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## Main Types of Olives Grown in Lebanon

|                                      |   |
|--------------------------------------|---|
| <b>Soury/Souri/Sourani</b>           | Found primarily in the North and in the Mount Lebanon area with a medium and alternate productivity<br>Used for producing good quality oil<br>Characterized by its medium to high oil yield |
| <b>Samakmaki</b>                     | Grown in the South<br>Distinguished by its small sized fruit that ripens late   |
| <b>Airouni/Ayrounis/Little Soury</b> | Very widespread<br>Characterized by its small fruits which give a very low yield of peppery oil   |
| <b>Baladi</b>                        | Found extensively in the North<br>Mistaken for the Soury  |
| <b>Chami</b>                         | Originated in Damascus<br>Characterized by its early ripening which is suitable for table olives  |
| <b>Edlebis</b>                       | Originated from the region of Edleb in Syria  |

Source: USAID Report

Spirituality appears to flow through the branches of the olive tree. It has been used as a religious symbol of peace, life, fertility, and renewal. In ancient Greece, courageous soldiers were honored with a crown made of olive twigs. The first Olympic torch was a burning olive branch. Romans used this branch as a symbol of peace and the tree was considered so sacred that those found guilty of cutting one down were condemned to death or exile. In the temples of Baalbek, in Lebanon's Bekaa Valley, olive oil was offered to the gods at the end of a good harvest to give thanks. Moreover, in 2000, olive groves were planted right up the barbed wire border with Israel, after the latter withdrew from Southern Lebanon, after an 18-year occupation. Liberation, rebirth, renewal, and peace can be symbolized by the olive tree.

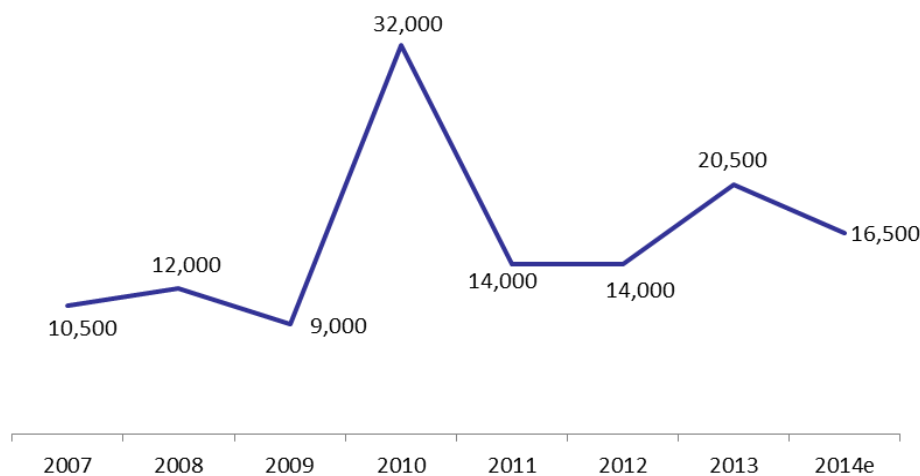
Lebanon is renowned for its opulent olive orchards dating back centuries. The northern villages of Amioun and Bshaale are home to some of the oldest olive trees in the world, many of which date back at least 1,500 years. Although the origin of the olive tree is still unidentified, some theories suggest that the olive was first cultivated on the shores of the Mediterranean along the coasts of Lebanon and Palestine, and the Phoenician settlements were the first to domesticate and adapt the wild olive tree to cultivation. As far back as 1600 BC, Phoenicians introduced the olive tree to Greece and then to Italy, France, Spain and finally North Africa.

Olive trees occupy an area of 563 km<sup>2</sup> (56,300 ha) in Lebanon, which represents 5.4% of the country's territory, or 8% of total agricultural lands. Olive groves are grown in 6 major regions, extending from North to South: Batroun, Koura, Zgharta, Akkar, Rashaya el Foukhar, and Hasbaya, in addition to several other subordinate areas. More specifically, around 41% of olive oil production takes place in the North, followed by Nabatieh with 21% of total production, 15% in the South, 13% in the Bekaa, and 10% in Mount Lebanon. Each region offers its produce a special taste native to the specifics of its land. There are about ten olive varieties grown in Lebanon, which produce high quality, flavorful oil.

