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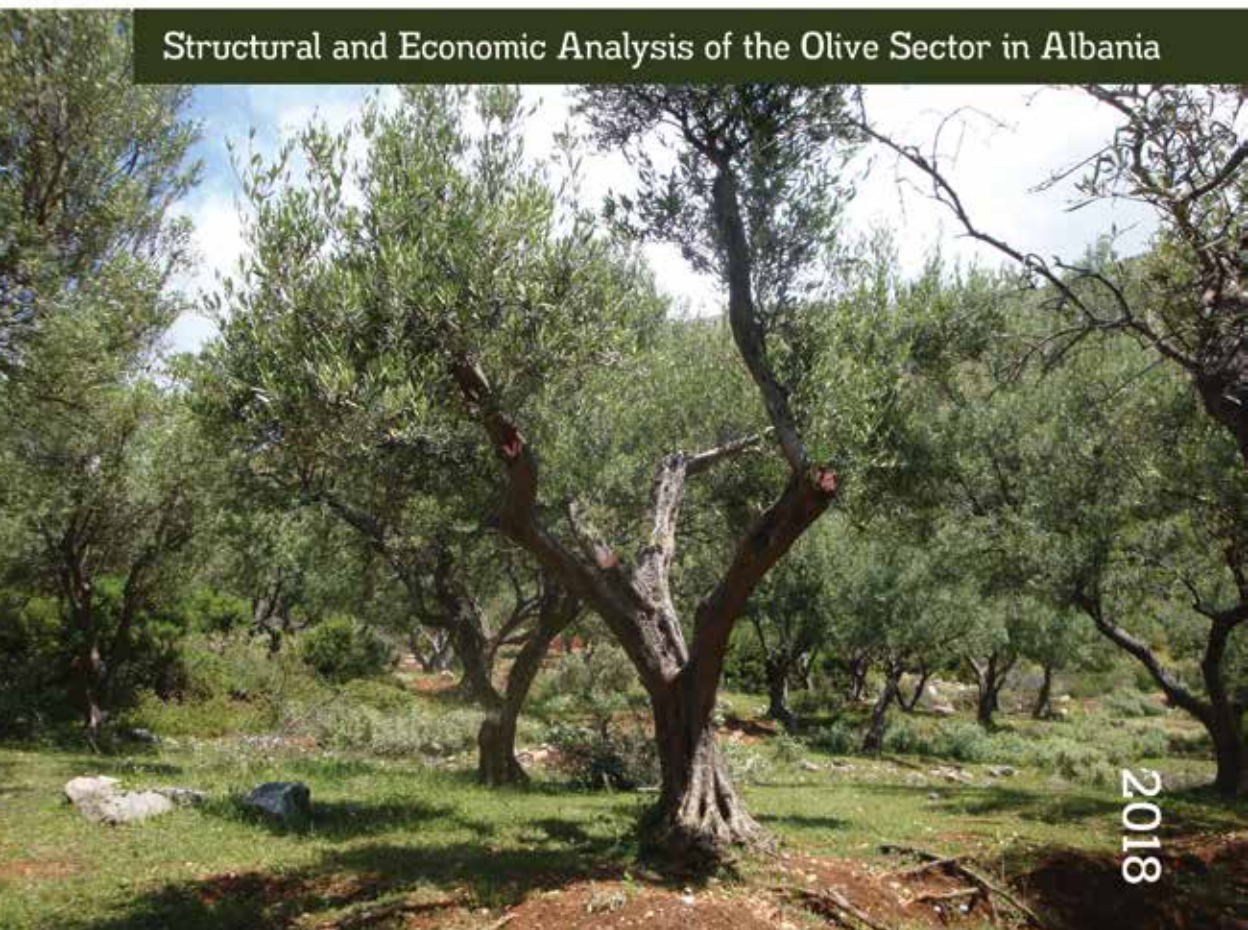
REPUBLICA E SHQIPËRIE
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PROGRAMME FOR THE MODERNIZATION OF THE AGRICULTURAL SECTOR (PROMAS)
Ministry of Agriculture and Rural Development, Albania
Italian Agency for Development Cooperation

SUSTAINABLE DEVELOPMENT OF THE OLIVE SECTOR IN ALBANIA – ASDO

Structural and Economic Analysis of the Olive Sector in Albania



2018



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2018

Authors

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Disclaimer

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List of abbreviations

ASDO - Sustainable development of the olive sector in Albania

ATTC - Agriculture Technology Transfer Centre

AUT - Agriculture University of Tirana

CAC - (Conformitas Agraria Communitatis) certified plant material of higher quality visually free from harmful organisms.

CIHEAM - International Centre for Advanced Mediterranean Agronomic Studies

DCM - Decree of the Council of Ministers

EC - European Commission

EU - European Union

EVO - Extra Virgin Olive Oil

FAO - Food and Agriculture Organization of the United Nations

GI - Geographical Indication

HACCP - Hazard Analysis and Critical Control Points

INSTAT - National Institute of Statistics

IOC - International Olive Oil Council

IPARD - Instrument of Pre-accession Assistance for Rural Development

ISO - International Organization for Standardization

MARD - Ministry of Agriculture and Rural Development

MAFCP - Ministry of Agriculture, Food and Consumer Protection



NFA - National Food Agency

NGO - Non-Governmental Organization

NSSI - National Seed and Seedling Institute

PMU - Project Management Unit

RAPD - Random Amplification of Polymorphic DNA

SWOT - Strengths, Weaknesses, Opportunities and Threats

USAID - United States Agency for International Development

VO - Virgin Olive Oil



Introduction

The olive sector in Albania, as a Mediterranean country, has a strong tradition with high socio-economic significance and with important implications on employment and rural development in general. Also, it is very important in terms of international trade and rural tourism. Nevertheless, in comparison with other Mediterranean countries, the olive sector in Albania is backward, either related to the number of plants per inhabitant (about 3.5 compared to 4-10 plants per inhabitant in Italy, Spain and Greece) or to the yield per tree, and overall product quality.

Based on a specially devoted and detailed study "*Study of the actual situation of the olive sector and its perspectives*" (Ministry of Agriculture, Food and Consumers Protection, 2009), a large-scale support scheme was financed by the Albanian Government (2007-2013) aiming to expand the primary production base and increase the quality of production. This initiative resulted in the rapid expansion of olive cultivation area and number of olive trees by around 50%, and increase of olive production by about 43% in the period 2010-2016 (INSTAT, 2016), confirming the interesting development trend of the sector.

However, despite relatively high investments of the government in some segments (e.g. in olive plant production) the recommendations of the above-mentioned study were not implemented in all directions, and the olive sector still needs structural support to reach balanced



development in all its segments (i.e. regulatory framework, quality of production, productivity, cultivar structure, pest management, profitability, sites for new plantations, etc.).

New plantations are entering into full production capacity, but in addition to some successful olive growing farms producing high-quality olive oil (which have also been awarded some prestigious prizes in Italy and in the Mediterranean area), the major part of olive cultivation areas are not managed at satisfactory level because of many socio-economic and agriculture knowledge factors. Thus, the olive sector remains a challenge, requiring the involvement of the whole range of stakeholders and especially of decision makers.

Currently, the olive sector is not part of the main financial facility to support the development of primary production and processing - IPARD II 2014-2020 (Instrument of Pre-accession Assistance for Rural Development), but it is included in the framework of general support of the Ministry of Agriculture and Rural Development (MARD) to agriculture in Albania and in other investment schemes. This is the case of the Government initiative at the beginning of 2018 to promote 100 tourist villages, 60 of which are situated in the olive growing area. Also, up to now in the olive sector, as well as in agriculture in general, many small scale local development projects are implemented.

The present analysis aims to provide detailed sector overview and wide-ranging information, considering structural and economic aspects, mainly based on the SWOT analysis performed in collaboration with different stakeholders and on the opinion of a considerable number of the three main groups of operators: 403 producers, 56 nursery managers and 84 processors. This analysis may also serve as pre-requisite for requiring the extension of the IPARD II programme to the olive sector or to access other incentives and sources of financial support.

In the framework of this project, a large group of stakeholders was targeted to ensure the majority and diversity of points of view, credibility, coherence and relevance of obtained results.



Besides structural and economic aspects, the information provided was complemented with recommendations for efficient sector development.

The results obtained also give the possibility to compare the stakeholders' perception with those presented by operators and the currently available knowledge from scientific and other literature. Increased understanding of stakeholders' opinions and needs, coming from the present study, can help to overcome sector barriers and to enhance the effectiveness of support programmes intended for sustainable development of the whole olive value chain in Albania.



The millenary olive of Palikesh, Drobonik - Berat



Background information

Albania is situated in the Mediterranean area where about 97% of olive production comes on a worldwide scale (Isufi et al., 2005). Olive cultivation in Albania represents an important traditional and old agricultural activity, associated also with grapevine industry (Kafazi and Muço, 1971) and with an important economic, social and environmental impact (Hodaj et al., 2014). Olive cropping bears also a historical message because of hundreds of ancient olive trees and 53 villages with 136 thousand old olive trees and 42 old castles or castle ruins surrounded by olive groves (Gixhari et al., 2014), presenting at the same time the great tourist potential for olive growing areas.

The olive cropping area in Albania is situated in the western coastal region, which represents 36.2% of the country territory and where about 60% of the population lives. It extends from the northern border of Shkoder to Konispol to the south, by penetrating the mainland towards the east, through river valleys, creating a continuum of olive groves (Kafazi and Muço, 1971; Thomai and Panajoti, 2004; Velo and Topi, 2017). Till 2009, olive groves were distributed as follows: 10% on the plains, 83% on hillsides and 7% on more than 25% of steep areas (MAFCP study, 2009). However, this situation has changed in favour of plain and hilly areas making olive cultivation a dominant feature of the landscapes (Kolaj et al., 2017). It is estimated that there is a possibility for irrigation of about 45% of olive groves (MAFCP



study, 2009), but at present, irrigation is implemented only in small areas.

Olive cultivation is important for the Albanian agrifood sector as represented by the fact that about one-third of the farmers operate in the olive sector: 118,000 in 2008 (MAFCP study, 2009). However, the average farm acreage is about 4,000 m² and the average olive groves area per farm is even much smaller. Century-old olive groves with no more than 80-100 plants/ha accounted for 30% of olive groves by 2009 and the prevailing traditional 50 year-old olive groves had no more than 160 plants/ha (MAFCP, 2009).

In the absence of annual agricultural interventions by farmers, part of olive groves are degraded and need rehabilitation: about 70% lack pruning and fertilization, and scarce phytosanitary measures are used only in 30-50% of the area. However, this situation is interpreted sometimes as 'organic' production, but actually, it is a low-quality olive production (MAFCP study, 2009). The same study reported that in 2009, Peacock's eye (*Spilotea oleagina*) infections affected 54 % of olive groves, while the olive fly (*Bactrocera olea*) infected about 100% of them.

Recently the situation of olive groves has been summarized as follows: "very small orchards at a competitive disadvantage, the difficulty of mechanization because of steep land, lack of pruning, irrigation and phytosanitary measures and lack of basic technical skills on processing" (USAID Lushnja project, 2015).

As a result of the strong support given by the government, the production base significantly increased in the period 2007-2013. Skreli et al. (2015) analysed the impact of government subsidies on the olive sector and found that they had a clear positive net impact on increasing olive-growing areas with a positive influence on part-time on-farm employment. However, farm fragmentation remained high and without significant improvement after support scheme. Different support measures and subsidies were allocated by the government in the period 2008-2013 such as new plantings



and plantings rehabilitation of olive groves, drip irrigation, plant protection measures, extra virgin oil production, wells for irrigation, etc. (Zhllima et al., 2015).

The most used subsidies were those for new plantings, among others, due to the simple implementation and lack of complicated conditions (e.g. ownership documentation, acreage, and others) to be fulfilled, as well as modules to be filled on time and the bureaucracy process. The extension of new plantings brought with it a substantial change in the cultivar structure in favour of foreign cultivars, mainly from Italy as 'Frantoio' or 'Leccino', but also from Greece and Spain, whose behaviour has not been well studied in different olive-growing areas in Albania. An increase in the number of subsidies requested for aspects other than new plantings, has been noted in the last years (MARD - personal communication).

The present situation in the olive sector of Albania urges to improve the current olive production and develop other segments, like marketing strategies and quality of production. According to several authors, some of the main challenges to face the weaknesses for further development of the olive sector in Albania are: high cost of production, generally low quality olive oil, inconsistent and unreliable supply of raw material for processing industry, low level of mechanization, inappropriate technology, lack of irrigation, poor marketing methods and weak access to external markets (MAFCP, 2009; Kapaj and Kapaj, 2012; Muco and Kopali, 2015; Zhllima et al., 2015). Even without further support to new plantings, the expansion of the production base will continue, just at a slower pace (Leonetti et al., 2009; Muco and Kopali, 2015). Statistical data presented above and in the next section confirm this trend.



Ulliri i Zi i Tiranës, Lanabregas (photo ASDO)



Production and processing

a) Acreage, production and yield

From 1991 to 1994, olive production in Albania went through fluctuations. In 1992, a drastic reduction in the olive tree number was reported, overestimated up to 47% of olive trees by some statistical data publications (Fig. 1)¹. Such reduction is mainly due to the abandonment of olive groves or urban constructions (Topi et al., 2013; Hodaj et al., 2014).

