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# Olive Oil Sector in Albania and Its Perspective

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## 1. Introduction

Albania, situated on the eastern shore of the Adriatic Sea, may be divided into two major regions: a mountainous highland region (north, east, and south) constituting 70% of the land area, and a western coastal lowland region that contains nearly all of the country's agricultural lands and is the most densely populated part of Albania. Due to the mountains landscape and especially because of its many divisions, the climate varies from region to region. It is warmer in the western part of the country which is affected by the warm air masses from the sea (the Adriatic coastal region has a typical Mediterranean climate). This climate makes Albania an important producer of olives and olive oil for the region.

The transition of Albanian economy from a centrally planned to a market economy is associated with the implementation of a considerable number of structural and institutional reforms necessary for a sustainable market economy. Trade liberalization policies were implemented associated with elimination of price controls as the economy was decentralized to balance the supply and demand of goods and services.

Despite the progress made, especially in terms of macroeconomic and financial stability, Albania continues to have one of the lowest levels of income per capita in. In addition, there is a big income gap between rural and urban areas, since the agricultural sector comprise about 58% of total labour force and count for 25% of Albania Gross Domestic Product (INSTAT, 2010). Albania's economic growth can be achieved primarily through strengthening the agricultural sector. The current macroeconomic situation along with the climatic, geographic, and cultural advantages as comparable to neighbouring countries provide the opportunity for a fast and sustainable growth of the agricultural sector. Even though the olive production does not take a large share in the total agricultural production, it is an industry with huge potentials that has been steadily growing during the years.

Like many of the other agricultural products, the major supply of oil (vegetable and olive) in Albania comes from imports. This is because of the inconsistent and unreliable supply of

local raw material needed for the oil processing industry. In addition, the distribution infrastructure linking to the markets is also poor. With current prices and expected yield, the farmers do not have the incentives to grow oil-bearing plants because of the low economic returns. Furthermore, many processing plants had been destroyed after the 1990s. However, if Albania reaches an average yield, similar to that of its neighbouring countries (Greece and Italy), there will be a great potential for Albania to develop an olive industry comparable to its neighbours with similar climatic and soil conditions. To make this a reality olive productivity has to increase along with a favourable marketing situation conducive to exports. The surface plant with olives is 42 thousand hectares, with a total number of olive trees of around 5 million. Because of the insufficient services olive tree have low growth rates with a very high yield fluctuation. The result is small quantity and low quality olive oil. Almost 10.3 million US \$ have been invested in the olive oil processing industry since 1992. The major part of the processing machinery in use is obsolete.

The olive and olive oil sector is an important segment of Albanian primary production and agro industry. Primary production of olives accounts for approximately 16% of total fruit output in value, including grapes. The number of planted trees is nearly 5 million and is rapidly increasing, as a response to sustained demand, good prices and government subsidies for expanding the production base.

Official data on olive oil production show an output ranging between 6,400 Mt (Million ton) in bad harvest years and 11,900 Mt in good harvest years. There is a structural production deficit of approximately 1,000 Mt per year, mostly covered by imports of bottled olive oil from Italy and other EU countries. Main production areas of olives for olive oil are in the center and south of the country. In these areas, 90% to 95% of cultivars are for olive oil production. (Leonetti et al, 2009)

Processing industry has a specializing and modernizing trend, producing mostly olive oil and table olives (15-20% of total olive production). Official data for 2009 show that there are 108 enterprises processing all edible oils including olive oil, and 16 enterprises processing table olives. The structural deficit of table olives is covered mainly by imports from Greece.

## 2. Olive cultivation in Albania

Albania is one of the few countries in Europe and the only country in the Central-East Europe that has the favourable climatic and geographical conditions for olive cultivation. The olive cultivation story in Albania is very old. The people of the rural areas are used with the cultivation of olives, and a good tradition has been heritage from one generation to the other.

The demand for olive oil and table olives in the domestic market is very high. On the other hand, with an adequate technological improvement in the olive processing industry, this product could be traded in the international market.

Olives are among the most important fruit tree crops grown in Albania, covering an estimated 8% of the arable land. As shown in Figure 1, the Albanian olive production zone covers the entire coast from Saranda (South) to Shkodra (North) and inland river valleys in the districts of Peqin/Elbasan, Berat/Skrapar, and Tepelene/Permet.

