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Estimating the added Value of Olive Presses in Nineveh Governorat for the production season 2023

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A B S T R A C T

The research aims to estimate the added value of the production outputs of the olive crop (olive oil) from the presses until it reaches the final consumer in the local markets in Nineveh Governorate, and to calculate the revenues and profits, which are preceded by calculating the costs, in addition to diagnosing the internal and external factors of olive oil manufacturing, as the research relied on the data collected through a questionnaire form for a random sample of (5) presses out of a total of (20) presses at a rate of (25%) operating in Nineveh Governorate and diagnosing the problems and obstacles that hinder the manufacturing cycle, in addition to secondary data, as the results indicated that the average total cost of the sample amounted to (474881000) dinars and for one ton it amounted to (7664807) dinars/ton, while the average total added value for pressing one ton of olives (3128210) dinars/ton, while the average net added value (3095929) dinars/ton, so the profits per ton of oil have reached (2335193) dinars/ton, where the revenues of one ton of oil had reached (10,000,000) dinars/ton. Despite the increase in pressing costs, the quantities allocated from the olive crop for pressing increased, which was reflected in the added value that was high and the realization of profits as a result of this increase, accompanied by an increase in the national income. It is concluded from this study that increasing the areas planted with olive trees requires increasing the number of presses to keep pace with the increase in local demand for olive oil, which contributes to raising the value of the local product and selling it at prices that compete with global prices. Therefore, the study recommended promoting the local product in foreign markets by participating in international exhibitions and international markets specialized in the olive oil product.

Introduction

The olive oil and olive pickling industry is one of the food processing industries that aims to increase the added value of the olive crop, as it is not eaten fresh and must be processed[1], and olives are the product that is consumed worldwide, as its production is linked to the Mediterranean countries, and this applies to all industrial products of olives (olive oil, table olives)[2]where olive cultivation is concentrated in North Africa, the Near East and in Southern Europe, where (95%) of olive trees are grown in the Mediterranean region, Spain ranks first in the world in terms of production and area, while Tunisia ranks first on the Arab leve[l3]. Developing value-added activities is important to increase the competitiveness of developing countries, as food industry products (olive oil, table olives) are exposed to fierce competition in global markets in terms of prices and quality, especially after the implementation of international agreements that set specifications and standards for the health safety of food products[4], in addition to that, the olive manufacturing sector has economic importance represented in achieving added value that contributes to increasing the national product And to meet the nutritional requirements of the population, and because olives have nutritional value, as each one contains (100) grams of olives contain) 144) calories, (57.2) grams of water, (13.5) grams of fat, (4) grams of carbohydrates, (1.5) grams of protein, (1.2) grams of fiber, in addition to containing five acids (oleic acid, palmitic acid, linoleic acid, linoleic acid, arachidic acid). The social importance of the olive crop is represented in providing job opportunities to reduce migration from the countryside to the city, and it can also be considered one of the sources of income for many rural families, while the environmental importance lies in protecting the soil from erosion and reducing desertification [5]. The research hypothesis is based on the fact that the high costs of pressing per ton of olive crops result in unprofitable profits, which is reflected in the added value of the presses. The problem of the research lies in the fact that the low pressing costs per ton of olive crops, despite the small number of presses, reduces the added value and profits and increases unemployment among workers in the presses. According to the report of the International Olive Council (COI), the area of olives planted in the world is approximately 11 million hectares, divided into 47 countries [3]. Spain ranks first in the world and European countries in terms of production, as it produces more than (900) thousand tons of olive oil and (380) thousand of table olives annually, followed by Italy and Greece, as they are the two main countries for olive cultivation [6]. The global production rate of olives reached 91%, divided as follows: Spain (29%), Italy (20%), Greece (15%), Turkey (9%), Portugal (2%), Tunisia (6%), Syria (7%), Morocco (4%), while the global production rate of olive oil is 95%, with Spain coming in first place with (34%), Italy (22%), Greece (16%). Morocco and Turkey (3%), Portugal (1%), Tunisia (8%), Syria (9%) [7]. As for the Arab world, the annual production rate of olives is estimated at approximately (3) million tons, (400) thousand tons of which are allocated for pickling, while the rest is directed to oil, estimated at (0.4) million tons [8]. As for Iraq, olive productivity has increased recently as a result of doubling the area planted with olive trees and improving its production, as the number of olive trees is approximately (1,329,191 trees) divided among all the governorates of Iraq with a production of (33,912 tons), while the average productivity of one tree is (25.52 kg / tree), as Nineveh's share of olive production was ((9,183 tons with an average productivity of (31) kg / tree [9]. Olive oil is one of the products that need to improve local capabilities and develop them in order to supply the local and global market at prices that are consistent with consumer income [10] .

