



BASIC REQUIREMENTS FOR THE RE-SPREAD CULTIVATION OF SUNFLOWER IN BABYLON PROVINCE FROM THE PERSPECTIVE OF THE FARMERS

Halleem AbedOen Alapody and Hussain Khadair Al-Taiy*

Department of Extension and Transfer of Agricultural Engineering Technologies,
College of Sciences and Agricultural Engineering, University of Baghdad, Iraq.

Abstract

The sunflower is an oily crop. It was cultivated in the fields of thousands of farmers in most of Iraq's provinces at the 1990s. The cultivated area in 1992 amounted to 71,000 hectares and its production amounted to 91.3 thousand tons. Its areas then declined continuously in subsequent years because most farmers stopped cultivating it. The cultivated area amounted to 275 hectares in 2017. This study aims to identify the requirements for the re-spread cultivating the crop in the Babylon province from the perspective of farmers. In order to achieve the aim of the study, a scheme was prepared for the requirements of the re-spread cultivating the crop, consisting of 30 paragraphs divided into seven areas: scientific research, planning, Reproduction and supplying, extension and services, agricultural policy, infrastructure, follow-up, and evaluation. The data were collected from a random sample for 100 farmers in three categories: He stopped cultivating the crop, he continues to cultivate the crop and he did not plant the crop who distributed on three agricultural regions: Alexandria, Greater Musaiyab Project, Al-Mahaweel in the Babylon province, and through a questionnaire and the interview method. The results of the study found that all the respondent's farmers confirmed the need to re-spread cultivating the crop in the province. They mentioned 30 Paragraph requirements for the re-spread cultivating the crop, which was distributed in the seven fields. The average of its importance ranged from 3.05 to 3.95 degrees, with an average significance of 3.45 degrees, according to a fifth significance scale whose numerical values ranged from 4 to 0 degrees, all of which are lied within an important - very important level. It is found that 40% of the requirements, the average of it's important amounted to (3.50 degrees and more and it lies within a very important level, In its introduction: The Ministry of Agriculture, including the Directorate of Agriculture in the province by placing an annual plan to cultivate the crop and expand its scope in a number of provinces, support the prices of the purchase of the crop from farmers, Facilitating marketing procedures, The farmers receive the charges directly or within a few days, Inclusion of the crop with government marketing, Encouraging domestic and foreign investment to establish factories for sunflower oil and modern stores, Provision of loans to farmers, supplying the farmers with certified high-yielding seeds, Developing an appropriate mechanism for obtaining the manufacturing factories on the crop directly from the farmers, and Developing the capacity of government factories in the production field of sunflower oil. It concludes from this that all elements of the spreading process must be integrated in order to achieve a re-spread cultivating: scientific research, Reproduction and supplying, extension and services, agricultural policy, infrastructure. The researchers recommend the necessary to implement a program to re-spread cultivating crop in the province and other provinces, because of its industrial and economic importance, Stop the import of the crop, which cost tens of millions of dollars as well as its importance in improving the incomes of farmers and the development of the national industry.

Key words : Re-spread, Sunflower, Farmers, Babylon province.

Introduction

Agriculture in the world - including Iraq - faces major challenges and will continue in the coming decades. It came in the first is to provide enough food and other agricultural products to meet the increasing and changing demands of large and continuous population increases

(FAO, 2018: 7). Estimates indicate that global agriculture is required to achieve an increase of up to 70% in agricultural production over the next 30 years (Butta *et al.*, 2017: 89), it may reach more than 100% in developing countries (FAO, 2013.7). These increases are what should be achieved in Iraqi agriculture to achieve sustainable