Olive tree in Albania is cultivated in the regions along the western coastal lowland. Geographically 3.3% is cultivated in the plain zone and 96.7% in the hilly zone. In 77% of the

farms olives are cultivated in organized plantations whereas in the remaining 23% of the farms this culture is found in a not organized form. The olive concentration in plantations gives the possibility for more careful services and the use of adequate technologies. According to the data taken from INSTAT (Institute of Statistics, 2008), the dynamic of the surface and the number of the olives during the years is as follows.



Fig. 1. Map of Albania showing olive cultivation area (USAID, 2011)

According to Figure 2 the surface of olive plantation and the number of olive trees has increased by four times in the year 1990 compared with the year 1938. After the 1990s, as the result of the late processing of the Land Agrarian Reform in this sector, the olive production industry has suffered a lot of considerable damages. As many other sectors of the country's economy, this sector was characterized by a visible depreciation in the main indicators. Huge olive blocks like those in Fier, Mallakaster, Berat and Lushnje were burned and destroyed. The transformation of the State Farms into private economies in this sector of the economy has been very slow. Even today, there are regions where the reform changes have not yet been completed. Table 1 shows olive production and yield in the main regions of the country and Table 2 describes in numbers the overall country situation.

Although there has been a considerable investment in the new olive plantations, the production investments and the services for this culture have been minimal. Today the olive production has low and fluctuating yields. The extensive character of the olive cultivation and the insufficient treatments that are usually done to the olives are the cause of this phenomenon. The yield fluctuation in the olive production has been and still is a serious phenomenon for our country. According to statistical data, the ratio between an "empty" year (year with very low production) and the year with a good production is very high.

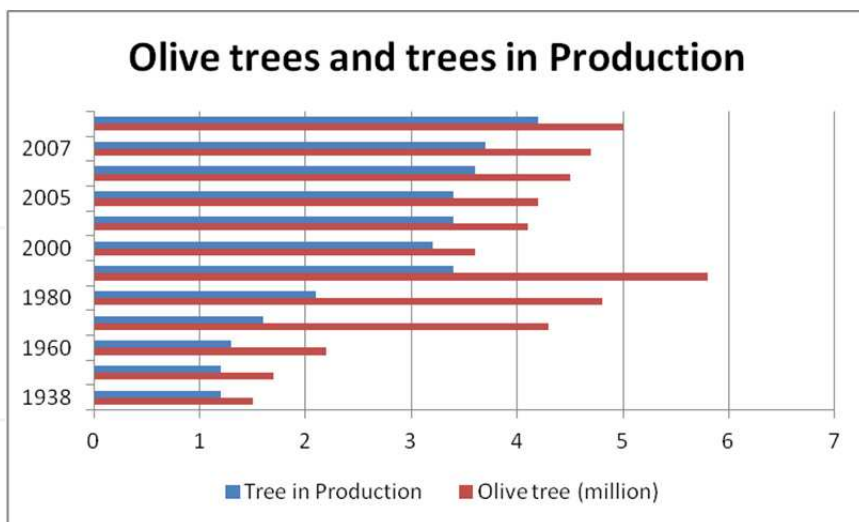


Fig. 2. Olive trees and trees in production for the period 1938-2008 (INSTAT, 2010)

Nr	Region	Number of olives (000 trees)		Yield (Kg/tree)	Production (Ton)
		Total	In production		
1	Berat	628	492	22,0	10841
2	Vlorë	532	495	13,0	6436
3	Elbasan	364	331	10,0	3315
4	Fier	347	311	12,7	3955
5	Tiranë	318	294	9,1	2664
6	Sarandë	312	310	6,6	2048
	<b>TOTAL</b>	<b>2501</b>	<b>2233</b>	<b>13,1</b>	<b>29259</b>
	<b>REPUBLIC</b>	<b>3564</b>	<b>3200</b>	<b>13,1</b>	<b>42012</b>

Table 1. Olive production data for the main regions 2009 (Ministry of Agriculture, Food and Consumer Protection, 2010)