After 1995, the olive tree number, area and production increased continuously, especially after the government measures from 2009 to 2013. In this period, the yearly number of new plantings was from 300,000 to 1,200,000, as presented in Figure 1, according to the National Institute of Statistics (INSTAT, 2017). After 2009 and in order to profit from subsidies, the recommended distances for the new plantings were 5x7 m or 6x6 m in order to have from 280 to 300 plants/ha.

¹ Data sources:

a) 1991-1994: Luniku F., 1997;

b) 1996 - 2002: 2002 Statistical Yearbook, Ministry of Agriculture and Food;

c) 2006: 2007 Statistical Yearbook, Ministry of Agriculture, Food and Consumer Protection;

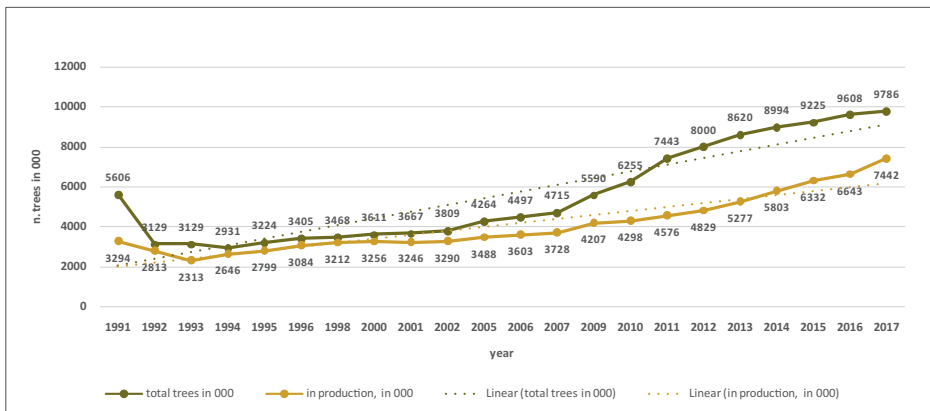
d) 2009: 2011 Statistical Yearbook, Ministry of Agriculture, Food and Consumer Protection.



The corresponding cultivation area in 2009 (Velo and Topi, 2017) covered about 41,000 ha when the olive trees area accounted for 6.3% of the total arable land; regarding the production surface, different data can be found in the literature, with high oscillations among them. Thus, compared to the study mentioned above, in the RESGEN project report (2013), the cultivation area is estimated to be 61,000 ha, while in another study (Kapaj and Kapaj, 2012) the olive cropping still covers 42,000 ha or 8% of the arable land, even after the planting of about 3 million new plants in this period. This highlights the gaps in the current data collection system in estimating olive grove areas, especially of the century-old and traditional olive groves with 80-100 plants per ha (about 10,000 ha), and the new plantings with more than 250 plants/ha.

Currently, the number of olive trees is estimated at around 11 million, distributed in about 148,000 farms and the olive area is estimated at about 54,000 ha (Ferraj B., 2018 - personal communication).

Figure 1. Number of olive trees in Albania for the period 1991-2017 (in 000 trees)

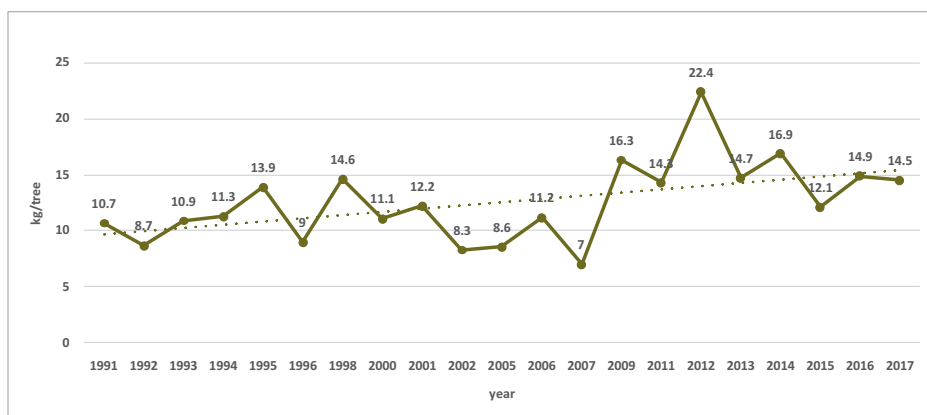


Production dynamics in terms of total number of trees, number of trees in production and quantity of produced olives express small but constant linear growth for the period 1991-2017 (Fig. 1, 2 and 3). The



average yield per tree for the available data in the period 1991-2009 was 10.6 kg (ranging from 7 to 14.6 kg), while in the 2010-2016 period the average was 15.9 kg (ranging from 12.1 to 22.4 kg). In different districts and municipalities, the yield per tree has been much higher, e.g. in Berat and Durres, up to 41 kg/tree or more. Although these data are far from the yields in Italy, Spain and Greece, and considering the young age of about 4 million olive plants, they can be seen as a good sign for its future growth.

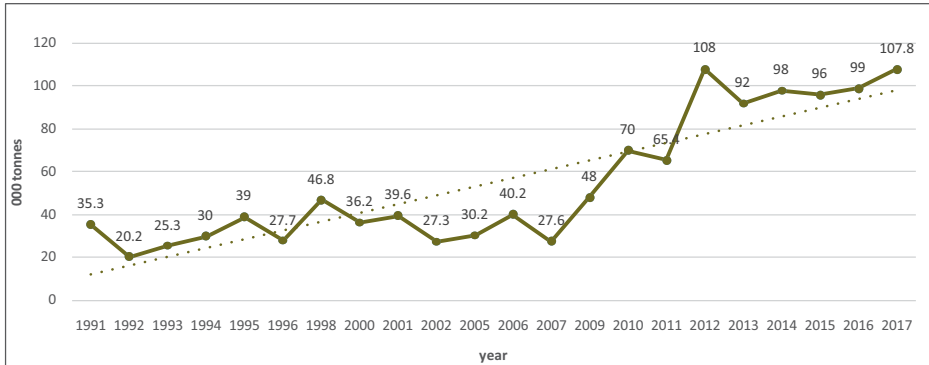
**Figure 2. Olive production in Albania
for the period 1991-2017 (kg/tree)**



When considering the yield per tree, quite high oscillations can be observed each second year (Fig. 2). These data can be partially associated with an alternate bearing or erratic production of olive trees, but the main factors for high yield oscillation are inappropriate management practices, easily influenced by climate conditions, which could be overcome if the right combination of pruning, fertilization, plant protection and irrigation measures are applied (Muco and Kopali, 2015). Such olive yield periodicity was described as “a characteristic of extensive olive cropping in Albania” (MAFCP, 2009) and as a “serious phenomenon for Albania” (Kapaj and Kapaj, 2012).



**Figure 3. Olive production in Albania
for the period 1991-2017 (000 tons)**



Five most productive olive regions in Albania are Berat, Elbasan, Fier, Vlora and Tirana, where 90% of olive production is concentrated (these are also the main areas of our study). Production data for 2016 in the five aforementioned regions are presented in Table 1 (INSTAT, 2016). Fier is the leading region in relation to the first three indicators (total tree number, number of trees in production and total production), while the highest yield per tree was obtained in Berat (23.1 kg/tree). Berat is also the leading region in the production of table olives, which prevail here with the production of the autochthonous high-quality cultivar Kokërmadhi i Beratit. Differently from other Mediterranean countries, the table olives represent about 20% of olive production in Albania (Leonetti, 2009).

Table 1. Production capacities of five leading olive producing regions in 2016

Indicator / Region	Berat	Elbasan	Fier	Vlora	Tirana
Total tree n. (000 trees)	1,858	1,526	2,374	1,626	856
In production (000 trees)	979	1,190	1,884	1,222	568
Yield (kg/tree)	23.1	12.6	16.6	11.5	9.6
Production (000 tonnes)	22.6	15.1	31.3	14.1	5.5



b) Cultivars

Albania is known for its richness in native olive cultivars, whose characteristics have been described by numerous studies (Kafazi and Muço, 1971; Thomaj and Panajoti, 2004, Panajoti, 2012; Ismaili, 2017). Belaj et al. (2003) studied by RAPD (Random Amplification of Polymorphic DNA) the genetic diversity of 19 Albanian olive germplasm in relation to other Mediterranean countries and concluded that autochthonous olive genetic resources have sufficient genetic variability among native cultivars and great potential to be used in designing breeding programs.

Recently, it has been described that the total number of the main autochthonous cultivars is relatively high. Fifty-six cultivars and a total number of 154 well-distinguished genotypes from *Olea europaea* species were reported: *O. europaea ssp. sativa*, *O. europaea spp. oleaster* and *O. europaea var. sylvestris* (Ismaili et al., 2013). The molecular characterization and analysis of 183 Albanian unique genotypes reinforced the conclusions for their autochthonous origin and clear differences between native and foreign cultivars (Dervishi, 2015). Also, the 34 most used autochthonous olive cultivars were described by Ismaili (2017).

At present, at the Albanian Gene Bank (Agriculture University of Tirana - AUT) 29 olive accessions (local and international) are conserved (Elezi et al., 2014), while 149 different genotypes are conserved *ex situ* and *in situ* in different collections (Dervishi, 2015).

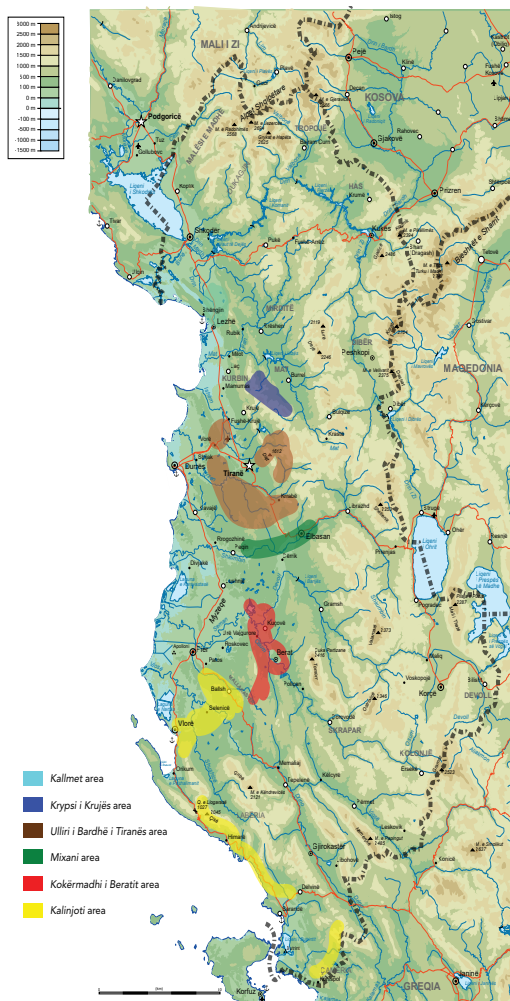
In a detailed analysis of the cultivar situation for each district in Albania, in 2009 "Kalinjot" and "Kokermadh i Beratit" were the two most widespread local varieties, first for oil and table use, and second for table olives (MAFCP, 2009; Kapaj and Kapaj, 2012; Velo and Topi, 2017).

There are 6 main groupings of autochthonous cultivars, which prevail in 6 distinguished areas from north to south as follows: Kallmet area (Shkodër and Lezhë), Krypsi i Krujës area (Kruia, Milot), I



Bardhi i Tiranës area (Tirana, Durrës), Mixan area (Elbasan and Peqin), Kokërmadhi i Beratit area (Berat, Lushnje, Fier) and Kalinioti area (Fier, Vlora, Delvinë e Saranda) as presented in Figure 4 (MAFCP, 2009). In each area, there are other secondary native cultivars and except for 'Kalinjoti', originating in Vlora and cultivated also in some other southern areas, other cultivars are limited in their areas of origin (MAFCP, 2009).

Figure 4: Geographic distribution of the main autochthonous olive cultivars in Albania (Source: MAFCP, 2009)





In 2009, the native cultivars Kalinjoti and Kokërmadhi i Beratit prevailed with 48% and 17% respectively followed by the Italian cultivar Frantoio with 10% as reported in the MAFCP study (2009); a new structure was proposed with 64% of native cultivars and 36% of international cultivars, indicating the future cultivar structure for each district and municipality.

After 2010, there is no census about the cultivar structure, which has changed in favor of international cultivars, also due to the absence of local production from nurseries (Panajoti, 2018 - personal communication). Furthermore, Ferraj (2018 - personal communication) underlines that 12-15% of new plantings are being established with Leccino, Cipressino, Ogliarola, Koroneiki, Halkidiki, Arbequina, etc.

The preliminary evaluation of olive germplasm in Albania showed a very low incidence of virus presence compared to 50% of infections in other Mediterranean countries (Luigi et al., 2009). Also, the analysis of the oil quality of native cultivars has shown their good quality in chemical and organoleptic composition, comparable with countries of Mediterranean basin and balanced profile of fatty acids (Muço et al., 2015).