*Author for correspondence : E-mail : Hussain.khadair@coagri.uobaghdad.iq

food security that meets the large and growing requirements of food and agricultural products resulting from the expected large increases in the population which reach up to 51 million in 2025 (Hakim, 2013: 317). This number could be multiplied in 2050. Therefore, increasing attention is being given to the issue of increasing production, including the application and development of appropriate approaches and approaches to achieve this objective - horizontal expansion, vertical expansion, intensification - with the increasing trend towards sustainable intensification in the crop production which means increasing production of unit area while conserving natural resources while minimizing negative environmental impacts, increasing contributions to natural capital and achieving environmental services, which is summarizing in term "conservation and expansion" and achieving sustainable increases in the productivity (FAO, 2016). Vegetable oils are an essential component in food, achieving food security and an important source of export and developing the national economy. Its importance continues to increase globally. It is one of the highest trading Stocks, accounting about 41% of exports of agricultural commodities (OECD.FAO, 2018). Oilseeds are a major and important source of vegetable oils which are experiencing a growing interest in expanding the cultivated area, developing productivity and production, and manufacturing and exporting. The cultivated area with these crops on the worldwide in 2012 amounted to 14 million hectares and the production amounted more than 19 million tons (FAO, 2013). The cultivated area with these crops in India for the year 2016-2017 amounted to 26.67 million hectares with a production amounted to 30.06 million metric tons (Status Paper, 2018). The sunflower crop occupies an important and growing role in oil crops, it is an important source of agricultural economy and exports of a number of countries. The cultivated area in the Russian Federation increased from 2.38 million hectares in 1987 to 7,944 million hectares in 2018. The production from the crop for the same period increased from 3,067 metric tons to 12.71 million metric tons, the amount of its exported oil increased from 10,000 metric tons in 1988 to 200,000 tons in 2018. In Europe, the cultivated area with crop in 2018 amounted to 4,286 million hectares, the amount of its export volume increased from 165,000 metric tons in 1999 to 450 thousand metric tons in 2018 (Index Mundi, 2019). In India, the cultivated area with the crop for the year 2013/2014 amounted to 672 thousand hectares and the production amounted to 504 thousand metric tons (Mamgai *et al.*, 2017). The production of the crop amounted to 90 thousand tons in 2018 (Statistics Portal, 2019). The production of Argentina, Turkey, and Ukraine

from the sunflower in 2003-2009 increased from (1,320, 529, 1,205 thousand tons) to (2,369, 553, 1,500 thousand tons), respectively (Al-Amin, 2009). At the level of the Arab countries, the cultivated area with the sunflower in 2015 is estimated about 149.9 thousand hectares and the production amounted to 125.61 thousand tons. The cultivated area in Sudan amounted to 105.42 thousand hectares and the production amounted to 56 thousand tons (Arab Organization for Agricultural Development, 2016). In Iraq, the date of cultivating the sunflower crop back to the early seventies of the last century after the Ministry of Agriculture imported some cultivars from other countries and spread them in the fields of farmers (Safar, 1990: 80). This crop has been widespread in most provinces and its area expanded, which amounted to 71,000 hectares in 1992, with a production amounted to 91.3 thousand tons (General Authority for Agricultural Research, 2012: 46). It is cultivated by and worked in which thousands of farmers and their families and it is an important source of income. This was accompanied by the establishment of a national industry for its oil. The oil of this crop became the main item in the list of ration cards for Iraqi families provided by the government, which represents 25% from the items of this card. This crop has witnessed a continuous decline in cultivated areas and quantities of production, especially in the last decade due to the reluctance of most farmers from cultivating for various reasons (institutional and agricultural policies). The cultivated area in 2017 amounted to 275 hectares and the production quantity amounted to 500 tons (Ministry of Planning, 2018), which constitute 0.038% from the cultivated area and 0.054% from the production in 1992. The supply of sunflower oil as a basic unit in the ration card and other areas of use for the society is through importation. In 2016, the quantities of imported oil into the country amounted to 2.2 million tons, which cost tens of millions of dollars (Ministry of Planning, 2017). Babylon province is considered a province from the central region of Iraq, located south of Baghdad province, it has a large area for cultivation, It is characterized by the rapid adoption by its farmers for industrial crops, especially maize, which was not cultivated in the country, and it became the first province to cultivate it. As for sunflower crop, the cultivated area with this crop in 2004 amounted to 961 ha and its production amounted to 1165 tons (Ministry of Planning and Development Cooperation, 2007: 74). Its cultivated area in 2017 amounted to 5.5 hectares (Ministry of Planning, 2018), which constitutes 0.05% from the cultivated area in 2004. Therefore, the re-spread cultivating the sunflower at the level of the country in general and including Babylon province, it is a nutritional necessity, economic, social and food security,

and raises many questions including:

- Do farmers want to cultivate the crop?
- Do they stress the importance of its re-spread?
- What are the requirements for its re-spread?.

