its production, especially in the central and northern regions (Ismail, 2002). Iraq's grape production for the year 2021 reached (427,356) tons for the summer season, with an increase of (1.30)% over the 2020 production, which was estimated at (421,868) tons. Salah al-Din Governorate ranked first in terms of production, with an estimated (295,410) tons, representing (69.13)% of Iraq's total production, followed by Diyala Governorate, where it was estimated at (84494) tons, representing (19.77%) of Iraq's total production, while Najaf Governorate ranked third, with its production estimated at (17420) tons, representing (4.8%) of Iraq's total production. The remaining governorates accounted for (7.2%) of Iraq's total production, and grape crops constitute (49.97%) of the total production of summer fruit trees in Iraq (Central Statistical Organization, 2022: 2.(

However, despite the economic importance of grapes, it is one of the crops that has received less attention and more neglect than other types of fruits. Perhaps this explains the emergence of many problems that the crop suffers from, including the lack of attention to controlling pests that affect the plant (Nasser, 2010: 5). Fruit trees, including grapes, are exposed at various stages of their growth to infestation by many pests, including insects, mites, fungi, viruses, nematodes, birds, and rodents, in addition to weeds that compete with fruit trees for water, food, and sometimes light (Al-Bitar, 2015: 314). There is no doubt that various agricultural pests and plant diseases play a negative role in the deterioration of agricultural production, both

in terms of quantity and quality. Therefore, controlling these pests and diseases is an urgent matter to protect these agricultural crops and achieve food security, in addition to improving farmers' income and national production (Abu Bakr, 2003: 8). The research problem is summarized in answering the following question: What are the knowledge needs faced by grape growers in pest control in general?

Study Objectives

-1To identify the level of knowledge of grape orchard owners regarding extension recommendations related to grape pest control in Al-Hajjaj district / Salah al-Din in general.

-2To identify the level of grape orchard owners in Al-Hajjaj district / Salah al-Din in each axis of the following most important grape pests (diseases, insects, weeds.(

-3Ranking research areas according to the percentage weight of each area.

Study Methodology

The descriptive approach was followed to achieve the research objectives because it is the closest approach to the research procedures that aim to describe the phenomenon or existing conditions and use multiple methods, including (survey, questionnaire, interviews, direct observation). It is distinguished from others by its monitoring of reality, which helps in the future to change the phenomenon that governs this reality (Al-Fadil, 2010: 103), by studying the phenomenon and obtaining data, which helps to accurately describe the phenomenon to extract its implications and reach comprehensive results (Al-Rashidi, 2002: 16.(

Study Area

Al-Hajaj sub-district, affiliated with Baiji district in Saladin Governorate, was chosen as the area for the current research. It is located on the Tigris River, known for its rural character and agricultural environment that heavily relies on farming. Its proximity to the Tigris River and the fertility of its land provide a suitable environment for cultivating orchards, including grape orchards. Many farmers depend on grapes as a primary source of income. Grape orchards in the area are characterized by a diversity of cultivated varieties that suit local environmental conditions. However, farmers face significant challenges, including the spread of agricultural pests and weeds that affect crop production and quality, as well as the low level of awareness among farmers about the pests that affect the crop and how to prevent them. Al-Hajaj sub-district was chosen as a study area due to the scarcity of previous studies on this topic, aiming to raise farmers' awareness about protecting grapes from plant pests and to provide recommendations that contribute to reducing losses caused by these pests.

Study Population and Sample

The research population included all grape farmers in Al-Hajaj sub-district/Saladin, The study included a total of 100 farmers. A complete enumeration was used, as all individuals in the target population were accessible, which made it feasible to include the entire population in the sample respondents (100) who underwent the final research procedures.

Data Collection Tool

A questionnaire was prepared in its initial form after the researcher reviewed scientific sources from books, extension bulletins, previous studies, and scientific research related to the research topic. To measure the knowledge level of grape orchard owners regarding extension recommendations related to crop pest control in Al-Hajaj sub-district/Saladin, the researcher identified (3) areas comprising (45) items, distributed as (15) items in the area of knowledge of grape diseases and their control, (15) items in the area of knowledge of grape insects and their control, and (15) items in the area of weed control. The cognitive test areas and their items were then presented to content validity experts to determine the relative importance of each area, which represents the degree of that area, after the researcher set the total score for the test at (100) points.

Results and Discussion

First Objective: To identify the level of knowledge of grape orchard farmers regarding extension recommendations related to pest control in the Al-Hajjaj district/Saladin.

The research results showed that the lowest score for the respondents was 59 and the highest score was 76, with an arithmetic mean of 65.35 and a standard deviation of 3.51. The respondents were divided into three categories using the range rule, and it was found that the highest percentage fell within the medium knowledge category, as shown in Table (1.(

Table (1). Distribution of respondents by number and percentage according to general knowledge level categories.

No.	Knowledge Categories	Frequency	%	Mean
1	Low (59- 64)	30	42.9	61.80
2	Medium (65- 70)	32	45.7	66.91
3	High (71- 76)	8	11.4	72.50
Total	70	100%	Sd=3.51	Total

It is clear from Table (1) that the highest percentage, 45.7%, of respondents fall within the medium knowledge category, followed by the low category with 42.9%. Therefore, the knowledge level of the respondents is described as medium tending to be low. This may be attributed to the weakness of experience and information regarding scientific extension recommendations in controlling grape pests, and they may rely on Inherited knowledge experiences from previous generations of farmers in pest control methods or from local agricultural office Landowners who lack sufficient knowledge or expertise agricultural experience or are not specialized in agriculture, which caused the low level of their knowledge of proper methods in controlling agricultural pests affecting grape orchards, and perhaps the weakness of extension activities in the research area.