There are two types of oil: the first is extracted directly from the fruit, and the second is olive pomace oil:

First: Olive oil extracted directly from the fruit includes

A- Virgin olive oil: It is suitable for human consumption and includes.

•Extra virgin olive oil has a good smell and taste and an acidity of 1%-

•Regular virgin olive oil has the same properties as extra except that its acidity is 3%-

•-Virgin olive oil that is not suitable for consumption due to the high acidity of 3.3% has an unacceptable taste and smell, so it is used for lighting and is called lamp oil

B- Refined olive oil is extracted using refining techniques from virgin olive oil

C- Pure olive oil is a branch of refined with virgin and is suitable for consumption

Second: Olive pomace oil is formed by pressing the fruits with the use of organic solvents such as (petrin, trialin, hexane, naphtha) and is used in the soap industry[11][

(Olive oil and table olives) are produced worldwide annually between (17-22) million tons of olives. It is noted in Table (1) that production fluctuates between continents. Europe surpasses other continents in terms of total production of table olives and olive oil. The productivity level at the continental level is (1.77) tons/hectare, and for olive oil the average productivity is (0.3) tons/hectare from a geographical perspective [12].

In terms of consumption, Italy ranks first, consuming more than 22% of global production, followed by Spain, with a not-so-large difference in terms of consumption, at 18%. At the level of the

Arab world, the annual production rate of olives in Arab countries is estimated at approximately (3) million tons, (400) thousand tons of which are allocated for pickling, while the remainder is directed to oil, estimated at (0.4) million tons, i.e. one-sixth of the world's production [8].

Importance of the Research

The olive manufacturing sector has economic importance in achieving added value that contributes to increasing the national product and meeting the nutritional requirements of the population, due to the nutritional value of olives.

Problem Statement

The problem of the research lies in the fact that the low pressing costs per ton of olive crop, despite the small number of presses, reduces the added value and profits and increases unemployment among workers in the presses.

Materials and Methods

The research depends on two methods in the analysis, which are descriptive analysis through the theoretical aspect and quantitative mathematical analysis using mathematical formulas for economic standards, as data were relied upon from primary sources through questionnaire forms designed for this purpose, and a random sample was selected that included (5) mills in Nineveh Governorate out of a total of (20) mills at a rate of (25%) of the total operating mills in Nineveh Governorate through personal interviews with mill owners and diagnosing the problems and obstacles that hinder the manufacturing cycle and proposing possible solutions for them, in addition to secondary data, books, periodicals and scientific reports issued by government agencies related to the research topic and using the SWOT analysis matrix to identify strengths and weaknesses as internal factors and opportunities and threats as external factors. The analysis method depends on the mathematical formula represented by the added value [13]. Added value = production value - production requirements value.

Value is considered the real wealth added by the institution and shows the extent of its success in the process of integrating the elements of production. If the added value is large, this indicates that the institution has obtained a large production value with high quality performance due to its good exploitation of the production elements. On the contrary, if the added value is low [14], the added value measures are nothing but an application of economic profit. The added value also expresses the surplus value that results from the use of the production elements of labor and capital (technical and financial) [15]. The total added value criterion is one of the important indicators in distributing resources to various projects to achieve social benefits to enhance the national product. It is the difference between the total returns or revenues of the project and the intermediate costs. It is also calculated from the difference between the market price of goods and services produced by the project and the costs of resources, services and purchases outside the project, including production requirements [16]. It is considered the most important criteria for evaluating projects and the achieved added value represents the increase in national income. The gross domestic product is the same as the total added value indicator, which is the value of outputs minus consumption values. It is calculatedas follows: Total added value = Sales – Purchases.