The re-spread of crop cultivation means a return to the spreading process, it is a planned process that is a series of research and importation activities, Reproduction, extension, loans and encouraging policies (Al-Teay, 2013), and the spread is the yield of the spreading process.

The importance of the study

The importance of the study is that it raises the interest of policy makers and decision makers in the agricultural sector of the importance of the re-spread of the main oil crop in the country which enters in preparing the food of the Iraqi family every day, and it is forming an item in the ration card and drives the wheel of national industry. The need for it is very large and growing at the level of the Iraqi family and producers of food (companies and individuals) daily. Importing the oil of this crop costs the state tens of millions dollars annually, while the strategic plan of the Ministry of Agriculture for the years 2015-2025, the development of agriculture and the development of its contribution to the diversification and development of the national economy is considered a key objective (Ministry of Agriculture, 2015), it also indicated by the first national development plans 2010-2014, the second 2013-2017 and the third 2018-2022 (Ministry of Planning, 2009, 2013, 2018).

The Hypothesis of the study

1. The poor interest of farmers in the re-spread cultivating the sunflower in the province.
2. The requirements for the re-spread of crop cultivation are numerous and varied and are distributed to all elements of the spreading process of agricultural innovations.

The aim of the study

Determining the requirements for the re-spread cultivating the sunflower crop in Babylon province from the perspective of the farmers.

Materials and Methods

1) Using the descriptive approach in conducting the study, which is appropriate to study phenomena and describe them and conducting exploratory research, which falls within the current research (Jadri, 2018).

2) The research community: All the farmers in the Babylon province, which are distributed to 15 agricultural divisions linked to the Directorate of Agriculture in the

province.

3) Sample Search:

- a. Three agricultural divisions were randomly selected
- b. A random sample with a percentage of 3% of the farmers was selected in each of the three agricultural divisions. The research sample amounted to 100 farmers.
- c. The farmer's sample was divided into three categories according to their crop cultivation: He stopped cultivating the crop (70) farmers, he continues to cultivate the crop (15) farmers, and he did not cultivate the crop (15) farmers.

4) Developing the scheme of Requirements for re-spread the crop cultivating.

- a- In the light of the literature related to the dissemination of innovations, a preliminary scheme was prepared for the requirements of the re-spread cultivating the crop, consisting of 30 paragraphs divided into seven areas: scientific research, planning, Reproduction and supplying, extension and services, agricultural policy, infrastructure, follow-up, and evaluation.
- b- The scheme was presented in a preliminary form to a group of experts: College staff in the colleges of agriculture in some Iraqi universities (Baghdad University, Al-Qasim green University, and the Middle Technical University) using a questionnaire to indicate their approval degree on the components of the scheme according to an approval scale that consisting of three-term - approval, approval with the modified, non-approval.
- c- The components of the scheme obtained an average of approval (expert approval) amounted more than 80%. Thus verifying the validity of the content.
- d- In light of what was stated in the previous paragraph (c), the scheme of requirements was prepared in its final form, consisting of 30 paragraphs divided into the seven areas mentioned in the initial version.

5) Data collection from farmers:

- a- A questionnaire was prepared for the respondent's farmers, which included three components: personal data, the desire to cultivate the crop and the importance of its re-spread. The field and paragraphs of requirements offset by the fifth significance scale (unimportant, Little importance, important, important to some extent,

very important).

- b- Data were collected from the respondent’s farmers in the interview and for the period from September to November 2018. The percentage and the mean were used in the analysis of the data.

