

## Economic Study of Oil Crops in Egypt

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### ABSTRACT

Oily crops are conspicuously important food commodities that suffer from a gap as a result of the food deficit in domestic production, which failing to face growing consumption on this item has consequently led to fluctuating its local prices<sup>(3)</sup>. Oily crops are quite significant because they contain important fat soluble vitamins, and four essential fatty acids; besides their being a major source of energy. The gap covered amounts to approximately 93% of oil, and this increases the high import bill yearly, as the support of edible oil is about 447.76 million pounds, which represents about 15% of the value of the total support for food. However, the average total production of oil crops was about 7877.5 thousand tons on average for the period during (2000-2015). The average quantity of production of food oily crops are about 583 thousand tons, and the average amount of consumption was 1.4 million tons, which created a gap estimated by about 793 thousand tones on average for the same period. Although Egypt has the most climatic, terrestrial, human and water resources suitable for the cultivation and production of oilseeds, it suffers from a severe shortage of Oily crops, which means dependence on foreign markets to provide their needs of edible oil. As a result, Egypt imports more than 90% of the needs of its population of edible oils<sup>(4)</sup>. The study aims at identifying the current status of most oily crops in Egypt during the period (2000-2016) through studying the production, productivity and economic indicators of these crops, while discussing the possibility of growing canola plant as a winter oil crop suitable for all types of soil. Including soybeans, sunflower, peanuts, maize and sesame, while flaxseed were designed to extract fiber, although it is an oil crop. Cotton is one of the most productive crops for oil. The total cultivated area of oil crops in Egypt witnessed a negative development. The total area during the study period decreased from about 2.815 million feddan in 2000 to about 1.04 million feddan in 2016, a decrease of 1.8 million feddan during the study period (2000 - 2016).<sup>(1)</sup> Additionally, production of the total oil crops in Egypt increased during the study period despite the decrease in cultivated area due to the increase in productivity of the feddan. The quantity of production in 2000 reached about 7.34 million tons, which increased to about 8.897 million tons in 2014, the productivity of feddan of oil crops in Egypt increased from about 1.2 tons per / feddan in 2000 to about 1.7 tons / feddan in 2016. In order to solve the problem of lack of production of oily crops or reduce it must be adopted by the state of the integrated strategy of several axes, aimed at increasing the volume of domestic production of oily crops. The first axis should encourage farmers to expand the cultivation of oily crops and the second axis includes the announcement of specifications. The third axis revolves around the need to strengthen local factories, reduce the prices of energy and other production inputs, as well as the need to revolve. Moreover, the most important axes the state adopted for the cultivation of Canola plant after the development of distinct types of it should be suitable for climatic conditions and Egyptian soil and desert as well as accurate health specifications for the first time.<sup>(5)</sup> Besides, it aims at filling the severe shortage of oil production, and provide about 50% of animal feed, which is a vital economic area of national income, in addition to the benefits of canola plant in its suitability to all types of land, including desert and rare water. The plant was treated with cobalt at different concentrations from 2.5 ppm to 20 ppm. The best concentration of cobalt level on the canola yield was 12.5 ppm, which resulted in an increase in oil yield per feddan by 71.4%.<sup>(6)</sup>

**Keywords:** Oil crops - Production - Canola crop.

### Introduction:

Oily crops are important food commodities that gap as a result food deficit of domestic production to face growing consumption on this item, which in turn leads to fluctuating local prices.

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Nutritional significance due to oily crops that contain important fat soluble vitamins, and four essential fatty acids. Besides, it is a major source of energy. The size of the gap amounted to approximately 93% of our requirement, and this increases the high import bill yearly, as support of edible oil by about 447.76 million pounds represents about 15% of the value of total support for food, the average total production of oil crops by about 7877.5 thousand tons on average for the period of (2000-2015). The average quantity of production of food vegetable about 583 thousand tons, and the average amount of consumption towards 1.4 million tons estimated the size of the gap of about 793 thousand tones on average for the same period.<sup>(1)</sup>

### **Problem of the Study:**

Although Egypt has most of the ingredients of the climatic elements, human and terrestrial, water constituents aquatic which suit the cultivation and production of oily crops, they suffer from a severe shortage of plant food oils requirements, means its reliance on external markets to secure foreign oil which makes Egypt imports more than about 90% of its population needs food oils with some Egyptian Import value 1.239 billion dollar common edible 2017 and the inability of local production to meet growing consumer needs for food oils. It highly represents a burden on agricultural trade balance and balance of payments, especially in light of increasing and sustained rise of imported food prices in International markets.

### **Objectives of the Study:**

The study aims at identifying the current status of most oily crops in Egypt during the period (2000-2016) by studying production, productivity and economic indicators for those crops to discuss the possibility of planting canola oil crop plant winter fit in all types of land with the possibility of growing canola plant olive crop winter fit in all types of land.