Nr.	Region	Number of olives (000 trees)		Yield (Kg/tree)	Production (Ton)
		Total	In production		
1	Berat	628	492	22,0	10841
2	Delvinë	127	126	3,3	419
3	Durrës	57	52	19,3	1004
4	Elbasan	364	331	10,0	3315
5	Fier	347	311	12,7	3955
6	Gramsh	2	2	20,3	31
7	Gjirokastër	5	4	34,4	150
8	Kavajë	75	75	13,4	998
9	Kruje	104	87	4,5	393
10	Kuçovë	39	37	20,4	753
11	Laç	10	10	13,0	126
12	Lezhë	18	15	9,9	148
13	Lushnjë	227	209	19,5	4070
14	Mallakastër	197	161	20,9	3362
15	Peqin	65	64	6,5	412
16	Përmet	2	1	12,8	15
17	Sarandë	312	310	6,6	2048
18	Skrapar	1	1	11,6	14
19	Shkodër	93	81	6,0	485
20	Tepelenë	43	43	8,6	373
21	Tiranë	318	294	9,1	2664
22	Vlorë	532	495	13,0	6436
	<b>TOTAL</b>	<b>3564</b>	<b>3200</b>	<b>13,1</b>	<b>42012</b>

Table 2. Number of heads, yields and olive production according to the regions, 2009 (Ministry of Agriculture, Food and Consumer Protection, 2010)

### 3. Olive age and cultivars in Albania

According to the age of the olives there is a visible distinction that divides the olive plantations into two groups;

1. Centennial olive plantations are mainly found in the urban areas of Sarandë, Vlorë, Berat, and Elbasan. These are native varieties with high economic values that consist of the main part of olive production of the country.
2. Olive plantations planted after the 1960s, which are found by the sea and in the central part of the country.

Based on the statistical data the proportion of the olives according to their age result as follows: Olive plantations above 100 years old (30% of the total olive trees), Olive plantations from 30-40 years old (45%) and Olive plantations from 10-20 years old (25%).

One of the most important factors affecting productivity of the olive tree is its cultivar. Albania is rich with more than 28 varieties grown throughout the country. The nine most cultivated are listed in Table 3. With the exception of the Frantoio variety introduced from Italy, the other eight most commonly grown varieties are native to Albania. The two leaders are "Kalinjot", which covers about 40% of the total plantations for oil and table use; and "Kokërrmadh i Beratit", representing approximately 21% of table olives. The interaction of the Albanian varieties with the local environment (soil, climate, altitude) and cultural practices results in the special characteristics and tastes distinctive to the oils produced in various regions of throughout Albania.

Varieties	Number of Trees	Surface(Ha)	Maximum Oil Yield (% of weight)	Main Use
Kalinjot	2,335,000	17,700	27	Table & Oil
Kokërrmadh i Beratit	1,000,000	7,700	18	Table
Frantoio	470,000	2,600	19	Oil
Kokërrmadh Elbasani	450,000	4,000	20	Table & Oil
Mixan	430,000	3,770	25	Oil
Ulli i Bardhë Tiranes	200,000	1,500	28	Oil
Nisiot	120,000	900	12	Oil
Ulli i Hollë I Himares	70,000	800	15	Oil

Table 3. Olive cultivars in Albania (Ministry of Agriculture, Food and Consumer Protection, 2009)

#### 4. Olive harvesting and collecting

Olive collection in Albania starts at the beginning of October and goes on until February. The harvesting is mostly done manually, and no modern equipment is used. During harvesting no selection between olives is done. Farmers use combined harvesting of olives that fall from the wind or as the effect of diseases and olives that are taken from the trees. This way of harvesting has a big influence on the manufactured oil quality.

The Albanian distribution system is traditional and extremely fragmented, without a real wholesaling sector. Especially for olive oil, distribution to retailers is mainly performed by the bottlers themselves. Wholesalers play a more important role in distributing table olives. More in general, food processing companies are distributing directly to retail outlets bypassing or relaying less on wholesalers. Two major changes occurred in the last three years, which will induce major changes in the distribution system. The establishment of a network of wholesale markets, facilitating wholesale trading and gradually introducing more transparency in price formation and on the other hand the development of organized distribution, with the entrance of two foreign-owned supermarket chains and the parallel growth of some domestic larger retailers into supermarket chains.