Despite the rich heritage of autochthonous cultivars and genotypes as described above, there is not yet a sound breeding program for olive, which would contribute to improving the existing cultivars and breeding new ones. A regionalisation study on autochthonous or international cultivars in different regions or in hilly or plain areas of the country is still lacking.

c) Cropping technology

As previously mentioned, the implemented cropping technology is not sufficient and it is the main reason for low yields both in old and in new olive groves. It is far from the recommendations given by the study of MAFCP in 2009, and by the Agriculture Technologies Transfer Centre - Vlora (ATTC - Vlora), highlighting the setting up of new orchards, pruning, plant protection, fertilization, soil tillage,



harvesting, irrigation and the need for mechanization in order to lower the costs and increase olive production and quality (MAFCP, 2009). The above-mentioned study included the details for 60,000 ha to be planted with olives: 59% in the southern area, 34% in the central area and 7% in the northern area, describing the suitable areas for each municipality, regarding soil, climate and ecological data and irrigation sources in order to irrigate about 75% of the area.

At present, pruning is considered as the main operation which will help to improve the production as well as the phytosanitary status, but given its high cost (16% of total management costs), government subsidies and/or technical assistance are indispensable (Panajoti, 2017).

Plant protection in the olive sector has been the object of a series of technical studies and socio-economic analyses both for Integrated Pest Management - IPM (Pfeifer et al., 2005; BALKHORTSERVICE project, 2005) and organic olive production (Petruzzella and Simeone, 2007). In the above-mentioned studies, the "attract and kill" technology was also developed for olive fruit fly; it was concluded that the Albanian olive industry has the potential to derive a net IPM application benefit from \$39 million to \$52 million assuming that farmers move directly from minimum treatments to IPM over the next 30 years.

Currently, in Albania less than 25% of the olive area is fertilized, which brings negative yield and quality results (Panajoti, 2018 - personal communication). In the recommendations of MAFCP study (2009), special attention is given to fertilization methods, including periodical analysis of soil and plant leaves, fertigation and other modern techniques.

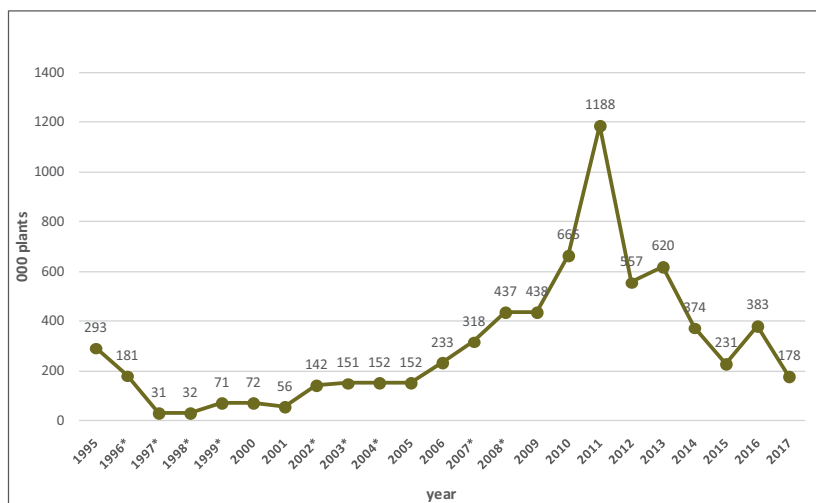
Harvesting, which at present accounts for about 40% of costs (MAFCP, 2009), is one of the aspects where traditionally the delay is the cause for the decrease of oil quality in almost all areas, but the situation could easily change. In order to avoid delays, the simple and full mechanization of this process, as well as the transfer of the olives to oil mills within 24 hours, would bring a real improvement of olive oil quality (Hysi et al., 2012).



d) Nursery production

Before the '90s, the production of olive plants was carried out mainly by state enterprises and their production was limited. After 1994, when about 293,000 new plantings of olive trees were registered, and over the following ten years, the number of new plantings dropped under 200,000 per year with a minimum of 31,000 in 1997. Planting dynamics continued with an average of about 100,000 new plantings per year until 2004. After this date, a continuous significant increase was registered with an average of about 536,000 plantings a year and peaking 1,188,000 plantings in 2010 (Fig. 5).

**Figure 5: New olive plantings in Albania
for the period 1995-2017**



(Note: due to lack of yearly data of olive tree number, the average of 2 or 3 years is reported for * indicated years)

The four-year period between 2009 - 2012, with a yearly average of 756,000 new plantings, is also the period of maximum subsidies for new olive plantings by the government, but still far from the objectives set by the Ministry study (MAFCP, 2009) to produce about 2.9 million plants and import about 1.5 million plants a year. The same study



reported that in total it has been planned that from 2009 to 2014 onwards, Albania would be producing 14.4 million plants and importing other 7.7 million plants. The plan was that the specialized structures at the Agriculture University of Tirana and at the Agriculture Technology Transfer Centre (ATTC) in Vlora would produce 500,000 plants each for a total of 1 million plants each year. Furthermore, it was intended that the other 70 private nurseries had to be subsidized by the government in order to produce the rest. The propagation greenhouses have been set up at Tirana and Vlora, and dozens of private nurseries set up and sustained financially and technically, with quite good leaflets and special extension activities, for the production of grafted plants and under mist. Though the abovementioned objectives were fulfilled only by 30-40%, the mother plant plots at ATTC (Vlora) contributed very well to the production of some main cultivars, e.g. Kaliniot, i Bardhi i Tiranës, Frantoio, Leccino, Kokërmadhi i Beratit, etc.

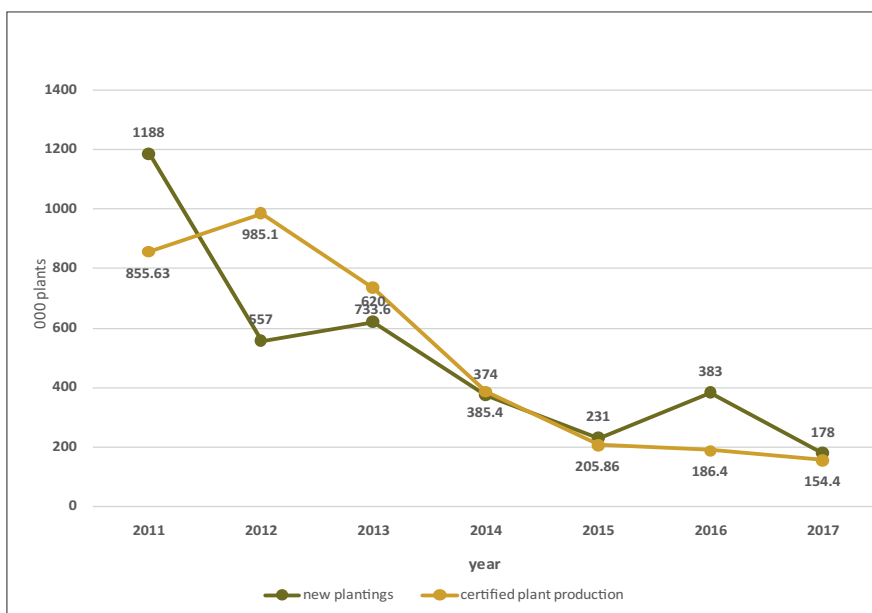
Despite the program for phytosanitary certification of olive plants, based on EU standards, and a detailed scheme for mother plants pre-multiplication and certified production (Delivery of Council of Ministers No. 240 of 27.03.2013), the phytosanitary certification is still carried out visually by the National Seed and Seedling Institute; thus, the planting material falls under the CAC category. No analysis for virus presence and screenhouse for the conservation of primary sources were planned and/or implemented. The planning consisted of producing sound and healthy plants based on traditionally created mother plant plots. The present ASDO project is committed to carrying out phytopathological molecular analysis for 4 viruses, one bacteria (*Xylella fastidiosa*) and one fungus for 11 olive cultivars (7 autochthonous and 4 international) in order to set up a phytopathological certification scheme, which would be the first one in Albania and will help to setup the local plant propagation based on EU standard.

According to the MAFCP study (2009), 40% of new plantings of 2008 were established with locally produced plants and 60% with imported plants (MAFCP, 2009), where Frantoio and Leccino have



been the most preferred cultivars. Confronting the data coming from the National Seed and Seedling Institute on certified plant production for the 2011-2017 period, with data on new olive plantings, it is to be noted an initially high number of olive plants, and their progressive decrease (Fig. 6). At the same time, the imported plants were privileged by their better quality and reliability. Actually, the number of nurseries dropped from about 100 to 68.

Figure 6: Certified olive plant production from nurseries versus new plantings in Albania (2011-2017)

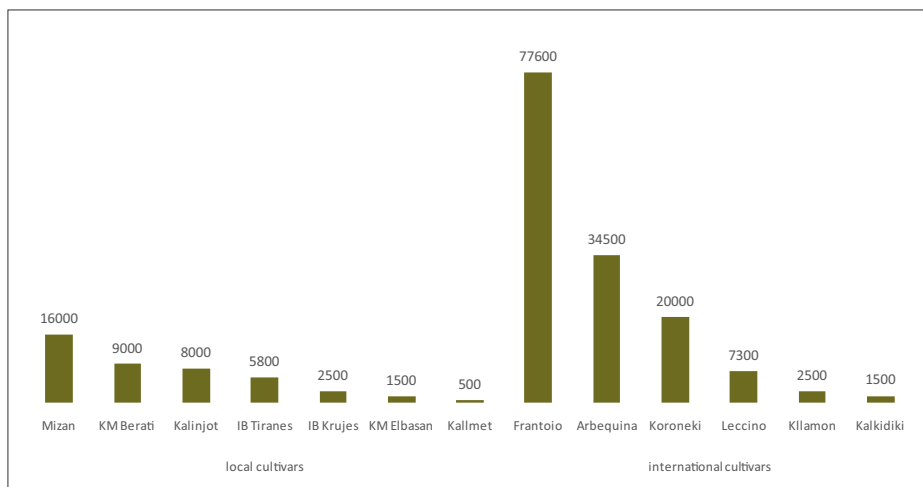


(Source: National Seed and Seedling Institute).

The cultivar structure of olives produced in nurseries in Albania, in 2016, is a net response of preferences of olive growers and it is to be noted that international cultivars prevail such as Frantoio (42%), Arbequina (18%) and Koroneiki (11%), followed by Mixan (9%), Kokërmadhi i Beratit (5%), Kaliniot (4%), Leccino (4%) and I Bardhi i Tiranës (3%) (Fig. 7 and 8).

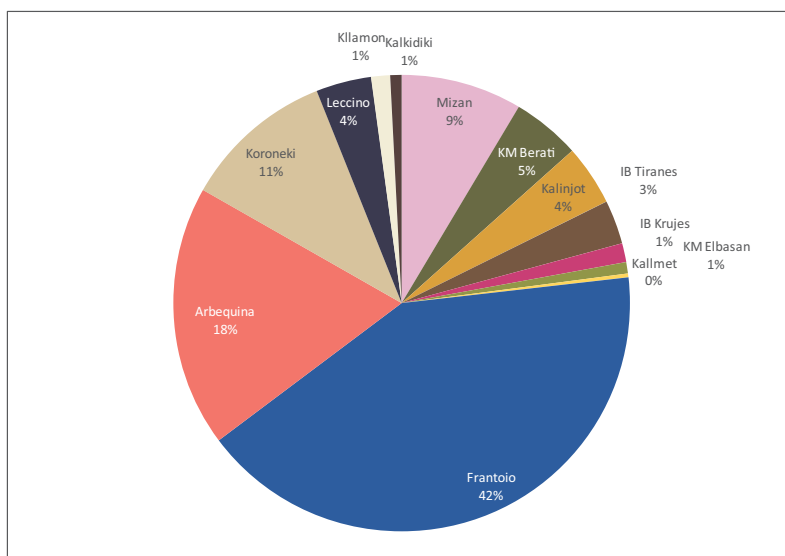


Figure 7: Number of plants produced for different cultivars in Albanian nurseries in 2016



(Source: National Seed and Seedling Institute data)

Figure 8: Percentage of different olive cultivars produced in Albanian nurseries in 2016



(Source: National Seed and Seedling Institute data)



e) Processing

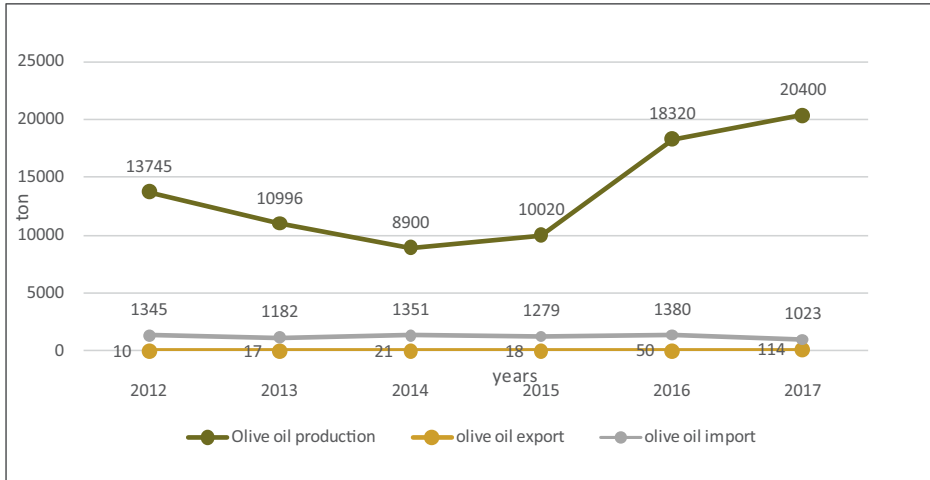
In 2009, Albania became a member of the International Olive Oil Council, while in 2017 it ranked 20th in the world list of olive oil producing countries, with 11,000 tonnes of produced oil (IOC, 2017). Depending on the quantity and quality of olives harvested, olive oil production ranges from 6,400 tonnes in years of low yields to 11,900 tonnes in years of high yields (Kapaj and Kapaj, 2012). In 2015, domestic production of olive oil accounted for four-fifths of the domestic demand. The present demand for olive oil and table olives could be met if existing production and processing capacities are improved in a qualitative manner.

