

## Economic Evaluation of Olive Crop in Bear Alabd

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### ABSTRACT

Olive is the most important crop for the domestic consumption, in addition to export importance and its role in providing foreign currency. North Sinai has thousands of cultivated areas of live crop in different regions in North Sinai governorate which considered is one of the best olive types at the Egypt governorates level. Olive of Sinai has 32 feeding elements but the olive on all the world has 17 feed elements only (???). The study aimed to, estimate the relative importance of the fruitful areas at the national and local levels, identify the description of personal and socio-economic characteristics olive crop farmers, and assess the crop production costs and expected returns, The fruitful areas of Bear EL Abd reached about (32%) from the total fruitful area in North Sinai governorate so Bear EL Abd was selected to be the research area(?) (60) farmers of olive crop were chosen because of the security situations in the study area. The surveyed data resulted that, majority of farmers (65%) had farm size greater than 20 feddan, (25%) had farm size between (10-20) feddan and (10%) of farmers had farm size less than 10 feddan, the costs of olive crop cultivated were total variable costs and total fixed costs about 11500 LE/feddan, but the total fixed costs about 9000 LE/feddan. The total variable costs accounts almost(56%) of the total costs,. The total cost of labor accounts for 39% of the variable cost, the total revenue was 38500L.E/feddan L.E/feddan, the return on L.E. invested was 90 L.E/feddan.

**Keywords:** Relative importance, Net revenue, fruitful areas, characteristics of farmers

### INTRODUCTION

Olive is the main crop generally of the most important crops in Egypt and specifically in the Sinai peninsula olive is the most important crop for the domestic consumption in addition to export importance and its role in providing foreign currency.

North Sinai has thousands of cultivated areas of live crop in different regions in North Sinai governorate, olive in North Sinai is one of the best olive types at the Egypt governorates level.

Olive of Sinai has 32 food elements but the olive on all the world has 17 food elements only, the farmers of olive crop were harvested the olive from starting October to the latest November every year to the squeeze in the olive presses.

The farmers of olive crop hope will maintain its status in the Sinai and preserve the large numbers of olive trees for fear of being harmed. Therefore, Baer al-Abd is one of the centers where the olive groves were spread at North Sinai governorat.

Egypt has a competitive advantage in producing olive and olive oil because of its relatively stable climate and its commercial site which is distinctive for the areas of producing the crop, especially it occupies the eighth place in the global ranking of the Countries producing olive and the third place among the countries.

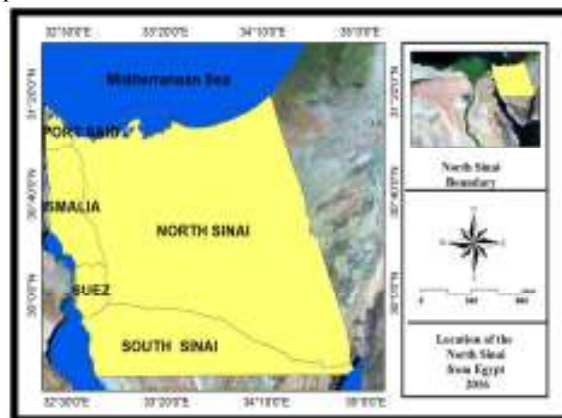
Producing table olive, as it contributes by about 11.5% of world production. Moreover, olive oil industry and pickling olives are considered transformational food industries that aim at increasing the added value of olives, The crop is planted for the purpose of producing olive by 10%, and about 90% are for pickling.

Olive has a lot of economic and nutritional benefits, as olives are used in extracting oil or they are used as table olive in the farm of green or black pickled olives. In addition, olives have a high nutritional value, as each 100 grams of green olives contain (144) calories, 13.5 grams of fats, 4 grams of carbohydrates, 5.8 grams of water, 1.5 grams of protein and 1.5 grams of fiber, in addition to 420 units of vitamin A and some mineral elements (such as phosphorus, calcium and iron). Olive oil is the fastest oil in digestion and the richest oil of vitamins, mineral salts and fatty acids. Furthermore, the use of olive oil results in protecting human from atherosclerosis, reducing the ratio of blood cholesterol, lowering blood pressure, activating liver and treating digestive diseases. Some of olive's local kinds are (Al-Balady

– Al-Teffahi – Al-Ajeezy), and its imported kinds are (Al-Shammally – Frantoyo – Negeral – Kronaky). Kinds for pickling are such as (Shamlano – Askolano – Kalamata – Dulcy), and the kinds that have double purpose are such as (Al-Manzanello – Mission – Ferdal – Bicol). The most important kinds which are common in North Sinai are (Al-Teffahi – Kronaky – Kalamata – Dulcy – Manzanello – Bicol – Al-Azizi – Al-Meloky).