More organized logistics are necessary to cope with such evolution. Total mark up in the post-production section of the food chain is also likely to increase, as prices are already high. This is likely to put more pressure on producers to reduce sales prices. For olive oil and table olives, such evolution is likely to induce the following changes:

- Organized distribution needs regular supplies of relatively large quantities of products. The role of bottlers will further increase and medium producers will be forced to upgrade their distribution system or to reduce the share of olive oil sold with their own brand. This evolution is also representing a challenge for the small modern processors which will be forced to increase the resources devoted to marketing, as increasing number of wealthy customers will make their purchases in supermarkets.
- An increasing role will be played by wholesale markets in distribution of table olives, thus facilitating in the short term a further increase in the number of small wholesalers/processors. Generally, wholesalers and importers will become more important players in the table olive trading.

Most urban dwellers buy olive oil in mini-markets and traditional retail outlets whereas imported olive oil is almost exclusively sold through supermarkets. Organized distribution is catching an increasing share of customers. These outlets do not represent any more the higher end of retailing business. Supermarkets are adjusting their prices to those ones of traditional retailers, aiming at widening the range of customers beyond the middle income consumers' segment. Restaurants and other catering outlets are buying, with few exceptions, the cheapest qualities of olive oil. Limited purchasing of higher quality olive oil is made by high-end restaurants. Apart from self-consumption, olive oil in rural areas is mostly informally traded and purchased from local oil mills. A smaller share, estimated in 30% of the total or less, is sold usually by the liter (i.e. not bottled), in traditional retail outlets. Retail shops and green markets are the prevalent market channels in rural areas where there is no olive oil production.

Until the end of the 1970s the olive oil processing was done in traditional primitive ways by the peasants themselves. Gradually with the increases in yield, some plants were built. These were very old technology fashioned plants. Only at the beginning of the 1980s some presses were imported from Italy, and this was the start of innovations in the oil manufacturing plants. Actually almost half of olive oil existing processing plants use the "Pieralisi" type presses for the olive oil production (Figure 3). Second popular kind of press is Alfa Laval with 15% and the next significant types are Eno Rossi (11%) and Mix (5 %). The situation shows that the processing olive oil technology is dominated by three phase decanters.

## 5. Financing the olive oil sector

After the 1990s, a lot of investments were done in the olive oil processing industry. According to a study done by IFDC in 2002, the total amount of investments in this sector is 1442 million Lekë (or 10.686.230,92 euro). The regions with the highest amount of investment are Vlora with 25.0% of the total, Tirana with 17.6%, Saranda with 17.5%, and Fier with 13.8% of the total investments.



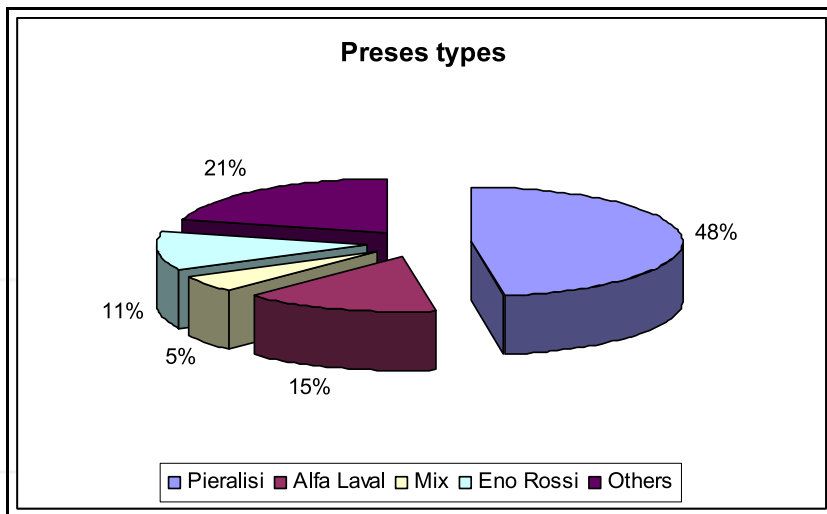


Fig. 3. Olive oil processing presses used in Albania (Ministry of Agriculture, Food and Consumer Protection, 2009)

There are three main investment sources in Albania, as far as the agricultural sector is concerned, own financial sources, bank credits and other funds. The investments are mainly done by the private financial sources of the entrepreneurs. This is followed by a smaller part of those that have taken some bank credits. Figure 4 below, shows schematically the share that each of these forms holds in the total investment structure.