Processing industry was in line with growth in production base, being able to receive increasing amounts of olives produced. It is estimated that processing potentials are represented with a network of 164 technologically modern mills (Zhlima et al., 2015), being still underutilized; about 16 enterprises were active for processing of table olives in 2009 (Leonetti et al., 2009).

The data on olive oil production is difficult to be calculated as shown by Leonetti et al. (2009) for the period 2006-2008, because of the difficulty in the evaluation of self-consumption by the same producers and of the fluctuation of production. According to the same source, olive oil production for the years 2006, 2007 and 2008 was 13,741 tonnes, 6,449 tonnes and 11,808 tonnes, respectively. More recent MARD data on production, export and import of olive oil (Mile, 2018), show the increase in production and export, while imports seem to be lower (Fig. 9). The modest increase in exports may also be an indication for some improvement of the olive oil quality.



Figure 9: Olive oil production, export and import in Albania



(Source: Mile, 2018)

Olive oil processing is mainly a separate business from table olive production (Leonetti et al., 2009). According to some authors (Leonetti et al., 2009; Zhlima et al., 2015), olive oil processors are divided into five categories:

- Small and localized - usually based in the villages, mainly producing virgin and lamp olive oil, operating for the farmers' and their own production.
- Small and modern - considered as the main category of processors, with a focus on high-quality extra virgin olive oil. They provide services for farmers, but also 4 to 10 tonnes of oil is sold as their own brand.
- Medium-sized processors - produce all categories of oil and store higher quantities of their own oil (20 - 80 tonnes), from which the majority is sold in bulk to larger processors/bottlers and just part as bottled and distributed at local level.



- Large processors/bottlers - typical industrial processors, with amounts higher than 80 tonnes of olive oil per year. The focus of their activity is bottling and distribution, thus they buy the majority of oil from smaller processors.
- Major integrated operators - in this category currently only one processor is present and it is characterized by high processing capacity (17.5 tonnes of olives per hour).

In the case of table olives (Albanian and imported one), the study of Zhlima et al. (2015) reports small and medium enterprises divided into two groups, based on packaging type (retail and bulk packaging).

Lushi et al. (2016) highlighted, as major challenges at processing level, traceability and quality standards certification, necessary for access to EU markets and for quality recognition at the local level. They identified the main three factors having a negative impact on the overall quality of Albanian olive oil, namely: i) low quality of agricultural practices applied during olive cultivation, which increases the level of fruits affected by pests and leads to increased acidity of olive oil; ii) harvesting out of the optimal period to obtain high-quality oil; iii) too long period between harvesting and processing of olives. Similar conclusions are presented by Vossen (2015) and USAID Lushnja (RESGEN) project report (2015), where detailed overview of oil processing practices was given, indicating, among other, lack of technical skills, insufficient cleanliness of equipment and long time period from harvesting to processing as the main reasons for low quality of oil produced in Albania.

On the other hand, it is noted that small processing plants have become more efficient in producing high-quality oil for domestic and foreign market (Kapaj and Kapaj, 2012). The investments in the olive oil processing industry, where 'Pieralisi' type presses prevail (more than 50%), and 'Alfa Laval' (15%) are clear indicators for a general will to produce high-quality olive oil (Kapaj and Kapaj, 2012). By confronting this will with the still insufficient olive oil quality, it may be deduced



that little has been invested for the training of processors to increase their know-how and also in the food control system, legislation, etc.

As shown in the publication by Mile (2018), there is a tendency to improve the quality of olive oil, and some prestigious Italian prizes as "BiOil" won by some leading companies as "Shkalla" and "Musai" witness it.

The wastewaters from the industry of olive oil extraction, which have negative environmental impact and may cause pollution in the discharge areas, have been calculated for the period 2010-2011 and concrete recommendation for the protection of biodiversity of ecosystems through agro-ecologic methods have been presented (Topi et al., 2013). However, the local situation needs more attention.

ASDO project is committed to delivering to Albanian olive millers the guidelines for olive oil extraction respecting the hygiene and other technical conditions following the EU standards, including the management of wastes.



Market development

Olive oil is an important component of the local diet, especially in producing areas. Increase in the living standards of the population during the last two decades directed consumers' preferences towards high-quality food and increased consumption of olive oil (Lushi et al., 2016). Despite this, per capita consumption of olive oil in Albania is still significantly lower compared to the main producing Mediterranean countries. Thus, in 2016 olive oil per capita consumption in Albania was 4.0 kg, while in Greece, Spain and Italy values were 12.8, 11.3 and 10.5 kg, respectively (IOC, 2016). With the production of 20,400 tonnes of olive oil in 2017 (about 7 l per person) (Mile, 2018), Albania is still behind the production of about 16 to 21 l per person of Mediterranean EU most productive countries (Topi et al., 2013).

In Albania, olive and olive oil market distribution channels are characterized by a high level of fragmentation, weak wholesaling sector and distribution to retailers are mostly done directly by bottlers. Additionally, distribution infrastructure linking farmers to the market is also poor (Kapaj and Kapaj, 2012). In rural areas, it is very common that a large proportion of consumers buys olive oil and table olives directly from the producers (farmers or processors), while in bigger cities this proportion is smaller. A study conducted in Tirana, Fier and Durres found that more than 50% of consumers buy olive oil in supermarkets, 22% in the neighbouring small shops, 9% in regional markets and only 6% directly from producers (Lushi et al., 2016). The



recent increase in the number and size of supermarkets is expected to have a significant impact on the domestic market, not just in urban areas. In general, long-term contracts between olive oil producers and distributing or selling companies (wholesalers, middlemen and retailers) are not common in Albania.

In 2010, local processing plants had in total 40 registered brands and approved labels; 34 for olive oil and 6 for table olives. Most of the bottling companies are supplied from local processors in bulk and after bottling they sell oil as their own brand (Kapaj et al., 2013). Consumers prefer locally produced oils and table olives, more specifically from farmers they know (Chan-Halbrendt et al., 2010; Zhllima et al., 2015); they have little trust in the quality and food safety standards of the domestic commercial processors, since they consider that regulating authorities do not perform their duties well. Trust in local producers creates room for branding and promotion of high-quality products for niche markets (i.e. organic production).

Considering import/export trade ratio, imports are much higher than exports, resulting in a trade deficit of around 1,000 tonnes of olive oil (Zhllima et al., 2015; Mile, 2018). Olive oil is mostly imported from Italy, while table olives from Greece. Imported oils have a much higher price, compared to those in the country of origin, being much higher than that they could justify by import duties. This can partially be explained by the fact that local consumers often identify high price with higher quality.

On the other hand, the chemical and organoleptic analysis performed in different laboratories, in Albania and in Italy, of the quality extra virgin olive oil, produced from autochthonous Albanian cultivars, showed very good results (Muço et al., 2015, RESGEN report, 2015, Velo and Topi, 2014) as follows:

- Native cultivars present good quality in chemical and organoleptic composition, comparable with countries of the Mediterranean basin, and provide good quality and balanced profile of fatty acids.



- Some samples of olive oil from Albanian cultivars were classified as virgin oil.
- The Albanian oils are sweet and balanced with fruit flavour.
- Mono-cultivar extra virgin oils have profiles of fruit smell, bitterness and burning.
- Due to the high adaptation to the environment and resistance to unfavourable conditions, breeding work is highly needed for autochthonous cultivars.

The result of these analyses opens a new page in the revaluation of olive oil production in Albania.



Ulliri i Zi i Tiranës, Lanabregas (photo ASDO)



Legislation, certification and policies

Regulatory framework linked to the olive sector in Albania is characterized by a wide range of legal provisions governing it directly or indirectly. As sector specific, it should be highlighted Law No. 8944/02 'On the Production, Origin and Trade of Olive Oil' and more recently Law No. 87/2013 'On the categorization of the production and marketing of olive oil and olive-residue oil'.

Among indirectly related laws, it is important to mention Law No. 74/2013 'On Food', Law No. 9362/05 and Law No. 105 of 27.10.2016 'On the Plant Protection Service', etc. Considering organic agriculture, a new Law No. 106/2016 'On biological production, biological products, labelling and control' was approved by the Parliament of Albania in 2016 and it is based on European Council Regulation (EC) No. 834/2007.

The certification and sanitary control of propagation material are the apparent obstacle for sector development. Due to the complex relationships between responsible institutions and lack of horizontal and vertical coordination, the system is based on self-control of individual nurseries, without a reliable system of inspections and control. Except for direct intervention in setting up a sanitary certification system for olive plants, amendments to the present legislation are carried out, e.g.: Law No. 1 of 12.02.2013. 'On



production, conservation and use of certified multiplication material of fruit crop plants' and Decision of Council of Ministers No. 240 of 27.03.2013 'On the determination of certification and trade criteria of propagating material and seedlings of fruit crops'.

Several secondary legislations regulate food safety and hygiene aspects, food labelling and levels of residues in food. However, significant space for improvement is present. Among regulatory gaps indicated in ASDO project inception report (2015) as well as in the ASDO project report, updates are needed for the secondary legislation on certified propagation material, registration of Geographical Indications (GIs) (Decision of Council of Ministers No. 1705/08) and the competences of National Food Agency (NFA) for inspections in the different stages of the supply chain.

From 2007, several support programmes and measures have backed up the olive sector in Albania. Zhllima et al. (2015) presented a detailed list of government support measures to the sector from 2008 to 2014. It included financial support for the planting of traditional and intensive olive cultivars, support for rehabilitation of existing blocks of old and/or degraded olive groves. Support for drip irrigation systems was continuously given in this period, but not efficiently used, as other supports for cropping technologies. Furthermore, in some years, support for the control of olive fly was provided, stimulations for production of extra virgin olive oil (based on produced quantities) and support for investments in production and infrastructure.

This support resulted in a strong increase in the number of applicants coming from the olive sector. Thus, their number increased from 337 in 2007, to 1,616 in 2012. Whereas, in 2013 the number of direct beneficiaries for financial support allocated by the government to the olive sector was 3,358 (Marku, 2015). However, as mentioned in the production and processing section, these measures resulted in an increased production base, but without improving the sector competitiveness as a whole. Thus, currently, the focus is placed on qualitative improvements of all sector segments (production,



processing, marketing, etc.). Special attention has to be given also to other important technologies, e.g. pruning, phytosanitary measures, minimum tillage, fertigation, etc.

In February 2018, the Government of Albania launched the initiative of 100 villages, which will profit from special subventions in infrastructure and support for businesses, aiming to rural development, diversification of activities towards tourism, etc. ASDO project will help this initiative, given that 60 of these villages are situated in olive-growing areas.





Research, education, training and extension

Numerous projects and studies have been carried out in the Albanian olive sector. As an example, a special international conference was held in 2008 on quality and security of olive oil production in Albania (i.e. Conference on olive oil quality and security in Albania, 2008).

Furthermore, a fundamental study was carried out in the olive-growing territory with the participation of 40 well-known specialists entitled: 'Study on the situation of the olive sector and its perspective' (MAFCP, 2009), aiming to increase olive trees up to 20 million plants in a short time as part of the National Olive Programme. The backwardness of the olive sector in Albania has also been analysed. The study objective was to increase the number of olive plants from 1.5 olive plants/inhabitant (compared to about 4 to 10 plants/inhabitant in other Mediterranean countries as Italy, Spain and Greece) to about 7-8 plants/inhabitant. This study gave the detailed map and indications of future olive cropping area for each region and municipality of Albania (till 25 million olive trees). The economic efficiency and the profitability of the olive sector were also presented (Leonetti et al., 2009). The list of improvement measures was also recommended, to be taken in the cropping and processing technology and in particular, the perspectives for the production of certified olive plants with appropriate projects on nurseries in Vlora.



The vision and technical recommendations of this study are still valid. Despite the fact that Albania did not reach the planned number of olive plants (25 million), the plant number was nearly duplicated (about 11 million), and now the structure of olive groves in Albania has completely changed, even though the study orientations were not fully implemented.