#### Study area

Figure (1) showed Sinai is located in the north-east of the Egyptian territory between latitudes 29° and 31° N, longitude 32° and 35°. North Sinai Governorate is one of the most important governorates of Egypt in olive crop production.



**Figure 1. The location of North Sinai governorate**

Source: American Journal of Geographic Information System ,2017, 6(4): 141-155

It is situated in the north eastern part of the country, and includes the northern half of the Sinai Peninsula, It is bordered on the north by the Mediterranean Sea, ; on the south by north Sinai governorate on the west by Port Said, Suez, and Ismailia governorates, and on the east by the Gaza Strip and Israel. Its capital is the city of Arish North Sinai It is located in the north-eastern part of the country, The population of the North Sinai was 421,984 people, Governorate covers an area of 27,574 Km<sup>2</sup>.

The average of fruitful area for the desert governorates about 64005.76, the relative importance was 28% from the desert governorates (table1).

**Objectives of the Study**

**The objectives were to:**

- 1- Estimate the relative importance of the cultivated areas at the national and local levels.
- 2- identify The description of personal and socio-economic characteristics olive crop farmers.

**3-assess of crop production costs and expected returns.**

**Data and Methodology**

This study was implemented in Bear EL Abd city at North Sinai Governorate.

The study was based on two methods of data collected first of all the Ministry of agriculture – Economic Affairs Sector – bulletins of agricultural economics.

The second method the primary data were collected through in the survey by the questioners was designed to investigated the study objectives.

Through several meetings with a number of olive crop farmers in the study area.

(60)of olive crop farmers were chosen because of the security situations in the study area.

Administrative Center in Bir Al - Abd

**Study area**

North Sinai Governorate has 6 centers (EL Shikh Ziwaied ,EL Arish, Rafah, Bir EL Abd, Nekhel and EL hasnah) Bear EL Abd was chosen as a study area, where the average

of the fruitful area for North Sinai was (17673.71) and the relative importance for the fruitful area of Bear EL Abd about (32%) from the fruitful area of North Sinai governorate (1) so it was selected the research area.

**RESULTS AND DISCUSSION**

Table (1) and Figure (2) showed that, The fruitful areas of olive crop at Egypt, desert governorates, North Sinai governorate and Bear EL Abd city level respectively during (2000 -2016) the total number of fruitful areas of olive crop at Egypt, desert governorates.

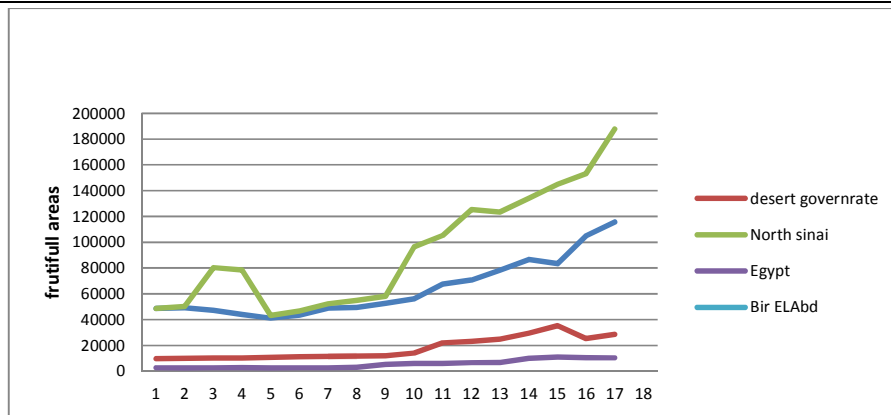
North Sinai governorate and Bear EL Abd city were changed from year to year during (2000 -2016), The average numbers of The fruitful areas of olive crop at Egypt ,desert governorates, North Sinai governorate and Bir EL Abd city level were 93177,64005.76 , 17673.71, 5578.824 fedann respectively during (2000 -2016).