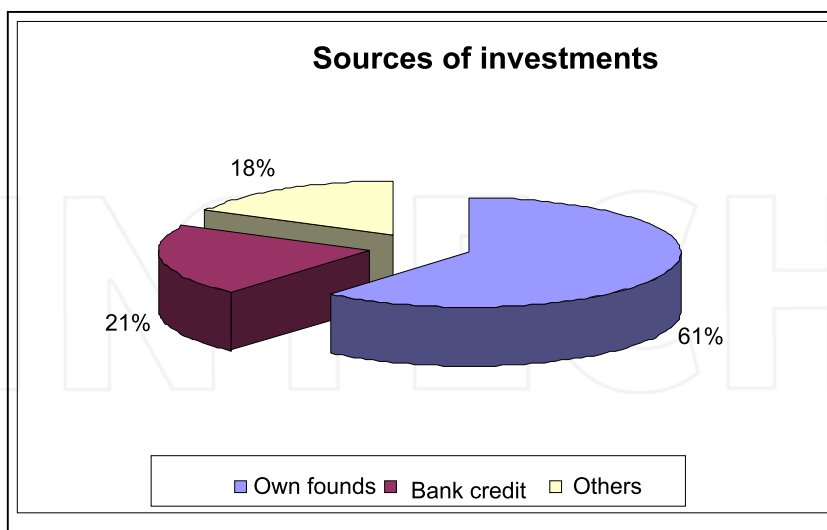


Fig. 4. Sources of financial investments (Ministry of Agriculture, Food and Consumer Protection, 2009)

## 6. International trade

Albanian olive oil exports are very encouraging as the industry is maturing and achieving all attributes required for the olive oil quality. The figures however remain modest: 22 tons were exported in 2004; 16 tons in 2005; 54 tons in 2006; 15 tons in 2007 and 4 tons were exported in 2008. The first success was the export of “Shkalla enterprise” certified organic and extra-virgin olive oil to the niche market in Switzerland. This represents a small, but stable export and with potential to increase. This was the first sign of the “recovery” of Albanian olive oil export to the neighboring countries since 1996. The transaction was particularly important because, for the first time, the processing plant was certified. Furthermore, the payment was delivered by the letter of credit, in contrast to cash, that had been the practice until then.

Albanian imports on the other side are significant and range between 850 – 1100 Mt per year, of which almost 90% is supplied by Italy and Greece. Large part of the imported oil is in bulk to be than bottled in Albania. Albanian import of olive oil has increased since year 2000. In 2005 and 2006, due to major increase of EU olive oil prices and higher levels of domestic olive production, imports of olive oil dropped. In 2008, imports of olive oil were considerably higher than the same period of the previous years, due to the low olive oil production in 2007, caused by low olive production. This evolution of imports shows how the olive oil demand in Albania is price sensitive. The olive oil price increased by almost 40% from year 2004 to 2005 and was associated with almost 20% reduction in imports. Simultaneously, the continuous increase of domestic production of olives and olive oil has partially compensated the increasing demand, and contributed to lowering demand for imports. Imports usually increase in the last three months of each year, when consumption is higher and the olive oil of the new crop is not yet ready. Imports reach a minimum in summer. In general, the yearly peak of imports of olive oil follows by one or two months that one of table olives. In 2008 imports remained high also in January and February, due to the scarcity of domestic production.