Over the years, the Agriculture Technology Transfer Centre (ATTC) in Vlora developed research and studies financed by the same Ministry of Agriculture and also as part of cooperation in the framework of EU projects and other international centres as follows:

A. Financed by the Ministry of Agriculture (2004-2007):

1. Characterization of Albanian olive varieties and its products and genetic improvement;
2. Propagation and cultivation techniques on olive groves;
3. Integrated control of *Bactrocera oleae* with alternative methods compatible with organic farming;
4. National Study of Albanian Intensive Olive Sector (2009);
5. Competitive aspects of olive in Albania: definition of models for renewing olive cultivation. Qualitative and quantitative improvement of production (2010).

B. International Projects

1. Biological control in organic olive growing, 2004-2008 (EU-Interreg IIIA. CIHEAM-Bari - MARD);
2. Soil fertility management in organic olive growing, 2005-2008 (EU-Interreg IIIA. CIHEAM-Bari -MARD);
3. Promotion of local olive oil in south Albania, "Kalinjot" cultivar. 2004-2008 (EU-Interreg IIIA. CIHEAM-Bari - MARD);
4. IPM CRSP Integrated Pest Management on Olive 2000-2006 (USAID, Virginia Tech University, Pen State);
5. Olive groves and olive oil quality production. (CNR IVALSA Florence, PIERALISI company and Tuscany Oil Olive Panel Test);



6. "International Competition Olio di Oliva", March 2011 (ATTC-MAFCP);
7. Evaluation, restoration and production of local nursery material - Interreg IIIA (CIHEAM-Bari and MARD);
8. Integrated project for technical assistance in implementing methods for organic products (PAB I e II), Interreg II Italia - Albania, Measure 3.1 action B 2003-2008.

In general, after the support given by the Albanian Government to the Olive Sector, the second contribution comes from USAID programs and the third one from the Italian Cooperation (Personal Communication).

The specific contribution of CIHEAM Bari concerns IPM, organic production and marketing, (with Italian or Interreg projects) and the marketing of extra virgin olive oil.

Another focus of different studies was on consumer preferences and attitudes (Chan-Halbrendt et al. 2010; Zhllima et al., 2014; Lushi et al., 2016), in addition to few studies considering physicochemical analysis of locally produced oils (Hysi and Kongoli, 2015; Muco et al., 2015; Muco and Kopali, 2015), genetic profiles and production potential of local cultivars (Velo and Topi, 2017; Ismaili, 2018) and review articles about the state of the sector and its perspectives (FAO, 2007; Leonetti et al., 2009; Kapaj and Kapaj, 2012; Skreli et al., 2015). Environmental impact of olive production and processing waste management are still underexplored; one of the rare studies is the work by Topi et al. (2014), considering the chemical analysis of solid wastes and wastewaters from olive processing units in Albania.

In the majority of the above-listed studies, a common descriptor is a high level of cross-citation from review articles published earlier, without delivery of new insights into the sector. Thus, the information provided can often be considered as outdated. This clearly indicates that new research topics are needed, with well-established and reliable methodologies, as well as cooperation with international



research centres and institutions, to serve as an impulse for national researchers and research institutions.

A very important study was conducted in the framework of the RESGEN project (conservation, characterization, collection and utilization of genetic resources in olive - *Olea europaea*) in Albania, 2011-2013, when primary and secondary characterization and establishment of a national collection of local and international varieties was performed. During the project duration, a total number of 91 accessions was collected and studied by the Agriculture Technology Transfer Centre in Vlora.

Furthermore, as identified in ASDO project inception report (2015), lack of collaboration between the Ministry of Agriculture and the Agricultural University of Tirana is one of the factors causing the insufficient operational level of institutions devoted to research, extension and laboratory controls in the olive sector. ASDO project tries to strengthen this collaboration also through its non-key experts, who all come from the Agricultural University of Tirana.

In 2013, nine high schools devoted to agricultural education were operational, based in the rural regions of Berat, Elbasan, Korçë, Fier, Shkoder and Tirana. The Agricultural University of Tirana and the Faculty of Agriculture at the University of Korçë were the only higher education institutions in the field of agriculture (Zhllima et al., 2013).

Based on the new legislation (March, 2018), the advisory service has been reorganized in 4 regional agencies in Tirana, Vlora, Korça and Shkodra. Provision of extension services in Albania can be divided into three categories: *i) advisory services* provided by public and private subjects (public extension service, input suppliers, NGOs, etc.), *ii) agronomic services* provided by specialized or semi-specialized service providers, and *iii) services to producers* and processors for the introduction of standards and relevant certification by private suppliers (ISO quality standards, HACCP, organic production etc.) (ASDO, 2015).



The public sector for the provision of agricultural services was significantly enhanced in 2006, by the governmental decision to make reorganization of scientific research institutes and to establish five Agriculture Technology Transfer Centres (ATTCs) in the main agricultural regions of the country, with a focus on the provision of services (FAO, 2007). Their establishment was not accompanied by their effectiveness and despite the potential, the current level of public services is limited with a lack of human resources. This gap is just partially covered with activities of the private sector in the provision of services to sector operators and within the framework of different development projects (Zhllima et al., 2013).

The ATTC of Vlora is directly charged with the transfer of technologies in the field of olive production and ASDO project is also working with this centre as well as with the Genetic Bank and Phytopathological Laboratory of the University of Tirana, aiming also to collaboration among these institutions.





Methods and tools

To support the setting up of a consistent strategic framework for the olive and olive oil sector in Albania and the formulation of key recommendations for its future development, in the framework of ASDO project, an economic study of the sector was designed and conducted with two specific objectives:

- Carry out a SWOT analysis of the Albanian olive sector through the involvement of relevant sector stakeholders.
- Gather core structural data on the business activities of the three specific operator categories identified as target groups of ASDO project, namely: a) olive nurseries, b) olive producers, c) olive oil processors.

The study was designed to reach a broad number of operators and stakeholders along the olive value chain and across the country. The process has been closely monitored by the project management unit (PMU) and the staff responsible for the economic study.

SWOT analysis

The first component of the study, the SWOT analysis, was carried out in four main steps. *Firstly, a preliminary SWOT matrix* was developed on the basis of a desk analysis of relevant literature (including published academic materials, project reports and other



documents) as well as of local and international expert discussion.

The SWOT matrix was structured in four thematic areas, namely:

- Production and processing (technical and environmental aspects)
- Market development (commercial aspects)
- Legislation, certification and policies (administrative and development support)
- Research, education, training and extension (university, training, advice, financial support, etc.)

Secondly, the preliminary SWOT matrix was validated by 543 operators, divided into three subgroups: nurseries, producers and processors (Fig. 10).

The validation exercise was carried out through regional workshops held between November and December 2017 in the five main olive producing regions of the country - Berat, Elbasan, Fier, Vlora and Tirana - to ensure a wide outreach and good participation into the consultation process. A total of 56 nurseries, 403 producers (farmers) and 84 processors (millers) took part in the consultation for the SWOT validation. Figure 10 shows the participation breakdown by region and sub-group.

Thirdly, the validated SWOT matrix was discussed and voted by a group of 30 selected stakeholders from different backgrounds, including nurseries, producers, processors, as well as competent ministerial departments, academic and research institutions, certification service providers, consumer and producer associations. The stakeholders were asked to provide a score to all items in the SWOT questionnaire, according to their perception of item importance, on the scale from 1 to 10 (where 1 is the lowest and 10 is the highest). SWOT voting was carried out in the framework of a multi-stakeholder workshop, held in Tirana in February 2018 and aimed at assessing, through a scoring and ranking exercise, participating stakeholders' position, opinions and interest around the sector's issues presented in the SWOT matrix.

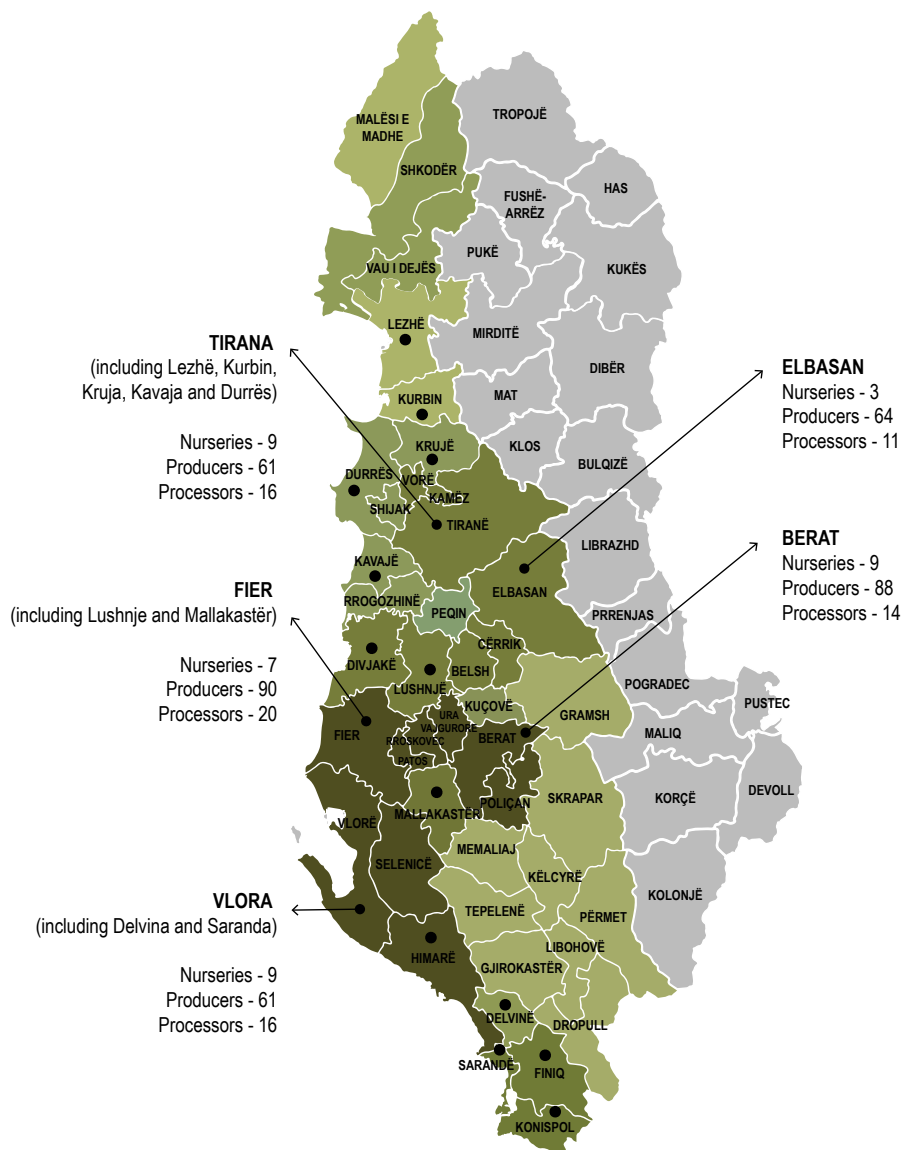


Figure 10. Regional distribution and number of operators involved in the study (map source: USAID, 2011 - geographical distribution of olive trees by region in Albania, higher colour intensity indicates a higher number of trees)



Importance of stakeholder involvement is widely recognized by many research studies and development projects. Needs and perception of stakeholders are important when enforcing any policy measure, and they can also be a driver for the creation of needed actions. Also, implementation and scaling up of any measures or innovations are highly dependent on stakeholder interest and involvement. Furthermore, different groups of stakeholders may have a diverse opinion regarding the objectives of the policy measures, indicating that in order to obtain a comprehensive picture of the sector needs, various groups should be involved in the assessment.

Finally, based on the outcomes of this final workshop, the olive and oil sector's needs were prioritised.

Structural survey (questionnaire)

The second component of the study, the structural survey, was carried out in functional connection with the validation phase of the SWOT analysis. A structured questionnaire previously designed and discussed with local experts was administered to the same operators (nurseries, producers and millers) involved in the regional SWOT validation workshops. The survey tool, administered through face-to-face interviews, included a number of closed questions investigating the following thematic areas: operator and enterprise profile, details on the land use and the quality of production, labour structure, market channels, profitability, inputs used, production and processing methods, investment and mechanization and finally, type and sources of supports received in the previous years. For each thematic area, a set of indicators was identified. In addition to the common questions administered to all operator categories, the tool also included another group of questions, specifically designed for each operator category, to investigate precise issues connected to the operator's activity type.

Descriptive statistics (percent and frequency) was used to present operators' responses to survey items. Country aggregate results per operator sub-group are presented in the following section. Regional details are included in Annex II.



Results

Results are presented in 2 main sections, the first presenting the results of the scoring of the SWOT analysis and the second presenting the results on the structural survey. Each section is divided into subsections according to the thematic areas for each group of operators (respondents/stakeholders). Operators profile, economic, labour and business support aspects coming from the structural survey are presented for three groups of operators (nurseries, producers and processors), to allow easier comparison of results which are in the focus of the present study. Detailed elaboration of all results can be found in Annex I and II.

SWOT analysis

The current section, presents the results from the SWOT analysis regarding the items identified as high and medium level priority under four thematic areas. Detailed elaboration of SWOT results for the multi-stakeholder scoring workshop, including all items, is presented in Annex I. It is important to emphasize that there were no significant differences between scores obtained during the workshop and results of SWOT validation performed by operators which took part in the structural survey.