Net added value is the value of production or output minus the values of consumption and consumption of fixed capital, meaning the total added value minus consumption or depreciation [17]. The research also relied on economic criteria, which are (average total added value), (average fixed costs), (average variable costs), (average total costs), (average revenue), (profits), (average net profits), (labor productivity), (wage productivity), (degree of manufacturing). These criteria take the following formulas: [18] ,[19]

1-Average total added value = Average net profits + Average labor costs

2-Average net profits = Profits / Production quantity

3-Average labor costs = Labor costs / Production quantity

4-Average fixed costs = Fixed costs / Number of units produced

5-Average variable costs = Variable costs / Number of units produced

6-Average total costs = Total costs (fixed costs + Variable costs) / Number of units produced

7 -Average revenue = Total revenue / Quantity sold

8 -Profits = Total revenue - Total costs

9 -Labor productivity = Value added / Number of employees

10 -Degree of manufacturing % = Total value added / Value of production x 100

The concept of value added has received great attention from economic researchers as a means of economic growth, and value added represents a measure of performance between the generated wealth added by the economic unit during a specific period of time [20]. The added value includes every commodity or agricultural product that is subject to changes in its physical condition in a way that improves its value and increases the customer base related to the product, or through its collection and marketing as a locally produced food[21]. In Mansour's study [22], the research aimed to analyze the basic features of the olive sector's economics in Syria, and recommended the need for the government to provide support in order to achieve agricultural development to improve the production of olives and olive oil. In another study [23] [, it aimed to analyze the value chain of the almond crop

in the Hebron Governorate by studying the inputs to almond production, in addition to studying the cultivated varieties, production, marketing, problems and proposed solutions that affect the agricultural sector and calculating profit margins for the most important varieties of almonds. It reached results, the most important of which is that 90% of farmers depend on rainfed agriculture and 10% depend on supplementary irrigation due to the high prices of water. He recommended directing technical and material support to all workers in the chain, while researcher Abdul Qader [24] in his thesis aimed to analyze the value chain of the olive crop And oil in Irbid Governorate, as well as identifying marketing channels and factors affecting production and identifying strengths, weaknesses, opportunities and threats facing the olive sector, and the most important results of the study were that production is greatly affected by the cultivated area, so the researcher recommended improving and developing the extension system and increasing the ability of farmers to access modern production inputs. In another study in Ethiopia, analyzing the value chain of wheat in the Dona and Hadia region in southern Ethiopia, the researcher used descriptive statistics, marketing margin and multiple linear regression model, where the results showed that the actors in the wheat value chain had a fluctuating relationship, as flour wholesalers had the highest market margin at (18.36%) and that wheat supplies are affected by the quantity of wheat produced, the level of education and experience and the price of The market and the research recommended enhancing value-added practices and forming wheat cooperatives, while the report of the International Center for Agricultural Research in the Dry Areas (ICARDA) aimed to prioritize local value chains by integrating ecological agriculture in northwestern Tunisia through data, which included three value chains: olive oil, honey, and sheep. The chain was evaluated according to agro-ecological principles with the main actors of olive oil in the Kef region. The results indicated that integrating agro-ecological principles into the business model enables it to quickly transform into ecological agriculture that encourages farmers to produce classified olive oil to improve its quality and enhance livelihoods [25], while the study of Fatwa [26] on the olive oil value chain in southeastern Tunisia targeted the relationship between the actors in the chain and the better performance and flexibility of the olive sector through questionnaires. The results indicated that the partnership between the private, public and community sectors is necessary in order to uncover technological and institutional developments involving olive oil value chains and enhance effective processes for the context of agricultural innovation.