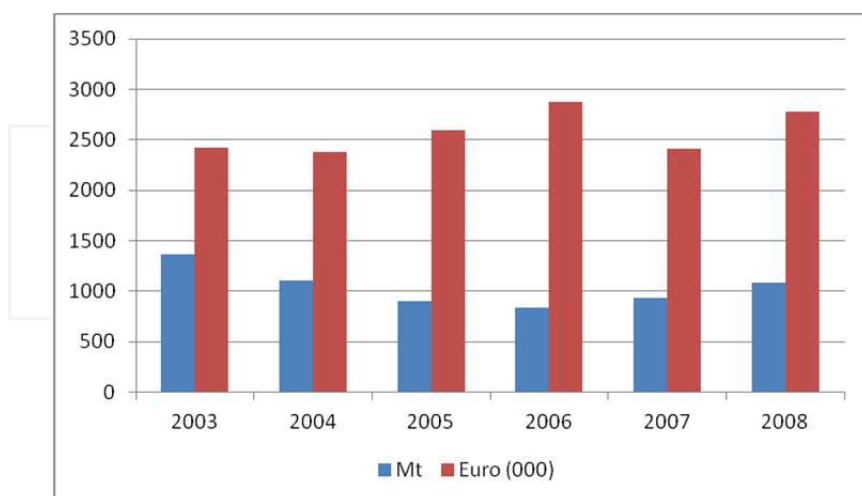


Fig. 5. Olive oil import trends from EU in terms of quantity and value (INSTAT, 2009)

At present, imports cover about 10% of market-based demand, but imports from the highly competitive Mediterranean producers could lead to an increase in market share of imported olive oils in the next years. Increasing domestic demand, years of relatively lower productivity and a general scarce competitiveness of the Albanian products are among the main factors that caused such a situation.

## 7. Economic issues behind olive oil processing industry

According to the results of the studies that have been undertaken for the olive oil industry indicated that olive oil production is privately profitable. The Private Cost Ratio has been measured and the coefficient was evaluated at 0,703, meaning that this production is profitable for the private enterprises. Still according to these results indicate that Albania has not a comparative advantage in olive oil producing industry in the production year 2008-2009. The calculations resulted in  $DRC = 2.2$ . This means, it is not socially desirable to produce and expand olive oil production in Albania, as the use of domestic factors is not efficient in economic terms. Comparing the two values of the above ratios, in current situation, olive oil production can be appreciated as competitive within the country with private prices, but it cannot be appreciated as competitive with social prices.

A sensitivity analysis was done to see how the DRC ratio reacts to different changes in different parameters of the model. Changes were done in the parameters like world market prices of olives and olive oil, exchange rate and labor force price. As a result of the sensitivity analysis it was seen that the olive oil production is very sensitive to changes in input (olives) and output (olive oil) prices of the world market and also to changes in the exchange rate. But it is not sensitive towards changes in the labor force prices. The major determinants of the Albanian olive oil comparative advantage are the favorable world price of olive oil, the exchange rate and the price of olives as input factors for the olive oil manufacturing. The explored values of private profitability and the DRC suggest that that olive oil production is privately and socially profitable, however two important conclusions are to be emphasized particularly: firstly, the private profitability is higher than the social profitability, and secondly, social profitability is largely depended on the situation at the international market.

Due to the changes in the sensitivity analysis it can be seen that a reduction on the olives as input in the olive oil industry, the domestic resource cost ratio enters in the interval values in which we can say that olive oil production is competitive in Albania. In this stage there is need of state policy intervention in order to help the olive oil producers for having lower prices of inputs. Policies like subsidies of the prices of inputs are suggested in this case.

In recent years, Albania has seen a rapid evolution in its citizens' consumption behaviors and life styles due to economic growth, improvement in the standard of living, fast urbanization and trade liberalization within the country. One consequence of this has been the gradual segmentation of the food and beverages market, similar to what has been seen in other transitioning countries (Berisha and Mara, 2005; WB, 2007). The transition from a centrally planned socialist economy to a market oriented economy has also given rise to an urban middle-income class of consumers. Another important study on olive oil consumer preferences conducted in Tirana/Albania 2010 has resulted with some other result on the olive oil (Chan Halbrendt et al, 2010). According to this study 6 consumers' segments and profiles were identified, based on set of preferences and willingness to pay. The fact that it is now

possible to clearly identify several segments of consumers marks a milestone in the process of evolution of agri-food marketing, with major consequences on development policies. Origin is a key choice factor for 82% of respondents, in three out of six consumers' segments.