Production and processing - As main *strengths*, stakeholders identified the presence of olive mills with high-quality standards and



expansion of primary production base (due to the governmental support in the period 2007-2013). Furthermore, the young age of sector operators and cultivation of local cultivars were considered important. None of the items scored above 8.0 (Table 2).

The section *weaknesses* was the most numerous for production and processing thematic area. 15 out of 17 items obtained a score of 7.0 and above, indicating that sector development is hampered by many obstacles. Among weaknesses, inadequate management of traditional olive groves, abandonment of coastal olive areas, small farm size, production, periodicity and knowledge gap regarding benefits of certified olive seedlings were recognized as the main weaknesses with a high score (all above 8.0). In addition, a high share of lamp olive oil, the weak role of operators associations, low quality of production inputs, etc. scored high. Interestingly, the denotation of small olive mills as the only one making high-quality oil was not recognized as an important weakness, scoring only 5.2

Exchange of innovations and technologies with EU and Italian producers was recognized as a very relevant *opportunity*, whereas a lack of investments and risk of new phytosanitary issues were indicated as important *threats*.

Table 2. SWOT analysis overview - production and processing

Strengths	Score	Weaknesses	Score
Presence of oil mills that have reached high-quality standards, gaining national and international awards	7.8	Limited mechanization and poor management of traditional olive groves	8.6
Good and progressive expansion of primary production base in terms of new plantations, financed by the Albanian Government in the period 2007-2013	7.5	High production periodicity over the years	8.4
The existing processing capacity of reasonably modern oil mills can absorb a much larger production without requiring additional investments	7.4	Very low awareness among producers of advantages of certified healthy olive seedlings	8.4



Diffused cultivation of at least two local varieties with a very good commercial potential (Kokerrmadh i Beratit and Kalinjot)	7.3	Abandonment of olive groves along the coast	8.3
The young age of olive producers and millers (human capital)	7.1	High land fragmentation and numerous small sized farms (farms are still too fragmented and small to be efficient to have good productivity and profitability)	8.2

Opportunities	Score	Threats	Score
Strengthening of technical relations with Italian and EU producers and factories for innovative technologies	8.4	Lack of investment capital in agribusiness, and lack of credit	8.6
		Risk of new phytosanitary issues	8.0

Market development - Increasing demand for oil and table olives and growth of the middle-class population attentive to the quality and origin of the product were identified as main *strengths*, scoring 8.9 and 7.9, respectively (Table 3). All items in the *weakness* section scored above 7.0. High farm-gate price of olives and low consumption in internal areas obtained the highest score (8.1). Furthermore, other weaknesses were the shortcomings related to the supply chain (i.e. access to the supermarket for small bottlers, lack of wholesaling actors, a small share of high-quality olive oils, lack of collaboration among supply chain actors, etc.) and high level of self-consumption and direct sales causing unreliable supply. Prices of local oil are recognized as too high compared to comparable quality oils from the main European producing countries and lack of modern marketing techniques present additional obstacles for market development in Albania.

The main *opportunities* recognized in the market development segment were the increase in tourism and urbanization - providing an additional market for local olives and olive oil and integration into the EU agricultural markets, with positive demand for high-quality typical products. Challenges coming from the integration into the EU market, due to the lack of preparation and cheap import of agrifood products are seen as main *threats*, followed by the fast growth of the olive sector in other Mediterranean countries, high imports of seed oils and olive oil from non-EU countries.



Table 3. SWOT analysis overview - market development

Strengths	Score	Weaknesses	Score
The positive trend of demand for olive oil and table olives	8.9	Excessively high farm-gate price of olives; pricing in any areas of Albania is still related to family income objectives rather than to international prices	8.1
Growth in Albanian population of a middle class attentive to the quality and origin of the products	7.9	The consumption of olive oil is widespread, but not universal (families in internal non-producing areas make very little use of olive oil)	8.1
Traceability systems are appearing (but need harmonization to EU standard)	7.2	The too high degree of informality with the negative implication in terms of traceability and certification of quality	8.0
Existing promising marketing relations for export (specific connections with Albanian communities in the world)	6.6	Olive oil in Albania is expensive, as compared to prices for the comparable quality of the main European producing countries	8.0
		High-quality olive oil represents still a small share of demand and supply despite per capita income growth	7.7
Opportunities	Score	Threats	Score
Increasing urbanization and tourism trend can provide opportunities for the development of the olive oil market	8.6	Farmers and agribusiness operators are not yet sufficiently prepared to manage the opportunities and challenges originating from the integration in EU agricultural markets and policies	7.6
Interesting opportunities originating from the integration of EU agricultural markets and policies	8.1	The sector in other Mediterranean countries is growing faster and in a more organized way	7.4
Typical products (made from local cultivar) of high quality are required for export in European rich countries	7.4	High quantity imports of seed oils	7.4
		Cheap import of agrifood products is a limit to the commercialization of domestic products	7.3



Legislation, certification and policies - The work of the Ministry of Agriculture on national schemes for the development of the olive oil sector was recognized as a *strength*, with an average score of 8.6 (Table 4). As in the case of market development in the regulatory framework segment, all items in the *weaknesses* section scored above 7.0. Limitations related to inadequate and underdeveloped quality certification infrastructure (labs, control authority, etc.) and missing adaptation of secondary legislation obtained the highest score. Among others, need to have a national strategy and lack of support to organic farmers was highlighted as important among stakeholders.

Establishment of a national legal framework for GIs and setting up of farm register with land/parcel information system were acknowledged as *opportunities*, both scoring high on average (8.0 and 7.9, respectively). Insufficient implementation of the secondary certification system and insecure land property rights were identified as main *threats* considering the regulatory framework. While, exclusion of the olive sector from IPARD II programmes (2014-2020) was seen as a minor threat, but still scoring above 7.0.

Table 4. SWOT analysis overview - legislation, certification and policies

Strengths	Score	Weaknesses	Score
Nowadays, the Ministry of Agriculture is working on national schemes for the development of the olive oil sector	8.6	Infrastructure for quality certification (labs, control authority, etc.) is underdeveloped	8.4
		Though the primary legal framework and the system of services to supply chain are gradually more or less harmonized to international standards, much work is still needed on secondary legislation, institution capacity building and law enforcement	8.0



		The regulatory framework for quality standards exist (Law 8944/2012) but it is not completed	7.8
		Lack of a national olive oil strategy	7.4
		Small organic farmers are not financed for organic farming through governmental subsidies	7.3
Opportunities	Score	Threats	Score
The process to establish a National Legal Framework on GI has started	8.0	The secondary certification system for propagation material is not effectively implemented	8.0
Current setting up of a farm register, and establishing the land parcel information system, as integral parts of national integrated administration and control system	7.8	Land property rights are uncertain and ambiguous	7.9
		IPARD II Programme 2014-2020 funded by the EU, particularly implementing the Instrument for Pre-accession Assistance for Rural Development, is ongoing, but it does not include the olive sector	7.4

Research, education, training and extension – Good scientific background about the olive sector of the Albanian researchers and sector specialists (experts) scored on average 7.9 as main *strength* within a given thematic area (Table 5). The system of services along the supply chain was recognized as weak, with a score of 8.0 (main *weakness*) followed by the low educational profile of operators (7.6) (second weakness). Results of the questionnaires (presented in the coming sections) confirmed the second weakness since, in case of nurseries, only 4 out of 56 had vocational or university degree related to agriculture.

**Table 5. SWOT analysis overview - research, education, training and extension**

Strengths	Score	Weaknesses	Score
Presence of good scientific background about the olive oil sector	7.9	The system of services along the supply chain is still weak at all levels: limited demand from operators, limited and unprofessional supply	8.0
		Low educational profile of operators	7.6
Opportunities	Score	Threats	Score
Albanian research and education centres involved in the international network	7.7	Limited funding for research, education and training	8.3
		The national framework for organic sector is not implemented	7.3

The involvement of Albanian research and education centres in international networks was recognized as an *opportunity* among stakeholders, while limited funds for research and lack of implementation of the national framework for organic agriculture scored high and medium as main sector *threats* (8.3 and 7.3, respectively).

Structural survey (questionnaire)

Operators' profiles

The profiles of the investigated three groups of operators are presented in Table 6. Out of the total number of 543 operators, 56 were nurseries, 403 producers and 84 processors.

Nurseries - The sample included 98% of males (out of a total of 56 operators); the respondents' average age was 51 and more than 94% were entrepreneurs. The education profile is quite diverse, thus all education levels were represented, with the majority in vocational agricultural school (41%), followed by secondary school (20%) and University degree in agriculture (14%), etc. The average business life was 14.6 years, with the highest duration recorded in Vlora region



(20.8) and the lowest in Elbasan (8.3). Only one nursery was publicly owned, while 68% were fiscally registered. Business associations are not common among nursery operators, and only 7% were members of agricultural organisations. For 68% of the respondents, the nursery is the only source of income.

Producers - The olive producers participating in the survey were 98% males, 55 years old on average, with a vast majority of entrepreneurs (92%). As in the case of nurseries, most of them had attended a vocational school (40%) and a fairly high percentage had only attended the primary school (25%). The average business life was 20 years, with comparable values in the various regions, except for Elbasan, where the average was 15 years. For 49% of the producers, the farm is the only source of income, while for the remaining 51% other businesses or immigration remittances are additional sources of revenue. Only 38% had fiscal registration for their farm business activity and just 18% of the respondents were members of producers' associations.

Processors - The respondents from the processors' group were 95% males, on average 50 years old. Thus, the gender and age structure was quite homogeneous in all three groups of operators. As regards the education level, all categories were highly represented, except for post-graduate degree, with the majority of respondents having attended a secondary school (30%) or a vocational school in the field of agriculture (26%). More than 90% of the processors were entrepreneurs, with an average 10-year business activity. The shortest average business activity at regional level was found in Berat (6.3 years) and the longest in Vlora (13.5 years). For 86% of the respondents, olive processing was the only source of income, whereas 36% of them were members of associations (the highest percentage among the three groups of operators). Out of the total of 84 processors, only 2 were involved in processing of table olives, while the majority was oriented towards oil processing.



Table 6. Operators' profiles

Indicators / Group of operators		Nurseries	Producers	Processors	
No. of respondents		56	403	84	
Average age of respondent		51	55	50	
Gender (%)	Male	98	98	95	
	Female	2	2	5	
Primary		13	25	9	
Secondary		20	21	30	
Education of respondent (%)	Vocational	Agricultural	41	30	26
		Non-agricultural	5	10	16
	University	Agricultural	14	9	9
		Non-agricultural	2	4	6
Post-graduate	Agricultural	5	1	2	
	Non-agricultural	0	0	2	
Function of respondent (%)	Entrepreneur		94	92	94
	Manager		2	1	2
	Both		2	6	2
	Other		2	1	2
Average period of business activity (year)		14.6	20.6	10.0	
Olive business as the only source of income (%)		68	49	86	
Membership of associations (%)		7	5	36	

Nurseries

A total of 56 nursery operators participated in the survey, with the following regional representation: Berat - 9, Elbasan - 3, Fier - 17, Vlora - 18 and Tirana - 9.

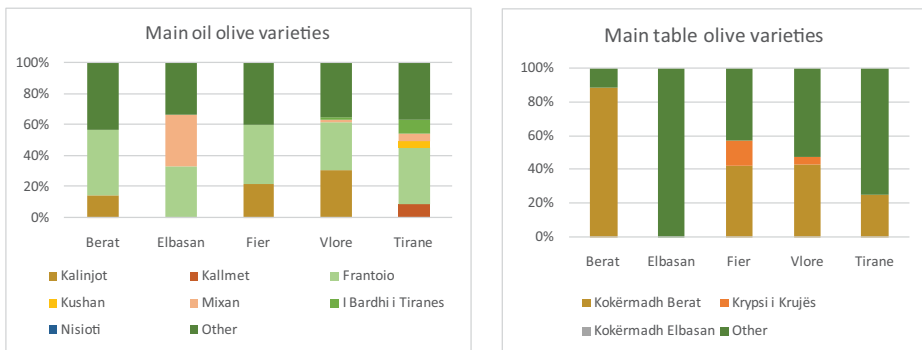
Nurseries description - The average nursery size was 0.48 ha, and at regional level the largest size was 0.64 ha (Berat) and the smallest 0.14 ha (Fier). Oil olives occupy a higher average area compared to table olives, i.e. 0.27 ha and 0.14 ha respectively. Only 29% of the nurseries are fragmented while 89% are highly specialised since olive seedling production represents their main activity.



Production methods and inputs used - Certification of production, in terms of seedlings' health status, is not yet widespread across the nurseries in Albania; as demonstrated by our findings only 66% of the nurseries had a certificate in this category. However, 86% of the respondents consider that the current phytosanitary status of their nurseries is good. All operators use pesticides, with an average of 7.7 treatments per year. The pesticides applied are all synthetic, while no organic plant protection product is used. As a result, none of the nurseries had a certificate for organic production. *Prays oleae* is considered to be the key pest and *Spilocaea oleagina* the main disease. As regards soil fertility management, organic and inorganic fertilizers are used by most nurseries. Olive mother blocks are grown by 77% of the nurseries, whereas 25% purchase seedlings.