Results and Discussion

Firstly: The necessary to re-spread of crop cultivation

The results showed that all the respondent’s farmers:

- a) They wish to cultivate the sunflower crop, whether the respondent’s farmer was stopped cultivating the crop, continues to cultivate the crop, and did not cultivate the crop.
- b) They emphasized the importance of re-spread cultivating the crops in the province.

It rejects the hypothesis of the first research, which states that farmers are less interested in the issue of the re-spread cultivating the sunflower crop in the province, The alternative hypothesis is accepted that farmers emphasize the importance of re-spread cultivating the crop. This leads to the realization of the importance of the industrial crops in the country, including the sunflower, and the importance of developing it. This agrees with the recent trends in the extension work with the farmers, which emphasizes the importance of diversifying the sources of income of the farmers and the orientation to word the economic crops because of their impact on the incomes of the farmers and linking the family farms with the market and industry.

Second: The requirements of Re-spread cultivating the crop

1. The average of the seven fields for the requirements of the re-spread cultivating of the sunflower crop in Babylon province ranged between 3.87-3.3 degrees with an average of 3.56 degrees on a scale of significance consisting of five phrases (unimportant, Little importance, important, important to some extent, very important) its numeric values ranged from 0-4. This is due to the development of an annual plan to cultivate the crop, whether from the Ministry of Agriculture or the Directorate of Agriculture in the province is a prerequisite for redeployment because all other requirements are determined in light of the plan. The field of infrastructure in the second sequence with an average importance of 3.87 degrees as a key control factor, especially the existence of a factory for oil crop, the manufacturing process of the crop from the government sector stopped in periods due to terrorism and the absence of private

Table 1: Average field of requirements to re-spread cultivating the sunflower crop.

No.	Field	Number of paragraphs in the field	Average numeric values
1	scientific research	2	3,49
2	extension and services	10	3,35
3	Reproduction and supplying	1	3,79
4	Agricultural policy	11	3,52
5	Infrastructure	2	3,87
6	Follow-up, and evaluation	3	3,3
7	Planning	1	3,95
Average			3,56

sector factories as shown in table 1.

Table 1 concludes that the respondent’s farmers emphasized the importance of all seven areas as the main requirements to re-spread cultivating the sunflower crop in the province.

2. The number of paragraphs for the requirements that emphasized their importance of farmers are 30 paragraphs, the averages values ranged from 3.95 to 3.05 degrees with an average of 3.45 degrees in the light of a fifth significance scale that ranged between 0-4 degrees. 40% of the requirements, the averages of their importance ranged between 3.95 - 3.51 degrees, with an average of 3.76 degrees. It falls within a very important level comes at the forefront: The establishment by the Ministry of Agriculture, including the Directorate of Agriculture in the province by placing an annual plan for cultivating the crop and expanding their range in a number of provinces, Support the purchase prices of the crop from farmers, Facilitating marketing procedures and The farmers receive the charges directly and Encouraging domestic and foreign investment in setting up factories for sunflower oil as well as modern warehouses, as shown

Table 2: Distributing the total paragraphs of requirements to re-spread cultivating the sunflower according to the average of its importance.

Numeric limits for the average importance	Number of paragraphs	%	Level of importance	Average
3.95 - 3.51	12	40	Very important	3.76
3.46 -3.05	18	60	Important	3.24

in tables 2, 3.

Tables 2, 3 conclude that all the paragraphs fall between an important level and a very important and it emphasizes the integrated need for availability of all elements of the spreading process to achieve effective spread for the crop, where should be research activity to

Table 3: Distributing the paragraphs of requirements to re-spread cultivating the sunflower according to the average of its importance.