The confidence on quality and safety of domestic product is low. This conclusion emerges from the analysis of several factors: i) imports are growing notwithstanding the consumers' preference for Albanian olive oil; ii) consumers have little confidence on reliability of domestic industrial producers and controls made by competent authorities, so they prefer to buy olive oil directly from trusted farmers, or from the oil mills or to buy imported products; iii) during the analysis there was a scarce correspondence between low income and preference for low prices, as high prices are considered one of the few reliable proxies for quality.

The majority of purchased olive oil is still traded as not bottled product, being sourced either directly from farmers and oil mills or as by quantity in traditional shops. 44% of the interviewed consumers in Tirana confirm that they buy directly from farmer and olive oil mill respectively. This percentage should be much higher in smaller cities or rural areas characterized by olive and olive oil production and consumption. When considering also self-consumption of farmers in production areas, it is possible to conclude that most probably, more than 70% of the olive oil consumed in the country is sold as a non-bottled product and is subject to little quality control.

Under the current extensive inefficient conditions in which the olive culture is cultivated in Albania, there is however a profitability for farmers to produce. This profitability and comparative advantage can be improved if the olive culture is cultivated more intensively. If the farmers are sure that the processing industry will act as a reliable market for their products, they will increase the production. On the other hand the increased olive cultivation will provide more raw materials for the processing industry, assuring its functioning with full capacity. The better utilisation of existing capacities in processing industry will allow favouring from the low of economies of scale and at the end effect result in lower production cost.

## **8. The future of olives and olive oil in Albania**

In the last years olives and olive oil has become one of the priorities of the Albanian Government policies. Recently Albanian Government is undertaking an extremely ambitious policy for expanding the production base, targeting a fivefold increase of the total number of olive trees, i.e. up to 25 ml trees. For this purpose, most subsidies provided from 2007 to the agricultures sector from the State (scoring about 10 m Euro in 2008) are addressed to the olive cultivation and olive oil production. Focusing investments in increasing yields (production per tree), stabilizing output from one year to another and improving harvesting and pest management practices would be at present a more cost/effective option for ensuring a sustainable development of the sector. Priority actions include: i) improvement of value chain governance tools, including harmonization of laws to EC, ii) increased technical assistance to farmers to increase productivity and stabilize output; iii) support to value chain operators for facilitating access to services, iv) supporting establishment and strengthening of farmers' associations and cooperatives and; v) optimize

the use of effluents and by-product in olive oil industry, to mitigate environmental impact of olive oil production and increase profitability in olive oil processing.

The Government of Albania lunched since early 2009 the idea of supporting the plantation of 20 million olive trees, which would eventually transform Albania into a world level competitor. At present, domestic demand of olive oil scores around 12,200 Mt and that one of table olives 14,000 Mt per year (excluding self-consumption). Yearly yields and output are highly variable, as Albanian olive orchards receive poor or no services and are highly vulnerable to weather conditions. According to previous surveys and according to the evaluation of specialists, average yield of olive trees in Albania is circa 15 kg/tree.

Under these assumptions and estimations, there is a deficit of 1,500 tons of olive oil which is not very different from the recorded official imports of olive oil – circa 1,000 tons of olive oil (the current yields may be even a bit more than 15 kg/tree, i.e. if assumed 15.5 kg/tree, than we obtain a deficit corresponding exactly to the recorded imports). Improving average yield to 17 kg/tree (+13%) to the current 5,011 million of trees (thus excluding in these calculations the expected increased number of trees in the coming years) there a surplus of production will be already achieved. Considering that many trees will enter in full production in the next years, this objective seems easy to achieve. According to expert (agronomist) evaluations, under irrigation and proper treatment, it is possible to achieve average yield of 25 kg/tree (conservative assessment). At this level, deficit is of equivalent 7,550 tons.

As a conclusion, Albania can meet its demand for olives and olive oil, and even achieve surplus, by simply improving services to the current olives; moreover, even without further support for new plantings, the expansion of the production base will continue, even if at a slower pace: before the introduction of subsidies for new plantings, the average growth of the production base was of 166,000 new trees/year; in 2007-2008, after the introduction of subsidies, this amount increased to 257,000 per year.