Lebanon's olive trees are on average 150 years old and are mostly rain-fed. Only 8% of the olives cultivated area is irrigated. This is mainly due to the fact that rainfall is relatively abundant in the country at an average of 2.2B m<sup>3</sup> per year. Around 70% of the olive production is destined to the production of olive oil, and the remaining is destined to the production of table olives. The oil productivity of Lebanese olives ranges from 18-25%. Additionally, as a rule of thumb olives harvested in October and November produce higher yields than those harvested earlier or later in the season. The milling process also affects yields: modern mills extract between 8-12% more oil from the olive at each stage, including oil that must be refined, and pomace oil.

Lebanon's olive oil industry is worth \$70M, with an average annual production estimated to be around 20,500 tons. This market is highly competitive, with around 544 registered oil mills in Lebanon, and 110,000 olive farmers and growers. However, full-time farmers, whose only occupation is cultivating olive trees, are only 340. Many families own a small piece of land of at least 1,000 sqm, and use it to cultivate oil for extra revenues.

### Yearly Olive Oil Production in Lebanon (in tons)



Source: International Olive Oil Council

There has been an evolution in the production of the Lebanese olive oil throughout the years. Between 1990 and 2007, olive oil production range between 2,000 tons and 8,000 tons. It began rising starting 2007, with an observable jump in 2010, reaching 32,000 tons. This hike was mainly due to the increased tourism activity that Lebanon experienced through that year, which was satisfied by locally produced olive oil and foreign olive oil bottled in Lebanon. Olive oil production remained growing in the past 4 years, due to the increase in demand and price. As consumers are now more informed about the benefits of organic and extra virgin olive oil, demand for this commodity increased. Moreover, the hike in the price of olive oil encouraged olive oil suppliers to take better care of their orchards and increase their production.

There are many estimates of the olive oil production in Lebanon with a large discrepancy between different sources. In particular, the quantity produced in 2010 shows the largest divergence. While the International Olive Oil Council states it to be 32,000 tons, FAO estimates it at 20,000 tons and the US Department of Agriculture approximates it at 14,000 tons.

Olive oil production varies from one year to another, due to the variability of the productivity by nature of the crop, as well as the current practices of the farmers. In high production years, olive trees can yield around 22,000-23,000 tons. This number drops to 18,000-19,000 tons in low production years.

According to Mr. Sleiman Daher, President of the Olive Producers Cooperative in Zgharta, the variability of olive oil production from year to year is due to the fact that olive trees are rain-fed. According to a study done by him, the yield of the olive tree would increase by more than 10 times, from 7 kg to 100 kg, if the tree was irrigated instead of only depending on rain.

Different qualities of olive oil can be produced, the best being extra virgin olive oil. Extra virgin olive oil should be produced by olives that are free of any disease, harvested at the right time, and processed immediately. If the olives are picked from the ground instead of the tree, the quality of the final oil is compromised. No chemicals should be added to the oil, and the final oil has to pass a large number of tests and meet a range of strict standards, to be considered extra virgin.

### Qualities of oils Derived from Olives

|                               | Origin  | Oleic Acid          | Peroxide Content |
|-------------------------------|---|---------------------|------------------|
| <b>Extra Virgin Olive Oil</b> | Zero defects, derived from olives using only mechanical process - no solvents | less than 0.8g/100g | less than 20     |
| <b>Virgin Olive Oil</b>       | derived from olives using only mechanical process - no solvents               | 0.8-2g/100g         | less than 20     |
| <b>Blended Olive Oil</b>      | Blended virgin and refined olive oil  | 2-3.3g/100g         | less than 15*    |
| <b>Refined Olive Oil</b>      | Oil obtained from low quality virgin olive oil through refining process       | 0.3/2g/100g         | less than 5*     |
| <b>Olive Pomace Oil</b>       | Extracted from olive husk after milling. Inedible oil.                        | 1g/100g             | less than 15     |

\*Refined oils and oils blended with refined oil have a lower peroxide content due to the refining process

Source: International Olive Oil Council

Olive oil producers in Lebanon vary in size. The smaller the size of the land is the more the practices adopted are traditional, leading to lower efficiency and productivity.

Around 77% of olive producers are small growers, managing olive orchards of 5,000 sqm or less. These producers usually work on their own land, and follow traditional production and orchard management practices. Their produce is mainly consumed by the households and sometimes distributed to friends. In some cases, excess oil is sold to mills or other customers and suppliers.