The data in the table show that the total productive area reached a maximum in 2014 with a rate of 24.4% at the level of the Republic and by 42%, at the level of desert areas.

The data in the table show that the total productive area in the center of Bir al-Abd reached a maximum in 2014, at a rate of 7.6% at the level of the Republic and 13% at the level of desert areas. At a rate of about 42.3 at the level of North Sinai

**Table 1. Development the fruitful areas of olive crop at during (2000 -2016)**

Years	Egypt	Desert governorates	North Sinai governorate			Bear EL Abd city			
			North Sinai governorate	% Republic (Egypt)	% Desert areas	Bear EL Abd city	% Republic (Egypt)	% Desert areas	% North Sinai governorate
2000	48624	48574	9605	19.8	19.8	2663	5.5	5.5	27.7
2001	50310	48990	9909	19.7	20.2	2584	5.1	5.3	26.1
2002	80359	47186	10190	12.7	21.6	2804	3.5	5.9	27.5
2003	78555	44045	10277	13.1	23.3	2843	3.6	6.5	27.7
2004	43196	41211	10823	25.1	26.3	2554	5.9	6.2	23.6
2005	46762	43445	11262	24.1	25.9	2597	5.6	6.0	23.1
2006	52413	48933	11591	22.1	23.7	2718	5.2	5.6	23.4
2007	54833	49673	11757	21.4	23.7	3218	5.9	6.5	27.4
2008	58246	52521	11995	20.6	22.8	5229	9.0	10.0	43.6
2009	96538	56112	14099	14.6	25.1	6075	6.3	10.8	43.1
2010	105220	67482	22146	21.0	32.8	6075	5.8	9.0	27.4
2011	125399	70778	23280	18.6	32.9	6764	5.4	9.6	29.1
2012	123388	78302	24864	20.2	31.8	6844	5.5	8.7	27.5
2013	134045	86655	29414	21.9	33.9	9818	7.3	11.3	33.4
2014	144850	83324	35395	24.4	42.5	11061	7.6	13.3	31.3
2015	153327	105049	25244	16.5	24.0	10685	7.0	10.2	42.3
2016	187944	115818	28602	15.2	24.7	10308	5.5	8.9	36.0
Average	93177	64005.76	17673.71			5578.824	6.0	8.7	31.6
%		68.7	28			32			



**Figure 2. The fruitful areas of olive crop at Egypt, desert governorates, North Sinai governorate and Bir EL Abd city level during (2000 -2016)**

Source: Table (1)

The data in Table (2) showed that, The fruitful areas of olive crop at Egypt ,desert governorates, North Sinai governorate and Bear EL Abd city respectively during (2000 -2016), the fruitful areas of olive crop at Egypt level is increasing at a statistically significant rate about 7853feddans annually, The fruitful areas of olive crop at desert governorates level is increasing at a statistically significant

rate about 4005 feddans annually, The fruitful areas of olive crop at North Sinai governorate level is increasing at a statistically significant rate about1524feddans annually, and the fruitful areas of olive crop at BearEL Abd city level is increasing at a statistically significant rate about 592 feddans annually.

**Table 2. The fruitful areas of olive crop at Egypt level, desert governorates level, North Sinai governorate level and BirELAbd city level during (2000 -2016)**

Variable	Constant	Reg. Coefficient		R <sup>2</sup>	F
		B	T Value & Sig.,		
The fruitful areas of olive crop at Egypt level	2249.92	7853.12	7.29	78	53.23
The fruitful areas of olive crop at desert governorates level	27958.5	4005.25	7.62	80	58.21
The fruitful areas of olive crop at North Sinai governorate level	3955.19	1524.27	7.95	81	63.20
The fruitful areas of olive crop atBear ELAbd city level	251.26	591.95	9.97	87	99.4

Source: table (1)

The Economic Evaluation for feddan of olive crop BaerELAbd city

The description of personal and socio-economic characteristics olive crop farmers: \*

Table (3) showed that, the personal and socio-economic characteristics of olive crop farmers, Majority (58%) of the olive crop farmers fell in the age between (40-60) years,( 25%) were 40 years and below while (17% ) were older than 60 years .About (75%) of the farmers were married and have children, (10%) were single. About (16.7%) of the farmers had technical education,

Almost (15%) had non education at all while (20%) of the farmers read and write, but (8.3%) of the olive crop farmers had University education, about (1.7%) farmers had Primary education and almost (8.3%)Preparatory education.