### **Methodology and Data Sources of the Study:**

The study relied mainly on both the descriptive analysis and quantification and statistical analysis techniques such as the secular and equal strings general direction, so relied on published and unpublished data from the Ministry of agriculture and the Central Agency for public mobilization and statistics, as well as data and information available in some electronic information network sites (Internet).

### **Results of the Study:**

We have several types of oil seeds, mainly soybeans, sunflowers, peanuts, corn and sesame comes, while planting flax to fiber extraction, although olive crop. More cotton crop also prolific crops of oils, that cotton crop of over this span. crop producer of oil, and that Egyptian cotton-based economy with 70% of the size of Egyptian industry, the proportion of oil in each seed cotton 20%, but there are many challenges faced this agriculture since the 1980s, pushing down cotton cultivated areas to 300 thousand feddan , While nearly 1.5 million feddan of decades, noting that the reasons for the decline, cotton due to the liberalization of agriculture and state support for production requirements, high cost, forcing peasants to the lucrative crop, direction and parallel with the opening for the import of cotton short and medium staple, valued at about 20 tons of seed per plant, leading to shortages of cultivated area and reduced production of oils and oilseeds, as well as the resulting employment crisis, this was accompanied by low rate of self with high per capita consumption of oil, which now stands at 16 kg per capita per year, while the former was between 7 and 9 kilos per person per year, we must keep in mind the population growth of over 1.5 million people per year. Soybean oil crops is a task and produce 43 thousand tons per year, and have been cultivated to retreat since edit support for market poultry late eighties, where reliable feed industry, leading to lower domestic demand for soybeans. Besides some «Rancidity» which cause problems in their manufacture. The area of oilseeds cultivated in Egypt is about 414.4 thousand feddan in 2014, of which 23 thousand feddan are

soybeans and 150 thousand feddan, but it is not used for oils, although 57% of the area of oilseed lands, while the area of sunflower is about 17 thousand feddan «oil ratio of between 30 and 40%»,

Despite the climate for cultivation it's produced no louder than a ton a year, sesame area acreage ratio of 9%, the total quantity produced 4.5 tons. The olive fruits but used for pickling more than extracting oil, especially olive oil not consumed locally, with 465 tons of olive seed Egypt produces annually in order to import from more factors that caused the paralysis of the local industry, and resorted to the factories do not cover all domestic production, since soybean 798 thousand tons imported.

### **The cultivated area of oil crops in Egypt:**

It can be seen from table( 1) that the cultivated area of oily crops in Egypt have developed negatively where total area decreased during the studied period of about 2.815 million feddan yearly 2000 to about 1.04 million feddan a year 2016 a decrease of approximately 1.8 million feddan during the same period and equation of time trend year no. (1) Table (2) refer to the general trend of decreasing took an annual amount as about 24.663 thousand feddan and did not prove its statistical significance.

### **Productivity of Oil crops:**

The productivity of feddan of oily crops in Egypt increased from about 1.2 tons / feddan in 2000 to about 1.7 tons / feddan in 2016 with an annual average of about 0.1 tons / feddan. The general time trend equation (3) in Table (2) indicates the increase in productivity during the study period. 0.027 tons / feddan and did not prove its statistical significance.

### **Production quantity of oil crops:**

It can be illustrated from the same table that the quantity of production from the total oily crops in Egypt increased during the study period despite the decrease in cultivated area due to increased productivity of the feddan. The quantity of production in 2000 reached about 7.34 million tons, which increased to about 8.897 million tons in 2014, 7.9 million tons in 2016. The equation of the general time trend (2) in Table (2) shows that the production of oily crops in Egypt took an increasing annual trend during the studied period (2000-2016) estimated at (1101) thousand tons and did not prove its statistical significance.

However, there is no doubt that the research and study and the development of appropriate solutions and alternatives to bridge the oil gap and lack of production of oily crops is a national target and should be taken care of, to provide an important element of food, we are going to deteriorate production of these oils at a time of increasing population as a result of this national goal, maximum efforts should be made to solve the problem of lack of production of oily crops or reduce it. The country must adopt an integrated strategy consisting of several axes and from this national goal should make the utmost efforts to solve this problem aimed at increasing the volume of domestic production of oily crops - which covers only 10% of consumption and reduce our dependence on foreign markets, which caused the continuous increases in oil prices during the current period, <sup>(1)</sup>.

The first axis includes the need to encourage farmers to expand the cultivation of soybeans, sunflowers and other oil crops by reducing the prices of agricultural inputs for fertilizers, crops, pesticides and others.

The second axis includes the announcement of the standard specifications of good oil crop, providing high quality and productivity, as well as the government to announce the prices of the purchase of crops to ensure a good profit margin for farmers according to international prices.

The third axis revolves around the need to strengthen local factories, reduce energy prices and other production requirements, as well as the need to modernize the local modern to increase the volume of production of extracted oils.