Medium growers have larger orchards between 6,000-10,000 sqm. Farmers in this category implement better agricultural practices and professionally manage their land, incurring a higher production cost per hectare. A fraction of growers do not actually work on the land themselves, and instead hire people to manage all phases of production up to harvesting. After their household consumption is removed, medium producers have significant surplus production. Part of it is sold through their personal network of family and friends. What is left is stored for a significant period of time, leading to a degradation of its quality. Unlike many wines, which improve with age, extra virgin olive oil is perishable: like all natural fruit juices, its flavor and aroma begin to deteriorate within a few months of milling, a decline that accelerates when the oil is bottled. This is then sold in larger volumes to olive oil traders or commercial bottlers at a relatively low price.

Large growers, who own fields greater than 10,000 sqm, represent 9% of Lebanese olive farms. The largest areas are owned by large families, religious institutions, or major oil bottlers and traders. These institutional growers are usually highly efficient in managing their orchards. They own machinery and harvesting equipment that reduces their unit cost and increases productivity. Because of their greater efficiency, these large growers produce more than half of total oil produced in Lebanon. Their sales strategies are almost the same as medium farmers: a small initial amount is sold at high prices directly to households with the remainder being sold to traders or bottlers at much lower prices.

Very few large producers have made the required investments in milling technology, bottling, effective branding, and distribution to operate as fully integrated olive production, milling, and bottling enterprises. They apply better and more efficient farming practices; their production is entirely channeled to their own milling and bottling operations, which may also involve purchasing olives from other farmers for milling, as well as olive oil for bottling.

Instead of farming their own orchards, growers or owners have the option to sell their potential harvest to a middleman prior to the actual harvest season. This is known as "Daman". There are two types of daman: the middleman does all the necessary work and get the harvest, as if he is renting the land with the olive trees in it. The other type of middleman agrees to purchase the olives on the tree from landowners 1-2 months prior to harvest. If the production is high, the middlemen have more power and can negotiate to pay back one-third of the harvested olive or oil to the farmer. In low productive seasons, the farmer has the upper hand and can command a higher share of almost 50%, since his product is in higher demand. Harvesting middlemen are necessary actors especially for farmers who cannot afford harvesting and transportation costs that account for up to half the total production costs of olive oil.

After harvesting the olives, the crop is sent to mills. Most of these mills are traditional and privately owned by individuals and companies. If paid in-kind, mills keep 10% of the oil produced. Some farmers or middlemen allow the mill to trade their oil, as the mills are usually important selling points of unbranded oil to urban clients that trust and recommend particular mills.

Cooperatives also offer milling services to farmers for a 10-20% reduction in price compared to private service mills. They do not serve as important loci of olive oil sales, however, as members prefer to sell on their own rather than through a cooperative. This reflects the hesitancy of members to mix their own oil with that of other members and the fact that small producers are able to sell oil at extremely attractive prices through personal and family relationships. Worth mentioning that cooperatives succeeded in attracting foreign funds to the olive oil sector, such as that of the USAID and of the Italian government.

The supply chain is completed with the bottlers and exporters. In addition to bottling their own olive oils, market players at this stage also provide bottling and branding services of oils from other farmers. Then the bottles are sent to for domestic consumption and part is exported. However, due to the lack of regulation and to decrease their costs, some bottlers mix the Lebanese olive oil with cheaper oil imported from Syria or Tunis.

The Lebanese market is divided into 3 main parts: direct sales from farmer to consumer, HORECA, and retail. Around a quarter of total olive oil production is estimated to be sold through direct sales to households. The demand on high quality extra virgin olive oil increased throughout the years due to higher consumer awareness regarding positive attributes of extra virgin olive oil. The overall consumption did not really change though.

The domestic market for olive oil is serviced predominantly by Lebanese oil, much of which is sold at premium prices directly from the producer to the consumer. Demand is estimated to be around 4.5 kg/person/year, which amounts to about 18,000 tons in total per year. Lebanese consumers have a distinct preference for locally produced oil, and tend to buy olive oil in bulk from trusted family or neighbors with whom they have an established relationship.