In their study, Leonetti et al, 2009, introduced 5 different scenarios considering several investment and related implications.

- Scenario 1 - Average future plantings in accordance to the trend recorded before the introduction of subsidies.
- Scenario 2 - Average future plantings in accordance to the trend recorded after the introduction of subsidies (2007- 2008).
- Scenario 3 - 20 million trees are planted within 5 years, starting in year 2009, at a pace of 4 million trees per year.
- Scenario 4 - 20 million trees are planted within 10 years, starting in year 2009, 2 million trees per year
- Scenario 5 - 20 million trees are planted within 15 years, starting in year 2009, 1.33 million trees per year.

The number of trees according to each scenario is reflected respectively in Figure 6. For the production, based on expert assessment, they assume that old trees (planted till 2008) have a yield of 15 kg/tree, whereas the new ones, 25 kg/tree. In the second year, the new trees achieve 3 kg/tree, third year 8 kg/trees, fourth 20kg/tree, fifth 25 kg/tree.

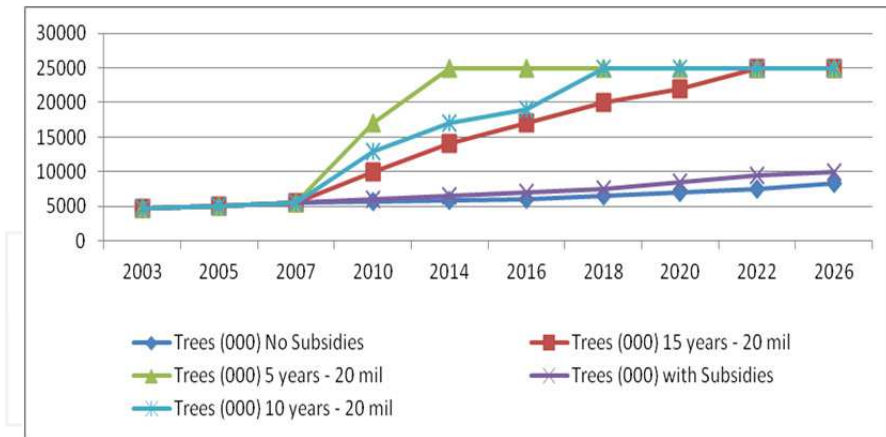


Fig. 6. Dynamics of Olive trees under different scenarios (000 trees), (Adapted from Leonetti et al, 2009)

## 9. Concluding remarks

Olive oil production can become a very important aspect in the Albanian agriculture economy. Due to the favourable climatic conditions the main input, olives, can be cultivated in a more intensive form, despite the fact, that the areas under olive cultivation in Albania compared with the areas in Greece or Italy are very insignificant.

After a relatively long hiatus related with the democratic political changes in of early '90-s, the Albanian olive and olive oil industry is showing signs of a healthy recovery. Since the country restored political and economic stability in 1999, the olive sector has attracted notable attention from the government and private investors, giving rise to a considerable growth of the sector. The planting of new trees has increased tremendously as a result of the government's supporting programs and private initiatives. New plantings have been established with modern practices and good management. The oil processing industry has also experience significant growth. Small processing plants have become more efficient in producing high quality oil for domestic and foreign markets. Still, the sector faces important challenges to overcome such as high cost of production, dominance of low quality olive oil production, shortage of raw materials, weak contracting relationship between the growers and the processors, and deficiencies in marketing.

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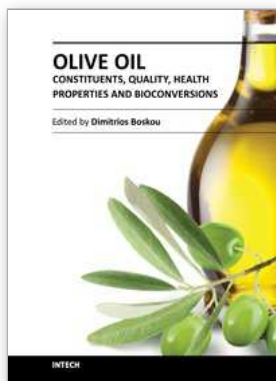
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The health-promoting effects attributed to olive oil, and the development of the olive oil industry have intensified the quest for new information, stimulating wide areas of research. This book is a source of recently accumulated information. It covers a broad range of topics from chemistry, technology, and quality assessment, to bioavailability and function of important molecules, recovery of bioactive compounds, preparation of olive oil-based functional products, and identification of novel pharmacological targets for the prevention and treatment of certain diseases.

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