About (10%)of had their farm size less than 10 feddan ,( 25%) had their farm size between( 10-20) feddan and around (65%) had farm size greater than 20 feddan, About (66.7%) of the farmers had family size between 5-10 members, almost (8.3%) had family size less than 5 members ,but about(25%)of farmers had frames more than10 feddans. About (6.7%)of farmers had medium income category but almost (25%)had high income more than 5000 pounds and low income group about (8.3%). About the economic motivation around (75%) of the total farmers had high level of economic motivation but about (16.7%) of the farmers had the medium level of economic motivation and almost (8.3%) of the total farmers had low level of economic motivation.

Table (4) showed the costs of olive crop cultivated total variable cost and total fixed cost were considered in order to calculate the total cost of production. The total variable costs includes cost of labor, chemicals, fertilizer and seeds which calculated about 11500 LE/feddan ,but the total fixed costs includes cost of renting land, and water irrigation net on farm calculated about 9000 LE/feddan. The total variable costs accounts almost (56%) of the total costs. The labor used consists of family, hired labor. The average wage rate of wage labor is 100 LE/man-day was used to feddan of olive crop cultivated, The total cost of labor accounts for 39% of the variable cost, the cost of the total production inputs was 20500 LE/feddan, the Equipment Operating Costs were2000 LE/feddan.

Table (5) reflected The economic evaluation for feddan of olive crop cultivated were the total revenue was 38500L.E/feddan where the productivity was about 3.5ton/feddan ,the price for unit around 11000 L.E/ton, the net profit was almost 18000 L.E/feddan ,the Benefit/cost-

Ratio was about 1.9 L.E/feddan, finally the ReturnonL.E. invested was 90 L.E/feddan, SO when the cost 100 L.E/feddan the ReturnonL.E. invested 90 L.E then the project is profitable.

**Table 3. The description of personal and socio-economic characteristics olive crop farmers**

Items	Description	Frequency	Percentage
Age	Younger than 40 years	15	25
	Between( 40-60)year	35	58
	Older than 60 year	10	17
	Total	60	100
Education Status	Non education	9	15
	Read and write	30	50
	Primary education	1	1.7
	Preparatory education	5	8.3
	Technical education	10	16.7
Marital Status	University education	5	8.3
	Total	60	100
	Married and have children	50	75
	Married and have no children	4	15
	Single	6	10
Number of family members	Divorced or widowed	-	-
	Total	60	100
	Less than 5 members	5	8.3
	Between( 5-10) members	40	66.7
Income /month	Greater than( 10) members	15	25
	Total	60	100
	Less than( 3000) L.E	5	8.3
	Between( 3000-5000) L.E	40	6.7
Farm size	More than 5000 L.E	15	25
	Total	60	100
	Less than 10 feddan	5	8.3
	Between 10-20 feddan	15	25
Economic motivation	More than 20 feddan	40	6.7
	Total	60	100
	Low	5	8.3
	Medium	10	16.7
The costs of olive crop cultivate	High	50	75
	Total	60	100

Source: questionnaire data2017.

Economic Evaluation for feddan of olive crop cultivated The costs of olive crop cultivate

**Table 4. The costs of olive crop cultivated**

Items	(LE/feddan)
Total variable costs	
Input costs	5000
Labor	4500
Equipment Operating Costs	2000
Total variable costs	11500
Total fixed costs	
Rented land	5000
Water irrigation net	4000
Total fixed costs	9000
Total costs	20500

Source: questionnaire data, 2017

The economic evaluation criteria for cultivated feddan of olive crop

The total revenue was = The productivity for feddan of olive crop by ton\*price of unit.

The net profit was = Total revenue - Total costs.

Benefit/cost-Ratio was = Total revenue % Total costs

Return on L.E. invested was = Net profit % Total costs \* 100.