Varieties of olives produced - Among oil olive varieties the two most frequent ones are "Kalinjot" and "Frantoio" and in Elbasan region, a significant proportion is represented by "Mixan" variety. "Kokërmadh i Beratit" is the predominant table olive variety, except for Elbasan (Fig. 11). The high frequency of "other" answers in the case of Elbasan can be interpreted as the absence of dominant cultivars, or as the production of more different varieties.

Figure 11. Main oil and table olive varieties produced by the interviewed operators per region





Investments and mechanization - All nurseries apply irrigation for growing seedlings, 86% using their own wells, the rest resorting to collective or other private wells. Additional details on irrigation equipment and other facilities are reported in Table 7. More than half of the respondents have localized irrigation systems and use foliar spray, but only 34% have fertigation systems. Concerning the presence of some facilities in the nursery i.e. garage, house and storage, about two-thirds provided a positive answer. Moreover, electricity is available in 89% of the nurseries.

Table 7. Presence of irrigation equipment and other nursery facilities (%)

Region/ indicators	Localized irrigation	Fertiga- tion system	Foliar spray used	Owned garage	House in the nursery	Owned storage	Elec- tricity
Berat	89	33	56	67	67	0	79
Elbasan	67	33	100	0	67	100	100
Fier	94	65	71	53	59	59	88
Vlora	16	6	72	56	89	83	89
Tirana	44	33	56	67	33	56	100
Total	59	34	68	55	66	59	89

When considering mechanization, about half of the operators use their own machines, 32% rely on rental, while the rest both owns the machines and rents them out. The average age of the agricultural machinery can be considered adequate since 49% of the machines used are less than 10 years old. Instead, most machines in Berat and Vlora can be deemed to be obsolete (10 to 15 years old).

Market channels - Out of the total sample, 99% of the nurseries sell oil and table olive seedlings directly to farmers, while only 1% sell to retailers. Most of the respondents (67%) produce both olive and table varieties, the remaining 33% specialize in oil varieties, whereas none of them produces only table varieties. 84% of the nurseries sell only grafted seedlings.



Producers

Olive producers were the most numerous group in the survey, with a total of 403 operators and the following regional distribution: Berat - 88, Elbasan - 64, Fier - 90, Vlora - 100 and Tirana - 61.

Farm description - The average farm size was 2.1 ha, with an average of 1.4 ha intended for olive cultivation (quite low compared to the main producing countries in the Mediterranean region), of which 1.3 ha of owned land and 0.1 ha of rented land. On 73% of the farms, olives are the main cultivated crop, whereas 85% of the farms are fragmented, with an average tree density of 265 trees per ha (without high regional deviations from the mean value). Olive cultivation for oil is predominant compared to table olives, with 1.2 ha and 0.4 ha on average, respectively. New plantings are highly represented in both cases.

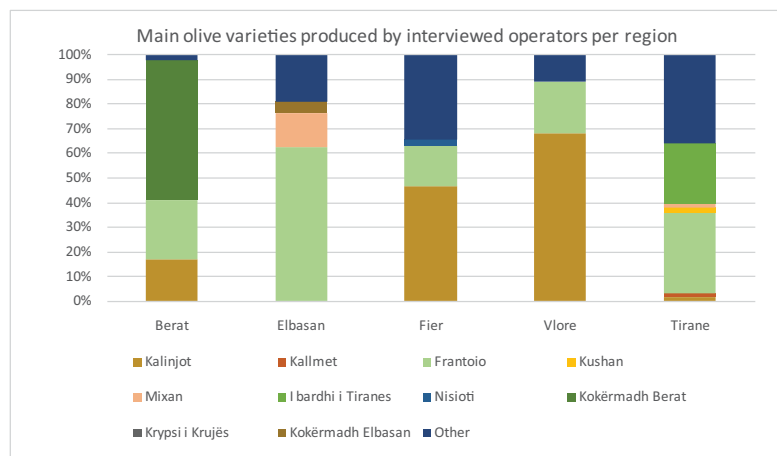
Production methods and input used - Out of the total of 403 farms, the majority is under conventional management, with only 14% following integrated crop production and 0.2% organic farming methods. 79% of the producers have plant health certificates for their production, while a total of 98% consider that the phytosanitary status of their production is good or sufficient. Concerning plant protection, 76% of the respondents apply pesticides, mainly synthetic products, with 2.6 treatments per year on average. Interestingly, as many as 50% of the producers in Vlora said that they do not use pesticides. *Bactrocera oleae* is regarded as the key pest in all regions, except for Tirana where *Prays oleae* was reported to be the main one by most farmers. As for plant diseases, *Spilocaeca oleagina* was indicated to be the main one in all regions. The majority of farmers use both organic and inorganic fertilizers (more than 75% in both cases). Pruning frequency was on average once every two years, being uniform among regions.

Varieties of olives produced - The main cultivated olive varieties are presented by region in Figure 12. "Kokërmadh i Beratit" is highly present in Berat, followed by "Frantoio" and "Kalinjot". In Fier and



Vlore “Kalinjot” and “Frantoio” prevail, whereas in Elbasan “Frantoio” is cultivated on 62% of the farms. Tirana region was the most diverse in terms of varieties grown, with a more significant presence of “Frantoio” and “Ulliri i Bardhë” i Tiranës.

Figure 12. Main olive varieties produced by interviewed operators per region



Quality characteristics and procedures – All producers process part of their production. Regarding olive oil categories, extra-virgin and virgin olive oil are the only two categories produced, with 60 and 40 % respectively, out of the total number of producers (403). None of them selected production of refined or olive pomace oil. The average number of days from harvest to processing amounts to 2.1, while olives are transported to the mills mainly in plastic bags (74%) and plastic boxes (22%). A high proportion of used plastic bags along with the time period from harvesting to processing (more than 48h on average) can be considered as a significant obstacle to producing high-quality oil. For olive oil processing, the continuous method is used by almost 100% of the respondents, while plastic containers are used for oil packaging by 80% of them. The most common processing method for table olives is green olives treatment (used by 91% of the respondents). In the interviewed group, only one producer in



Berat region grows organic olives, while in other regions organic production is low represented. Respondents were asked to express their interest in the Geographical Indication (GI) label and the result was 68% positive and 32% negative answers.

Investments and mechanization - Only 14% of the respondents apply water in their olive groves according to an irrigation schedule, 25% based on supplemental irrigation, while 61% do not irrigate at all. As for nurseries, the main source of irrigation water for producers is represented by own wells (61%), followed by collective (24%) and other private wells (15%). Details for on-farm facilities are provided in Table 8 as a percentage of the total sample. Presence of olive mill and point of sale on the farm is not common among respondents (only 4% of positive answers in both cases). Similar results are reported for the presence of other on-farm agribusiness activities (3% of positive answers). As regards garage, house and storage facilities, and availability of electricity less than 30% of the respondents for each indicator provided a positive answer.

Table 8. Presence of different farm facilities (%)

Region/ indicators	Olive mill	Point of sale	Other agribusiness activity	Owned garage	House on the farm	Owned storage	Electricity
Berat	5	3	3	17	48	13	16
Elbasan	6	2	2	2	5	39	5
Fier	6	4	1	27	12	8	18
Vlora	2	6	5	16	14	14	16
Tirana	0	2	7	21	23	23	28
Total	4	4	3	17	26	18	16

In the mechanization category, 60% of the respondents answered that they rent out machines, 26% use their own machines and the remaining 14% both rent out and own machines. The agricultural machinery working life is less than 10 years for 60% of the respondents, between 10 and 15 years for 30% and above 15 years for 10%.



Tractor and motor hoe are the most widespread machines in all the investigated regions, representing together 60% of the total number of machines. Other machines are significantly less numerous.

Market channels - Apart from oil self-consumption, 7% of the respondents sell nearly all their produce, 62% sell the majority of their production, 13% about half and 18% less than half. Considering the product groups for sale, 57% sell both olives and olive oil, 37% only oil and 6% only olives. Regardless of the product type (oil olives, table olives or olive oil) more than 80% of the respondents sell their produce directly to consumers. Other market channels (e.g. through middlemen, associations, etc.) are much less represented.

Processors

The processors' group was represented within the survey with a total of 84 operators and following geographical distribution: Berat - 14, Elbasan - 11, Fier - 20, Vlora - 23 and Tirana - 16.

Olive oil processing plant description - Respondents were asked whether they had joint any voluntary certification scheme for their activity and only 12% of them gave a positive answer. The continuous method for olive oil processing (98%) prevails over the traditional one (batch) (2%), and almost all processors (99%) are also third-party service providers. The machinery used is on average 11 years old (from 6 years in Berat to 16 years in Elbasan), with an 18.2 t/day average plant capacity (from 11 t/day in Tirana to 25 t/day in Vlora). Out of the average yearly production of almost 70 tonnes, only 2 tonnes were organic and the rest conventional. The lowest average production was found in Tirana (44 t/year) and the highest in Berat (83 t/year).

Out of the total number of respondents, 64 process their own olives, of which 38% for extra-virgin (with an average of 5.6 t/year), 56% for virgin (with an average of 4.4 t/year) and 6% for refined olive oil (with an average of 1.1 t/year) production. These results highlight that quantities of produced high-quality oils are not yet enough, due



to the predominance of virgin olive oil over extra-virgin. Respondents were asked about the type of packaging and from the three answers provided (bottles, cans and other), 73% of them selected the "other" option and 27% the bottles. For oil storage, 84% of the respondents used stainless steel containers.

Processing waste treatment - Almost all respondents stated that they neither use residual vegetable water for fertilization nor provide it to third parties. As for the olive pomace, it is intended by the majority for internal reuse (e.g. energy production) and provision to third parties.

Table olive processing plant description - Among the interviewed operators two processed table olives and only one had joint voluntary certification for his business activity. Treated green olives and natural black olives were the main processing types. The machinery used was on average 5 years old, with a capacity of 5 tonnes of olives per day. Average production was almost 63 t/year, all conventional (without organic table olive processing).

Quality characteristics and procedures - When asked about their interest in GI labels, 85% of the respondents gave a positive answer. Only 23% had HACCAP certification and even less (18%) UNI EN ISO 9001:2015 certification.

Market channels - In the market category, respondents were asked about distribution channels for their own oil and table olive production. Concerning the EVO oil category, 94% of the processors directly sell their produce to consumers and only 6% of them is exporting. Other market channels (i.e. through middlemen, retailers, etc.) were not represented. A similar finding was reported for the VO oil category, where 99% is sold directly to consumers and the remaining 1% via retailers. Table olives were 100% distributed directly to consumers.



Labour structure, economic performance and business support incentives

Labour structure – Results considering labour structure clearly indicate the predominance of seasonal over permanent workers in all three categories of operators (Table 9). For nurseries and producers, further distinction is made between family and nonfamily members among the workers, thus highlighting a one-third contribution of the family members to the total workforce for both categories, permanent and seasonal workers.

Table 9. Labour structure (% of the total in both categories, except for processors)

Indicators / Group of operators		Nurseries	Producers	Processors
Total		33	26	22
Permanent workers (%)	Nonfamily members	70	65	/
	Family members	30	35	/
Total		67	74	78
Seasonal workers (%)	Nonfamily members	70	63	/
	Family members	30	37	/

Economic performance – Indicators related to the economic performance of three groups of operators are presented in Table 10. All operators in the category of nurseries and processors and 89% of producers have stated that their business is profitable. For the majority of nurseries (80%) and processors (86%), olive business is the only source of income, while this is the case for only 52% of the farmers. This clearly indicates an overly high proportion of non-specialised farmers. Recording of revenues and expenses seems to be a common practice among nurseries and processors, with 80 and 99 % of positive answers, respectively. In contrast, for farmers the percentage was very low (only 32%).

Considering the business profitability trend for a 24-month period before the survey, most of the nurseries were in the category “declined somewhat” (50%), followed by the category “remained



the same" (23%). Producers and processors expressed very similar profitability trend, with around 30% of the answers for the category "improved somewhat", followed by the categories "declined somewhat" and "remained the same", with around 20% of selected answers. Thus, in the categories of producers and processors more than half of the operators declared that business profitability did not decline over the last 24 months. Pests and diseases are regarded as the main factor affecting productivity among nurseries (for 62% of the respondents), followed by lack of financing (34% of the respondents). In the producers' group, the dominant factors affecting productivity were natural calamities (50%) and again the lack of financing (26%).

Table 10. Economic result for the three groups of operators (%)

Indicators / Group of operators		Nurseries	Producers	Processors
Profitable businesses		100	89	100
Olive business as the only source of income (%)		80	48	86
Recording of revenues and expenses (%)		87	32	99
Declined significantly		18	9	7
Business profitability over the last 24 months (%)	Declined somewhat	50	21	24
	Remained the same	23	22	21
	Improved somewhat	4	33	31
	Improved significantly	5	15	17
Natural calamities		0	50	/
Lack of knowledge		0	11	/
Lack of financing		34	26	/
Factors affecting productivity (%)	Unavailability of inputs	0	1	/
	Pests and diseases	62	0	/
	Market decline	0	7	/
	Other	4	5	/



Business support incentives - Percentage of operators by group and region who received financial support, inputs or any other assistance for olive business are presented in Table 11. Remarkably, it appears that only 16% of the nurseries, 26% of the producers and 27% of the processors have received subsidies or other support so far.