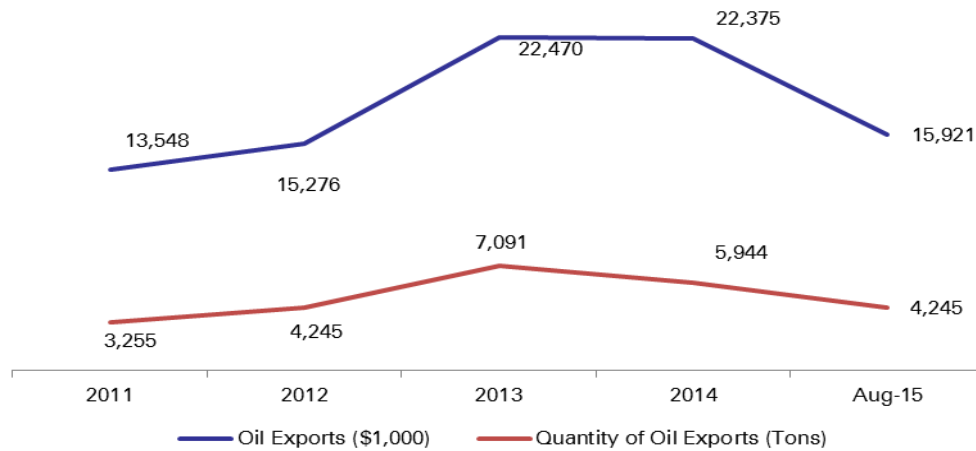
The demand of hotels, restaurants, and catering services is a major one, however it varies greatly from year to year as it is highly affected by tourism. This demand is satisfied either through direct sales channels or by olive oil traders who specialize in lower quality oil.

Finally, the retail market is generally accessed either through distributors or through the brand owner's own contracts. Profit margins ranges between 20-25% for supermarkets and up to 50% for traditional neighborhood shops and grocery stores, which are easier to access.

On the international front, Lebanon has been a net exporter of olive oil for more than 5 years, with a surplus in the trade balance of \$3.03M, up to August 2015. Olive oil trade balance stood at \$8.99M in 2014, 22.47% lower than its value in 2013.

Lebanon exported 4,245 tons of olive oil by August 2015, worth \$15.92M. In 2014, olive oil exports stood at 5,944 tons worth \$22.38M, compared to 7,091 tons worth \$22.47M tons in 2013. In 2014, 28.34% of Lebanese olive oil exports were sent to Saudi Arabia, 16.63% to the United States, and 10.08% to the United Arab Emirates.

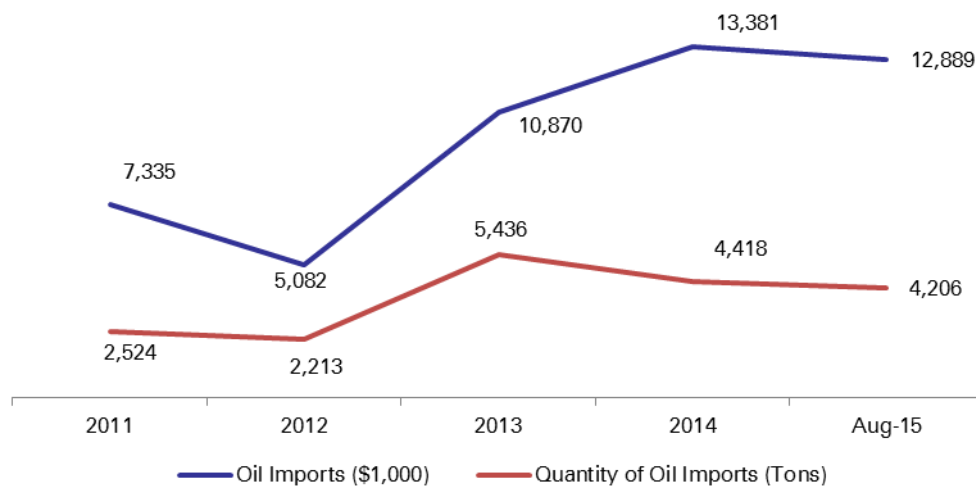
## Olive Oil Exports



Source: Customs

As for imports, they reached 4,206 tons worth \$12.89M in the first 8 months of 2015. In 2014, Lebanon imported 4,418 tons worth \$13.38M, compared to 5,436 tons worth \$18.87M in 2013. 50.74% were imported from Syria, 46.21% from Tunisia, and 1.02% from Saudi Arabia.

## Olive Oil Imports



Source: Customs

The reason for the dominance of Arab olive oil importers is the free trade agreement between Arab countries. Under the Greater Arab Free Trade Area (GAFTA) Agreement, and starting in January 2005, all agricultural products follow a zero-tariff regime. However, some exceptions still hold under the Lebanese-Egyptian Trade Agreement, whereby olive and olive oil from Egypt is not permitted to enter the Lebanese market.