**Table 5. The economic evaluation for feddan of olive crop cultivated**

Items	(LE/feddan)
Total Revenue	38500
Net profit	18000
Benefit-cost/Ratio	1.9
Return on L.E. invested	90

Source: questionnaire data, 2017.

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**التقييم الاقتصادي لمحصول الزيتون في بئر العبد**

داليا فاروق جاب الله

قسم الدراسات الاقتصادية – شعبة الدراسات الاقتصادية والاجتماعية – مركز بحوث الصحراء

يعد محصول الزيتون من المحاصيل الرئيسية في مصر بشكل عام وتحديداً في شبه جزيرة سيناء يعتبر الزيتون أهم محصول للاستهلاك المحلي ، بالإضافة إلى أهمية التصدير ودوره في توفير العملات الأجنبية يوجد في شمال سيناء آلاف المناطق المزروعة من المحصول الحي في مناطق مختلفة في محافظة شمال سيناء والتي تعتبر من أفضل أنواع الزيتون على مستوى محافظات مصر. يحتوى زيتون محافظة سيناء على 32 عنصر تغذية ولكن الزيتون يحتوي على 17 عنصر تغذية في جميع أنحاء العالم فقط ، هدفت الدراسة إلى تقدير الأهمية النسبية للمناطق المزروعة على المستويين القومي والمحلي ، وتوصيف الخصائص الشخصية والاجتماعية والاقتصادية لمزارعي محصول الزيتون ، وتقييم تكاليف إنتاج المحاصيل والعوائد المتوقعة ، وتم اختيار مدينته بئر العبد وذلك لأنها تمثل أعلى إنتاج لمحصول الزيتون والمساحة المثمرة نها تمثل نحو 32% من المساحة المثمرة من محافظته شمال سيناء والتي تمثل حوالى 28% من المساحة المثمرة لمحافظة الصحارى. مركز بئر العبد حيث تمثل المساحة المثمرة من محصول الزيتون تمثل نحو 32% من المساحة المثمرة بمحافظة شمال سيناء بحيث تم اختيار مجال البحث ونحو (60) مزارع للزيتون تم عقد مقابلات شخصية معهم بسبب الأوضاع الأمنية في منطقة الدراسة ، حيث كانت نسبة المزارعين (10%) من المزارعين أقل من 10 فدان ، (25%) كان حجم مزارعهم بين (10-20). حوالى (6.7%) من المزارعين لديهم فنة متوسطة الدخل ولكن حوالى (25%) دخلوا أكثر من 5000 جنيه ومجموعة منخفضة الدخل حوالى (8.3%). حول الدافع الاقتصادي نحو (75%) من إجمالي المزارعين لديهم مستوى عالٍ من الدوافع الاقتصادية ولكن حوالى (16.7%) من المزارعين لديهم مستوى متوسط من الحافز الاقتصادي ، وتقريباً (8.3%) من إجمالي المزارعين لديهم مستوى اقتصادي منخفض التحفيز. وحوالى 65% من المزارعين يمتلكو مساحة المزرعة أكثر من 20 فدان ، وكانت تكاليف محاصيل الزيتون من إجمالي التكاليف المتغيرة وإجمالي التكاليف المتغيرة والتي تضم الاسمدة البلدية والكيموايه ومستلزمات الإنتاج والعماله والشنلات حوالى 11500 جنيه / فدان ، ولكن إجمالي التكاليف الثابتة والتي تتمثل فى شبكة الري بالتنقيط وإيجار الارض حوالى 9000 جنيه مصري / فدان. إجمالي التكاليف المتغيرة نحو (56%) من إجمالي التكاليف الكلية وتمثل التكلفة الإجمالية العمالة 39% من التكاليف المتغيرة ، وكان إجمالي الإيرادات نحو 38500 جنيه/فدان، والعائد على الجنيه المستثمر حوالى 90 جنيه/فدان وهذا معناه أن أى فدان من محصول الزيتون يعطى عائد نحو 90 جنيه/فدان وهذا يعنى ال المشروع مربح.

**الكلمات الداله:** الأهمية النسبية-الخصائص لمزارعي الزيتون- صافي العائد- المساحة المثمرة.