Results and Discussion

Olive crop production at the level of Nineveh Governorate Olive cultivation is concentrated in the Nineveh Plain and parts of Nineveh Governorate. There are (900) farmers who own olive tree orchards, where the number of orchards ranges according to the data of the Nineveh Agriculture Directorate for the year 2023 (965) orchards, while the area of the orchards is (15990) dunums, as the orchards differ in terms of the number of trees and vary according to the cultivated area. There is an orchard containing (1500) trees and another orchard containing (600) or (900) trees. The quantities of olives are estimated at about (7000-5000) tons, with a productivity per tree ranging between (30-20) kg, as the lowest value of olive production in 2004 reached (1509) tons, while the maximum production level was in 2023, amounting to (10000) tons, with an increase of (4918.577) tons of average production, and there is a great trend towards the olive oil industry after equipping the Nineveh Agriculture Directorate in cooperation with the Food and Agriculture Organization of the United Nations with modern presses with a production capacity of one and a half tons per hour to produce approximately (300) liters of oil. The governorate is also distinguished by the production of olive oil, which is characterized by its quality and purity, as there are (18) government presses distributed among the agricultural divisions affiliated with the Nineveh Agriculture Directorate and (2) private presses. The following table shows the number of government presses at the level of Nineveh Governorate.

The production capacity of large-sized presses is (one and a half tons/hour), while the production capacity of smaller-sized presses is estimated at (300-500) kg/hour (i.e. 100) liters/hour. The largest proportion of olive products is allocated to the production of table olives, approximately 80%, while the remaining 20% is allocated to the production of olive oil of all types (regular virgin, extra virgin, and extra virgin).

Estimating cost items for the olive oil industry (presses)

These items consist of variable costs, fixed costs and total costs, as the information was obtained through the questionnaire forms prepared for this purpose. The following are the cost items for the presses for the 2023 production season in Nineveh Governorate

A Variable costs

Variable cost items include (quantities purchased from olives to produce oil, transportation, loading and unloading, costs of cleaning and washing olives, costs of fermentation, grinding, cleaning fermentation tanks, costs of pressing olives, costs of containers with commercial labels, packaging, cleaning of presses, water and electricity, transportation and distribution of oil), where the cost of purchasing olives allocated for oil production from farmers amounted to (247824000) dinars at the