The most important themes are the state's adoption of the Canola plant after the development of distinct species suitable for the climatic conditions and Egyptian soil and desert for the first time and accurate health specifications, and in order to fill the severe shortage of oil production, and provide

about 50% of animal feed, which is considered a vital economic area of national income, in addition to the benefits of canola plant in its suitability to all types of land, including desert, and rare water. Canola is the second in the world for the production of oils, but farms in Egypt, Because the government does not support him even raise the price, as happens with other crops so that the farmer can make the right profit for him, He also pointed out that the yield produced as feed for the animal is of high quality. Hence, it is clear that the crop is economically important and the crop does not need much water, 40-50% of the water needed by the summer crops is needed and is drought tolerant.

**Table 1:** Development of area, productivity and production of oily crops in Egypt during the period (2000 - 2016)

Year	Area Per feddan	Production per Thousand tons	Productivity Ton/ feddan
2000	2815.1	7337.5	1.2
2001	3124.5	6954.9	1.3
2002	2963.0	7493.1	1.3
2003	2823.8	7393.3	1.3
2004	2929.8	7371.5	1.3
2005	3233.4	8608.2	1.3
2006	2041.8	7247.4	1.4
2007	2766.3	7182.6	1.3
2008	2444.2	4105.3	1.3
2009	2581.7	7295.8	1.9
2010	2693.4	6796.3	1.2
2011	2562.7	8008.8	2.2
2012	2741.8	7705.3	1.3
2013	2675.0	7527.6	1.3
2014	2805.1	8896.7	1.8
2015	2752.7	7877.5	1.3
2016	2156.2	79501.0	1.7
Average	2747.1	7362.6	1.4

Source: Ministry of Agriculture and Land Reclamation - Food Balance Sheet - Miscellaneous Numbers.

**Table 2:** Time trend equation for production factors for oil crops during the period (2000 -2016)

Statement	Equation	R <sup>2</sup>	T	F
Cultivated Area	$\hat{Y}_e = 2947.411 - 24.663X_e$	0.209	-1.992	3.967
Total Production	$\hat{Y}_e = 1116.935 + 1100.709x_e$	0.124	1.456	2.120
Productivity	$\hat{Y}_e = 1.162 + 0.027X_e$	0.265	2.323	5.397

Source: Calculated From Data In Table (1).

However, there is no doubt that the research and study and the development of appropriate solutions and alternatives to bridge the oil gap and lack of production of oily crops is a national target and should be taken care of, to provide an important element of food, we are going to deteriorate production of these oils at a time of increasing population as a result of this national goal, maximum efforts should be made to solve the problem of lack of production of oily crops or reduce it. The country must adopt an integrated strategy consisting of several axes and from this national goal should make the utmost efforts to solve this problem aimed at increasing the volume of domestic production of oily crops - which covers only 10% of consumption and reduce our dependence on foreign markets, which caused the continuous increases in oil prices during the current period, <sup>(1)</sup>.

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One of the advantages of the new plant is that its unsaturated fatty acids account for 90% of its fatty acids, so it does not cause high cholesterol, and canola oil is more stable than soybean, sunflower and maize oils, so it can be stored longer and longer, and contains some essential fatty acids for the body, such as linoleic types, which are important in the processes of the biological body as well as its antioxidant. The advantages of its potential will grow in the new and reclaimed land.

Additionally, the productivity of the feddan is about 1000 to 1200 kg of seeds per plant, while the result of this amount is 38- 45% of the oils by type and degree of the plant, which represents the seeds 3 grams weight per a seed, the price of oil of this plant about 500 dollars per ton globally.

An experiment is carried out for the cultivation of canola plant at the National Research Centre in the new and reclaimed lands.

According Nadia Gad (2010), the plant is treated with different cobalt concentrations (from 2.5 ppm to 20 ppm). Cobalt at 12.5ppm gave the greatest values, its:

- Increasing the number of pods per plant by about 21% compared to control.
- Increasing the seed yield per feddan by about 48.1%.
- Increasing the oil yield per feddan by 71.4%.
- Increasing the protein percentage by 8.07%.
- As a result, total carbohydrates increased by 59.98%

All cobalt levels from (2.5 to 20 ppm) resulted in a slight increase in the percentage of total phenols in the limits of human health, especially that the increase of since the price of kilograms of cobalt sulfate is about 200 pounds, while the concentration of cobalt 12.5 ppm is about 480g/s. Their price is about 96 pounds. Phenols to less than 2% prevent oxidation of oil and this is beneficial to human health. Thus, the price of cobalt 96 pounds increased the oil yield by about 216 kg / fed. The increase in the total costs per feddan by one pound is consequently given an increase in the oil yield by 2.25 kg oil / feddan, which makes the yield greater than the cost.

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