Field	Requirements	Average of importance degree
Planning	The Ministry of Agriculture and the Directorate of Agriculture in the province to develop an annual plan to cultivate the crop and expand its range in a number of provinces	3.95
Policies	Support the prices of purchasing the crop from the farmers and facilitate the marketing procedures and The farmers receive the charges directly	3.92
Policies	Embedding the marketing of the sunflower in government marketing	3.89
Policies	Encouraging domestic and foreign investment to establish factories for sunflower oil as well as modern warehouses	3.82
Policies	Allocating loans to farmers to cultivate crops so that they can develop their cultivation	3.79
Supplying	The government agricultural departments shall equip the farmers who cultivate the crop with enough fertilizer stock	3.79
Infrastructure	Develop an appropriate mechanism in the field of obtaining the company or manufacturing factories of the crop from the farmers	3.79
Infrastructure	Developing the national industrial capacity of the government in the field of producing sunflower oil to achieve the importance of producing the farmers, especially in the case of increasing areas and production	3.77
Scientific Research	Continuing to develop and multiply highly productive cultivars and reproduction it	3.72
Policies	The necessary to support the inputs of crop cultivation, in particular, supporting the prices of selling seeds to farmers and other supplies, fertilizers, agricultural machinery as well as the possibility of installment of these charges for agricultural machinery	3.62
Extension	The necessary to inform farmers before the beginning of each season about the prices of the purchase of the crop as a promoter of crop cultivation and development	3.56
Extension	Considering the requirements of the factories regarding the crop and the definition them to the farmers always before the beginning of the season.	3.51
Extension	Implementing a specialized extension program to develop the capacities of farmers (knowledge, skills, trends) in the field of crop cultivation, including land management, water, waste reduction, and control as well as promoting the cultivation of this crop and convince farmers to cultivate it and publish their positive results achieved.	3.47
Extension	The necessary to develop the capacities of agricultural staff at the level of the agricultural divisions in the field of crop management and service of farmers in this regard	3.46
Extension	Preparing integrated databases on farmers crop cultivation and update it.	3.41
Follow-up and evaluation	The necessary to follow up the implementation of the service activities carried out by the concerned departments in the field of re-spread cultivating the crop	3.36
Extension	Follow-up of farmers' application of the recommendations and recommended agricultural technologies for crop cultivation	3.35
Follow-up and evaluation	To address the problems faced by farmers early in order to prevent them from falling into the future	3.28
Follow-up and evaluation	Follow up farmers and interact with them to identify their needs and diagnose their problems in the field of crop cultivation and work to overcome them	3.27
Policies	Allocating loans to farmers to grow the crop so that they can provide other technical supplies (instruments, machines, irrigation systems)	3.27
Policies	Encouraging farmers to innovate and spread the results among the rest of the farmers	3.24
Scientific Research	The necessary to evaluate the results of the work annually and adopt its results in decision-making related to the crop and developing its cultivation	3.22
Policies	Allocating loans to crop farmers to provide the necessary pesticides to control the Pests of the crop	3.19
Policies	Participation of farmers or their representatives in crop development programs	3.19

Table 3 contd....

Table 3 contd....

Field	Requirements	Average of importance degree
Extension	Pay attention to the use of modern means of communication with farmers on the exchange of information and knowledge	3.13
Extension	Formation of associations of specialized farmers in the field of crop cultivation	3.12
Policies	Involve the farmers in the plans and programs related to the crop	3.12
Extension	Development of extension work methods and dissemination of farmers' field schools	3.03
Extension	Emphasize on the rural youth and rural women in the field of capacity development Regarding the field of cultivation of the crop	3.05

develop cultivars and inbred, reproduction it, supplying farmers with it, provide the necessary loans, guide them to cultivate the crop by correct way, the implementation of the recommendations and technologies, ensure the effective marketing of the crop, and the development of the necessary infrastructure with the importance of developing a plan to cultivate the crop. In this way, the second hypothesis is accepted that the requirements to the re-spread cultivating the crop are numerous and varied and are distributed to all elements of the spreading process of agricultural innovations. It is concluded that farmers are aware of the importance of all elements of the spreading process to achieve a rapid and widespread spread for the crop. The researchers recommend that the re-spread cultivating the sunflower crop should be of interest to decision-makers and Agricultural policy makers, and to implement a program for this purpose and to provide the requirements for this in the research results.

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