sample level, while the costs of one ton of olive oil were (4000000) dinars/ton and (4000) dinars/kg, so the percentage allocated from the total olive production to oil production amounted to (20%) with a quantity of (619.56) tons, as the costs of the quantity purchased from raw olives to produce oil occupy the first place in terms of relative importance, amounting to (58.2%). Press owners can also be considered marketers through their purchase of olives at a price of The cost and pressing it in their own press, as for the costs of transporting the crop from the farm and loading and unloading in the press, it amounted to (15,489,000) dinars for the sample, while the average per ton amounted to (250,000) dinars/ton and (250) dinars/kg and represented the third rank in terms of relative importance, amounting to (3.6%), and in order to produce high-quality oil, the olive fruits are in their correct shape without breaking the shell during harvest, so the olive fruits are cleaned and washed with water to remove dirt, pesticides, leaves and stems accumulated during harvest, as some presses do not carry out the washing process, so it is pressed as it is, so pollution is transmitted through the water to the oil, so it is necessary to carry out cleaning operations to obtain high-quality oil. The cost of cleaning and washing the olives for the sample amounted to (12,391,200) dinars and (200,000) dinars/ton, and the cost of cleaning and washing per kilogram of oil (200) dinars/kg, and it represented the fourth rank in terms of relative importance, amounting to (2.9%). The crushing or grinding process of olive fruits is one of the basic steps to tear the fruit flesh cells to accelerate the release of oil. The costs of this process amount to (6195600) dinars at the sample level and (100000) dinars/ton. As for its cost per kilogram of oil, it amounted to (100) dinars/kg, at a rate of (1.4%), which is the same rate for fermentation costs. After the grinding stage, a paste is formed to which hot water is added to increase the flow of oil and it is pressed by presses to be squeezed. It is called the (fermentation) process, and its cost per sample is (6195600) dinars, per ton (100000) dinars/ton, and per kilogram (100) dinars/kg. The oil produced at this stage is called cold virgin oil. When using centrifugation, we obtain the remaining oil from the paste, and the costs of cleaning the fermentation tanks are (9293400) dinars, while for one ton it amounted to (150000) dinars/ton and (150) dinars/kg. These costs came in fifth place in terms of relative importance amounting to (2.1%), while the second place was occupied by the costs of the pressing process amounting to (14.5%), as the cost of the purchased quantity of olives at the sample level amounted to (61956000) dinars and (1000000) dinars/ton and (1000) dinars/kg. Also, the costs of the containers and trademarks of the oil product are similar to the pressing costs amounting to (61956000) dinars for the sample. Glass containers are considered the best containers for filling oil weighing (0.5 - 1) liters due to the impossibility of a chemical reaction between the filling material and the oil. The cost of the containers and trademark per ton amounted to (1000000) dinars/ton and (1000) dinars/kg, at a rate of It reached 14.5%). The cost of filling the sample was (1,239,120) dinars. It is preferable to transfer the oil in special tanks to preserve it for at least two weeks to avoid changes in its taste and then sell it. The cost of filling per ton was (20,000) dinars/ton. As for the cost of filling per kilogram of oil, it was (20) dinars/kg, at a rate of (0.29%). The basins of the press are cleaned periodically after the pressing process every 72 hours, to avoid spoiling the taste and increasing acidity in the oil product. The cleaning cost of the press was (900,000) dinars for the sample and (14,526) dinars/ton and (14,526) dinars/kg, at a rate of (0.21%). As for the electricity and water costs at the sample level, they were (450,000) dinars and (7,263) dinars/ton. These costs per kilogram were (7,263) dinars/kg. At a rate of (0.10%) of the costs, the process of transporting and distributing the oil product to the marketing outlets is considered one of the basic stages, and temporary labor is used specifically for this process (transportation and distribution), and its cost at the sample level amounted to (1,858,680) dinars, while the cost per ton was (30,000) dinars/ton and (30) dinars/kg, at a rate of (0.43%). Thus, the total variable costs amounted to (425,748,600) dinars for the sample, (6,871,789) dinars/ton, and (6,864,526) dinars/kg. As shown in the table(3)

B Fixed costs

The fixed costs include the following items (permanent labor costs, depreciation costs, interest on capital), where the permanent labor costs (management, guard, press operator, cleaner) at the sample level amounted to (18,350,000) dinars, and the cost per ton was (296,177) dinars/ton, while the production costs of one kilogram of oil amounted to (296,177) dinars/kg, and represented a percentage of (37.34%) of the total fixed costs, and as for the depreciation costs item represented by (press, buildings, generator), it amounted to (2,000,000) dinars for the sample as a whole and (32,280) dinars/ton, while the cost per kilogram amounted to (32.28) dinars/kg, and a percentage of (4.07%) of the total fixed costs. As for the interest on capital (8%) for the sample, as shown in Table (4), it amounted to (28,782,400) dinars and (464,561) dinars/ton, and it occupies the first place in terms of the relative importance of fixed costs at a rate of (58.58%), as the cost of interest on capital per kilogram amounted to (464,561) dinars/kg. The total costs (fixed costs, variable costs) amounted to (47,488,100) dinars at the sample level, while for one ton they were (6,774,807) dinars/ton and (7,657,544) dinars/kg.

Profits, revenues and added value of olive presses

The owners of the presses (manufacturers) obtain revenues through the pressing fees obtained from

different parties, which are (farmers, wholesalers, and the owners of the presses themselves). The pressing fees for one ton of raw olives are estimated at (140,000) dinars/ton, in addition to the sale of olive waste called (olive pomace) used for fertilization and fodder purposes. The revenues achieved from the olive presses at the sample level amount to (619,560,000) dinars, and the average profit per ton amounted to (10,000,000) dinars, which represents the share of the production unit of the added value, as the total added value amounted to (193,811,400) dinars for the sample as a whole, while its amount per ton amounted to (3,128,210) dinars/ton. The percentage of the added value to the production value (sales) was calculated as shown in Table (5), as its amount was (31.28%) for the sample and (31.28%) per ton, and this criterion shows the importance of the added value of the sales value of the olive product, the higher this percentage is, the better the level of sales. While the percentage of profits to the added value is (74.64%) at the sample level and per ton alike, as this criterion indicates the importance of profits as one of the elements of the added value of the total added value achieved through sales in the markets, and the degree of manufacturing represented a percentage of (31.28%) at the sample level and per ton, which represents the percentage of the contribution of the total value of the requirements compared to the total value of production and is called (the degree of manufacturing). This criterion reflects the degree reached by the economic unit, as the percentage was low, which indicates a high degree of manufacturing and that there is a distribution of economic resources.