As for olive oil imports from other countries, they are subject to a 70% custom duty and a minimum fee of L.L. 6,000 per liter. Imported olive oil from the European Union is still exposed to this tariff, even after the removal of custom duties on European imports.

In the case of Lebanon exporting olive oil to the EU, it can sell up to a quota of 1,000 tons with a 100% reduction on custom duty and ad valorem tax. However, exports of Lebanese olive oil to the EU are much less than 1,000 tons, due to the high regulations and qualifications imposed by the EU. It is a bit hard for Lebanon to increase its olive oil exports because it produces a small quantity, and cannot guarantee the same quality each year.

The olive oil sector in Lebanon is facing many challenges leading local producers to have a surplus of around 4,000 tons to 5,000 tons per year. This is due to many reasons, mainly lower local demand and fierce competition from foreign olive oil.

In the 1960s, demand for olive oil was much higher, at 10kg/person. The decrease in demand results from the difference in lifestyle people follow, in which they do not buy anymore a big quantity of olive oil and store them in pantries as their ancestors used to do. In addition, due to the high price of olive oil, people are substituting it for other cheaper types of oil such as soy, vegetable, or canola.

Moreover, Lebanon's olive oil has been threatened as cheaper foreign products are being allowed to flood the domestic market. Lebanon has seen a decrease in demand for local olive oil over the years due to high cost of production, making way for imported products to sway consumers. According to Mr. Daher, Lebanese olive oil is being sold between L.L. 150,000-200,000 per tank (15-16.5 kg). A Syrian tank, however, costs only \$45.

According to Mr. Youssef Fares, general manager of Olive Trade, the main challenge facing the olive oil market in Lebanon is the lack of authenticity control, meaning the absence of official characterization whether the olive oil is genuinely of Lebanese origin. Lebanon's high cost of olive production has negative consequences for its competitiveness in the domestic and international markets. To compensate for this constraint, Lebanon imports inexpensive oil from other Mediterranean olive oil producing countries, where the cost of production is much lower. Such imports profit bottlers, who mix lower priced imported oil with Lebanese oil to reduce costs and sell into both domestic and international markets. Lebanon does not impose any traceability or labeling requirements with regards to origin, making it easier to blend oil imported from abroad that may be lower in quality.

Another impediment facing Lebanese olive oil farmers is the lack of help from the public sector. For instance, plans to construct dams (Darb Ashtar and Bshenin) to irrigate the olive orchards have been in place since the 1960's, however they have not been built yet. The government should give financial support since turning a traditional mill into an automated one can constitute a hefty investment depending on the capacity and sophistication. Moreover, the government should help farmers prevent their olive trees to be contaminated by a fungal disease called "peacock's spots".

To overcome these hindrances and improve this sector, authenticity control programs that would characterize the Lebanese olive oil should be established. "Protected Designation of Origin" (PDO) certification, similar to the Appellation d'Origine Contrôlée designation in French wines and extra virgin olive oil, should be launched to distinguish Lebanese olive oil from imported oil that is bottled in Lebanon.

The quality of olive oil should be tested, to educate the consumer on the product being bought. Although the first Lebanese National Laboratory for Olive Oil Testing was inaugurated in June 2014 in Kfarshima by the Agriculture Ministry, in line with a project funded by the Italian Embassy in Beirut. Mr. Daher said that this laboratory is not being used. Moreover, an organoleptic panel of tasters should be accredited to ascertain the quality of olive oil.

As with wine, olive oil should be marketed so as each style would fit a certain type of meal. A powerful oil, described as "robust," "early harvest" or "full-bodied", could accompany foods with strong or distinctive flavors, such as meat and salads. A milder oil, often called "mild," "delicate fruit," or "late harvest", could be chosen for foods like fish, chicken or potatoes.

There are growth opportunities in the olive oil sector due to higher awareness that will attract consumers towards high-end product. For instance, productions of extra virgin olive oil and organic growth hold favorable prospects and have a growing export potential. Currently, around 300 km<sup>2</sup> of land is dedicated to the production of organic olive oil.

Olive oil is amongst the most prominent Lebanese signature agro-industrial products, and a proud part of the country's history and culinary tradition. Lebanon's diverse topography, fertile soil, microclimates, and olive varieties allow farmers to produce uniquely flavored products. This sector should be regulated and standards should be elevated in order for the olive oil to reflect an image of Lebanon being specialized in high-end products to justify higher price tags.

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