Second Objective: To identify the level of knowledge of grape orchard farmers in each research area.

 -1First Area: Knowledge of grape diseases and their control.

The research results showed that the lowest score for the respondents in the area of knowledge of grape diseases and their control was 19 and the highest score was 26, with an arithmetic mean of 20.04 and a standard deviation of 1.65. The respondents were divided into three categories using the range rule, and it was found that the highest percentage fell within the medium knowledge category, as shown in Table (2.(

Table (2). Distribution of respondents by number and percentage according to knowledge level categories related to scientific recommendations on grape diseases and their control..

No.	Knowledge Categories	Frequency	%	Mean
1	Low (19- 20)	12	17.1	19.75
2	Medium (21- 22)	35	50.0	21.54
3	High (23- and above)	23	32.9	24.00
Total	70	100%	Sd=1.65	Total

It is clear from Table (2) that half of the respondents fall within the medium knowledge category, followed by the high category with 32.9%. Therefore, the knowledge level of the respondents is described as medium tending to be high. This may be attributed to the weak knowledge of half of the respondents regarding scientific extension recommendations related to grape diseases and their control methods, which indicates their need for information and experiences to improve their knowledge level of diseases and methods of controlling diseases affecting grape crops, or perhaps the respondents were not exposed to targeted extension activities in the research area.

-2Second Area: Knowledge of grape insects and their control.

The research results showed that the lowest score for the respondents in the area of knowledge of grape insects and their control was 17 and the highest score was 22, with an arithmetic mean of 19.14 and a standard deviation of 1.08. The respondents were divided into three categories using the range rule, and it was found that the highest percentage fell within the medium knowledge category, as shown in Table (3.(

Table (3) Distribution of the number and percentages of respondents according to knowledge Knowledge level categories in the domain of grape insect pests and their control.

No.	Knowledge Categories	Frequency	%	Mean
1	Low (17- 18)	22	31.4	17.95
2	Medium (19- 20)	40	57.2	19.38
3	High (21- 22)	8	11.4	21.25
Total	70	100%	Sd=1.08	Total

It is clear from Table (3) that more than half of the respondents fall within the medium knowledge category, followed by the low category with 31.4%. Therefore, the knowledge level of the respondents is described Classified as medium, but leaning toward a low level.This may be attributed to the weak knowledge of the respondents regarding scientific extension recommendations related to grape insects and their fruits and control methods, and they may rely on Knowledge is often based on inherited experiences or acquired from individuals who lack adequate agricultural experience or professional qualificationsspecialized in agriculture, which indicates their need for extension activities to develop their knowledge level about grape insects and their control methods.

-3Third field: Knowledge of weed control.

The research results showed that the lowest score for respondents in the field of weed control knowledge was 20 and the highest score was 28, with an arithmetic mean of 24.17 and a standard deviation of 1.77 The respondents were divided into three categories using the range law, and it was found that the highest percentage was within the medium knowledge category, as shown in Table (4.(

Table (4) Distribution of respondents by frequency and percentage across knowledge level categories related to weed control practices.

No.	Knowledge Categories	Frequency	%	Mean
1	Low (20-22)	12	17.1	21.33
2	Medium (23-25)	41	58.6	24.05
3	High (26-28)	17	24.3	26.47
Total	70	100%	Sd=1.77	Total

It is clear from Table (4) that more than half of the respondents fall within the medium knowledge category, followed by the high category with 24.3%. Therefore, the knowledge level of the respondents is generally described as medium, and this may be attributed to the weak experiences and information of the respondents regarding the weeds that affect grape trees and methods of controlling them, and that they rely on Farmers tend to depend on prior experiences of others in applying weed control methods, or alternatively, they rely on information sourced from local agricultural office owners who do not have sufficient agricultural experience, which is an indicator of the respondents' need for a package of extension recommendations in the field of knowing the weeds that grow with grape trees and methods of controlling them .

Prioritization of research areas based on the relative weight (percentage) assigned to each domain.

Areas	Mean	Maximum Score	Percentage Weight	Rank
Knowledge of diseases and their control	20.04	30	66.8	2
Knowledge of insects and their control	19.14	30	63.8	3
Knowledge of weeds and their control	24.17	30	80.56	1

Conclusions:

the level of knowledge of grape orchard owners regarding extension recommendations related to controlling grape pests in Al-Hajjaj district/Salah al-Din is generally moderate, tending towards low. This may be due to a lack of farmers' knowledge of extension recommendations for controlling these pests, which necessitates intensifying extension activities to deliver these recommendations to orchard owners.

-2The results showed that the customary knowledge level of grape orchard owners in the field of (diseases) is described as moderate, tending towards high, while in the field of (weeds) it is described as generally

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-1 moderate, and in the field of (insects) it is described as moderate, tending towards low. From this, we conclude that there is a lack of farmers' knowledge, which requires more extension activities to raise farmers' knowledge in controlling these pests.

-3The results showed that the field of (knowledge of weeds and their control) came in first place, and from this, it can be concluded that farmers' knowledge in weed control is relatively good compared to the two fields (diseases and pests), which requires focusing and increasing extension activities in these two fields

Recommendations:

The agricultural extension apparatus, in cooperation with the agricultural division in Al-Hajjaj district, must organize cognitive extension activities to provide the respondents

Increase extension activities in the research area in the field of controlling grape pests, focusing on insects and diseases.

-3It is necessary to work on raising the knowledge level of grape orchard owners in scientific fields related to controlling grape

-1 with scientific information and experiences related to controlling grape pests.

-2 pests through intensifying field visits and agricultural extension activities such as (extension seminars, training courses.(

-4Increase government support for grape orchard owners and provide pest control supplies.

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