Strengths, Weaknesses, Opportunities and Threats of the Olive Press Manufacturing Cycle in Nineveh Governorate (SWOT)

The SWOT analysis matrix is considered an important planning tool for dealing with the changing environment, as it evaluates the environmental conditions (external, internal) through relative strengths, relative weaknesses, opportunities, and future external threats [27]. The most important points of the SWOT analysis were reached through meeting with the owners of the presses, relying on the questionnaire form for the manufacturing cycle, which is shown in Table (5). The most important strengths are the availability of suitable lands for growing high-oil (Spanish) olive varieties in Nineveh Governorate in addition to the Arab varieties, which achieves a surplus that can be exported Arab and international, while the weaknesses were represented in the prevalence of old techniques for pressing, packing and packaging olives manually, in addition to the lack of awareness of producers of quality standards in the market and the poor coordination between farmers and olive press owners, which causes delays in pressing, thus reducing the quality of olive oil. The most prominent opportunities for the olive press sector were represented in the possibility of benefiting from the waste of the presses, especially after pressing the olives called (olive pomace) and selling it as fertilizer to farmers, and some of them use it as fuel, as it is recommended In consuming olive oil for its health benefits for the human body and reducing the use of other hydrogenated vegetable oils that cause health problems. The threats facing the olive oil sector are important and must be addressed or treated. They are represented by the competition of imported oils with local olive oil, in addition to the high cost of transportation from production areas or presses to consumption areas, markets and shops. In addition to that, the high prices of local oil, which causes consumers to buy imported olive oil, and the consumer's lack of confidence in the local product causes them to refrain from buying it.

Conclusions

Based on the results:

1- It was found that the presses (traditional processing units) are an important sector, especially for small farmers, as they are close to their olive farms. However, the manufacturing costs were high, which caused them to make small profits and sell the product at relatively high prices
2- The added value of the sales value is also high, which indicates a good level of sales.
3- The high wages of untrained workers cause delays in picking during the harvest period, which leads to the loss of part of the crop designated for extracting oil, which makes it lose its good properties.
4- The increase in the areas planted with olive trees requires an increase in the number of presses to extract oil to keep pace with the increase in local demand for olive oil, which contributes to raising the value of the local product and selling it at prices that compete with global prices.

Recommendations

1- Supporting investment in the olive oil industry according to the latest international specifications, which contributes to increasing profitability for farmers.
2- providing government financial support through soft agricultural loans to purchase modern machines for harvesting olives and reducing losses from manual harvesting (sticks, ladders).
3- Providing international varieties that suit the local environment and have high productivity.
4- Promoting the local product in foreign markets by participating in international exhibitions and international markets specialized in olive oil products.

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Table 1. Average productivity of table olives and olive oil per hectare for the years (2014-2018)

The Continent	Table Olive Productivity (tons/ hectare)	Olive Oil Productivity (tons/ hectare)
Africa	1.80	0.14
Europe	2.01	0.41
Asia	1.01	0.19
America	2.21	0.36
Australia	3.67	0.56
World Average	1.77	0.30

Source: Juan & Jorge ,2019.

Table 2 . Number of presses in Nineveh Governorate

NO.	Location of The Press	Number
1	Bashiqa Agriculture Division	6
2	Northern Agriculture Division	1
3	Hamadaniya Agriculture Division	1
4	Mahalabiyya Agriculture Division	1
5	Al Qosh Agriculture Division	1
6	Zummar Agriculture Division	1
7	Shekhan Agriculture Division	1
8	Nimrud Agriculture Division	1
9	Hammam Al Alil Agriculture Division	2
10	Nineveh Horticulture Station	1
11	Forest Nursery	1
12	Agricultural Research Unite	1

Source: Prepared by the researcher based on data from the Ministry of Agriculture ,Nineveh Agriculture Directorate ,Agriculture Statistics Department.

Table 3. Variable and fixed costs of olive presses in Nineveh Governorate for the production season2023

NO.	Cost Type	Cost items of olive oil manufacturing cycle	Cost per sample (dinar)	The cost of producing one ton of olive oil (dinar)	The cost of producing one kilogram of oil (dinar)	Relative importance % of costs
1	Variable Costs	The cost of the purchased quantity of olive fruits to produce oil	247824000	4000000	4000	58.2
2		Transportation, loading and unloading costs	15489000	25000	250	3.6
3		Costs of cleaning and washing olives	12391200	200000	200	2.9
4		Grinding costs	6195600	100000	100	1.4
5		Fermentation process costs	6195600	100000	100	1.4
6		Fermentation tank cleaning costs	9293400	150000	150	2.1
7		Olive pressing costs	61956000	1000000	1000	14.5
8		Adapt packaging to commercial labels	61956000	1000000	1000	14.5
9		Packing costs	1239120	20000	20	0.29
10		Costs of cleaning the press after the pressing stage	900000	14526	14.526	0.21

11		Water and electricity costs	450000	7263	7.263	0.10
12		Oil transportation and distribution costs	1858680	30000	30	0.43
Total variable costs			425748600	6871789	6864.526	100%
NO.	Fixed cost items					
1	Fixed cost	Permanent labor costs	18350000	296177	296.177	37.34
2		Extinction costs	2000000	32280	32.28	4.07
3		Interest on capital	28782400	464561	464.561	58.58
Total fixed costs			49132400	793018	793.018	100%
	Total total cost		474881000	7664807	7657.544	----------

Source: Prepared by the researcher based on the questionnaire form

Table 4. Revenues, profits, gross and net added value, and degree of processing of olive presses in Nineveh Governorate for the production season 2023

NO.	Economic criteria	The value of the sample (dinar)	Average per ton(dinar)
1	Total revenues	619560000	10000000
2	Total costs	474881000	7664807
3	Variable costs	425748600	6871789
4	Fixed costs	49132400	793018
5	Profits	144679000	2335193
6	Total value added	193811400	3128210
7	Net value added	191811400	3095929
8	Ratio of value added to value of production	31.28	31.28
9	Profit to value added ratio	74.64	74.64
10	Manufacturing grade%	31.28	31.28
11	Worker productivity from added value	3230190	52136

Source: Prepared by the researcher based on the questionnaire form

Table 5. Strengths, weaknesses, opportunities and threats (SWOT) of the manufacturing cycle (contemporary) of the olive crop in Nineveh Governorate for the production season 2023

Internal factors	
Weaknesses	Strengths
• The dominance of ancient techniques for pressing olives and bottling and packaging oil • Lack of awareness of producers about quality standards in the market • Poor coordination between farmers and olive press owners, which causes delays in pressing and thus reduces the quality of olive oil • Limited cash flow to producers and lack of financial planning capabilities	• The presence of suitable lands for growing imported (Spanish) olive varieties. • Providing varieties of olives with the desired taste for the local consumer • The local olive variety (Bashiqi) has a good taste and flavour, so it is preferred by the local consumer • Introducing Arab and international varieties in Nineveh Governorate to expand the production of olive oil
External factors	
Threats	Opportunities
• Imported olive oil competes with local olive oil in the markets • High transportation costs from production areas to distribution areas • High price of local oil compared to foreign oil • The local consumer's lack of confidence in the local product due to the adulteration of olive oil and mixing it with other types	• The possibility of recycling industrial waste from olives after pressing them and using them as fertilizer or fuel • Encouraging the consumption of olive oil for its health benefits and reducing the consumption of imported oils • Develop a marketing plan to export surplus olive oil • Increased growth of olive products in local markets

Source: Prepared by the researcher based on the questionnaire form