Table 11. Subsidies and other support received (%)

Region / Group of operators	Nurseries	Producers	Processors
Berat	56	16	29
Elbasan	33	41	9
Fier	0	19	35
Vlora	6	25	39
Tirana	22	34	13
Total	16	26	27

A more detailed description of typology and source of support for the total sample (expressed as a number out of the total sample - 543 operators) is presented in Table 12. As regards the operators, the Albanian government was the most important source of support for the olive sector under assessment, followed by USAID programmes. When considering typology, financial support and training activities were the most represented.



Table 12. Source and type of support received for the total sample expressed as a number out of the total (543 operators)

Source / Type	Financial	Input	Training	Advice	Other	Total
Albanian gov.	100	3	9	7	2	121
NGO	0	1	1	0	0	2
EU Programme	0	0	2	0	0	2
World Bank	0	0	0	0	0	0
USAID	8	1	11	0	0	20
SECO	0	0	1	0	0	1
SVN	1	0	1	0	0	2
Italian Cooperation	0	2	5	0	0	7
Other	1	0	0	0	0	1
Total	110	7	30	7	2	



The millenary olive of Palikesh, Drobonik - Berat



Conclusion and Recommendations

Needs and policy gaps of the olive sector in Albania

Needs and strategic objectives have been identified and selected for supporting and promoting the olive sector considering that they should: (1) respond to the sector's needs and take into account the policy gaps - as defined in the "weaknesses" and "threats"- and (2) exploit the sector's potential -as defined in the "strengths" and "opportunities".

In other words, the SWOT analysis is very useful to specify needs and highlight policy gaps as defined in the "weaknesses" and "threats".

The most important needs identified for the Albanian olive sector are the following:

Producing and processing

1. Stimulate investment of capital in agribusiness and improve financial conditions and support availability
2. Improve mechanization and management of traditional olive groves
3. Reduce high production periodicity over the years
4. Increase awareness among producers of advantages resulting from certified healthy olive seedlings, and strengthen the capacity and efficiency of the national phytosanitary control system



5. Tackle abandonment of olive groves along the coast
6. Foster increase in farm size and reduce land fragmentation
7. Stimulate use of proper bottling, storage, and packaging for quality preservation
8. Improve producers' know-how and awareness about market quality criteria (as opposed to traditional quality criteria)
9. Improve experience and know-how of operators/millers
10. Encourage greater use of processing industry capacity
11. Stop substitution of autochthonous cultivars with cultivars imported in recent years, and slow down erosion of valuable autochthonous cultivated areas due to urban expansion
12. Improve quality of olive oil (more EVO)
13. Improve quality of plant protection and fertilization (more organic products)
14. Encourage cooperation among operators to strengthen the role of producer organizations
15. Reduce the difference between coastal and internal areas that produce non-homogeneous quality of olives
16. Reduce high input price in olive production
17. Stimulate innovation and management systems in olive orchards to mitigate climate change

Market development

1. Foster the balance on olive oil between market prices and international market prices
2. Foster the olive oil consumption in internal areas
3. Improve the recording system for the development of traceability and quality certification
4. Modernize marketing techniques
5. Promote demand and supply of high-quality olive oil (consumption is still low despite increasing per capita income)
6. Improve supply chain efficiency, particularly the relationships among the actors
7. Encourage the sale of farm olive oil directly to processors and/or market



8. Strengthen local operators' competitiveness to counter advantageous international production costs and quality
9. Reduce the gap in terms of sector growth and organization between Mediterranean countries and Albania
10. Support operators for the management of opportunities and challenges resulting from integration into EU agricultural markets and policies
11. Increase cooperation among the actors of the organic supply chain
12. Increase the size and capacity of medium-sized bottling plants to deal with supermarkets and to seize the emerging market opportunity
13. Heighten awareness about the quality and safety of domestic products

Legislation, certification and policies

1. Develop infrastructure for quality certification (labs, control authority, etc.)
2. Improve the secondary legal framework to comply with international standards along with institutional capacity building
3. Complete the regulatory framework for existing quality standards (Law no. 8944/2012)
4. Guarantee land property rights
5. Draw up a national olive sector strategy
6. Improve legislation and procedures for registration of Geographical Indications in compliance with EU standards
7. Increase subsidies allocated to the sector
8. Finance small organic farmers through governmental subsidies
9. Establish a Panel Test Group meeting all the requirements provided for in IOC standards.



Research, education, training and extension

1. Increase funding for research, education and training, and develop training and advisory structures and services targeting operators along the supply chain
2. Promote adequate knowledge and information to support the operators
3. Update legislation and implement an efficient national framework for the organic sector (e.g. National Action Plan for Organic Agriculture).

Strategic objectives for the sustainable development of the olive sector in Albania

The most important strategic objectives (SMART²) for the Albanian olive sector are described in Table 13:

Table 13: List of the main strategic objectives

Thematic area	Strategic objectives
Producing and processing	<p>Description</p> <p>Increase the investment capital in agribusiness and financing for the improvement of business profitability</p> <p>Improve agronomic practices management (pruning, fertilization, pest management, irrigation, harvesting, etc.) and innovative and rational mechanization and irrigation management for water saving and re-using, and for climate change mitigation</p> <p>Increase awareness about the benefits of certified healthy olive seedlings and their use</p> <p>Encourage farmers to keep on farming, and foster socio-economic inclusion, particularly in coastal and internal areas</p> <p>Increase farm size and reduce fragmentation (land consolidation) to promote professional farming</p> <p>Improve and modernize machinery and equipment for transport, bottling, storage and packaging of olive oil and table olives</p> <p>Improve knowledge, experience and know-how among olive oil and table olive operators</p> <p>Encourage greater use of high processing industry capacity</p>

² Specific, Measurable, Achievable, Relevant, Time-dependent



Enhance autochthonous cultivars in new groves (further study of foreign varieties)

Improve quality of olive oil on farm and mill scale (more extra-virgin olive oil)

Stimulate cooperation among operators in the supply chain through producer organizations and consortia of different actors

Improve management and develop treatment of agricultural and processing waste (i.e. residual vegetable water, olive pomace)

Scale up environmentally friendly cultivation such as IPM, organic farming, etc..

Market development

Description

Promote and increase domestic and quality consumption of olive oil and table olives in all areas, by improving olive management in the field and olive oil management from the mill, to labelling, packaging and commercial distribution

Improve traceability and certification of quality systems

Modernize marketing techniques

Improve and rationalise relationships among the actors in marketing channels to increase the supply of olive oil in quantitative and qualitative terms

Improve competitiveness of the Albanian operators in the globalized market (increase quality, yields, and reduce costs)

Legislation, certification and policies

Description

Strengthen capacity and efficiency of the national phytosanitary control system, setting up and improving infrastructures for quality certification (labs, control authority, screenhouses, etc.)

Update the secondary legal framework to comply with international standards and strengthen institutional capacity building

Complete the regulatory framework for existing quality standards, and update procedures for registration of Geographical Indications in accordance with EU schemes

Implement an efficient land property rights system

Increase subsidies for operators of the olive industry, particularly in the organic sector

Develop a new joint approach bringing together the Ministry of Agriculture, the Ministry of the Environment, the Ministry of the Environment, the Ministry of Health and the Research Centres



Research, education, training and extension	Description
	<p data-bbox="352 243 1082 349">Increase funding for research, education and training, and develop training and advisory services to transfer knowledge and information to support the operators in the supply chain</p> <p data-bbox="352 349 1082 381">Implement a national framework for the organic sector</p>

Crossing the SWOT insights obtained from strengths and opportunities with those derived from weaknesses and threats, and in light of the economic survey results and the strategic objectives, we can draw the following final conclusions on the development of the Albanian olive sector:

- The new plantings that are coming into production, more efficient in resource use and productive than traditional groves, can increase the competitiveness of olive farms.
- The current high processing capacity and the current good mill technology only require low additional investments, whereas more investments in labelling, packaging and marketing are needed.
- The strengthening of technical relations with Italian and EU producers can easily improve the agronomic practices management and mechanization in Albania.
- The positive trend of demand for olive oil and table olives and the growing attention and awareness of Albanian retailers and consumers concerning the product quality and origin will foster the consumption of local high-quality olive oil and table olives and will reduce the imports of olive oil, table olives and seed oils.
- The presence of an appropriate scientific background for the olive sector development, (although research and education still need more investments), and the involvement of research and education centres in international networks can contribute to:



- Improve knowledge and information of the operators along the olive supply chain;
 - Strengthen capacity and efficiency of the national phytosanitary control system;
 - Complete the secondary regulatory system for propagation material.
-
- The growing urbanization and tourism development can provide opportunities to enhance the olive sector by increasing sales of olive products (particularly at farmers' market and local shops) and diversifying activities in rural areas, which could also help reduce the abandonment of olive groves and rural areas.
 - Integration into EU agricultural markets and policies can increase availability of new funds to invest in agribusiness and financing, further harmonisation of standards and promote export; in this context, the finalisation of a national legal framework for geographical indication and the implementation of a framework for organic farming would be better supported.





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The millenary olive of Palikesh, Drobonik - Berat: perimeter 21m, height about 25 m, yield of 600 kg in 2017



Annex I – Detailed SWOT elaboration

Table 1. Score values for SWOT analysis from the multi-stakeholder workshop

Thematic areas	Strengths	Score
Production and processing	Presence of oil mills that have reached high-quality standards, gaining national and international awards.	7.8
	Good and progressive expansion of primary production basis in terms of new plantings, financed by the Albanian government in the period 2007-2013.	7.5
	Existing processing capacity of reasonably modern oil mills that can absorb a much higher production without requiring additional investments.	7.4
	Widespread cultivation of at least two local varieties with a very good commercial potential (Kokermadh of Berati and Kalinjot).	7.3
	Young age of olive producers and millers (human capital).	7.1
	Viable technology basis for processing.	6.9
	Progressive increase of intensive production systems also favoured by the introduction of imported cultivars in recent years (no super-intensive).	5.8
Market development	Positive trend of demand for olive oil and table olives.	8.9
	Growth in the Albanian population of a middle class concerned about product quality and origin.	7.9
	Development of traceability systems (which still need to be harmonized with EU standards).	7.2
	Existing promising marketing relations for export (specific connections with Albanian communities across the world).	6.6
LC&P*	Current involvement of the Ministry of Agriculture in the establishment of national schemes for the development of the olive oil sector.	8.6
RET&E	Presence of an appropriate scientific background to support the olive oil sector development.	7.9

*LC&P – legislation, certification and policies; RET&E – research, education, training, and extension



Thematic areas	Weaknesses	Score
Production and processing	Limited mechanization and poor management of traditional olive groves.	8.6
	High production periodicity over the years.	8.4
	Very low awareness among producers of advantages resulting from certified healthy olive seedlings.	8.4
	Abandonment of olive groves along the coast.	8.3
	High land fragmentation and numerous small-sized farms (farms are still too fragmented and small to be efficient and have good productivity and profitability).	8.2
	Lack of proper bottling, storage, and packaging for quality preservation	8.1
	Poor experience of young producers and millers.	8.0
	Insufficient know-how and inadequate awareness of producers about market quality criteria (as opposed to traditional quality criteria).	7.9
	Underutilized processing industry capacity.	7.9
	Substitution of autochthonous cultivars with cultivars imported in recent years.	7.6
	High share of lampant olive oil.	7.5
	Poor quality of pesticides and fertilizers.	7.4
	Poor know-how of processors.	7.4
	Very weak role of producer organizations.	7.1
	Erosion of valuable autochthonous cultivated areas due to urban expansion.	7.0
	Difference between coastal and internal areas leading to olive non-homogeneous quality (different agronomic, harvesting and post-harvesting practice).	6.3
High-quality olive oil produced only by small oil mills that are the only ones to have a quality certification, including for organics (in Albania small mills have a capacity of less than 1 tonne of olives per hour).	5.2	



Market development	Excessively high farm-gate price of olives: pricing across Albania still related to family income objectives rather than to international prices.	8.1
	Consumption of olive oil widespread, but not universal (families in internal non-producing areas make very little use of olive oil).	8.1
	Too high informality degree with negative effects in terms of traceability and quality certification.	8.0
	Olive oil in Albania expensive with respect to prices for comparable quality of main European producing countries.	8.0
	High-quality olive oil still representing a small share of demand and supply despite per capita income growth.	7.7
	A large share of olive oil still produced mainly for self-consumption or for direct sales/gift to extended family and not for the market; farmers do not sell olives to mills (inconsistent and unreliable supply of raw material for processing industry).	7.7
	Limited collaboration between supply chain actors despite the presence of some associations.	7.7
	Increasing international competition on production costs and quality.	7.6
	No modern marketing techniques.	7.6
	Medium bottlers too limited in size and, not having the financial capacity to deal with supermarkets and not yet ready to seize the emerging market opportunities.	7.1
	Lack of real wholesaling actors in the supply chain, distribution to retailers mainly performed by bottlers.	7.1
Legislation, certification and policies	Infrastructure for quality certification (labs, control authority, etc.) underdeveloped.	8.4
	Despite the progress in the harmonization of the primary legal framework and the supply chain service system with the international standards, much work is still needed for secondary legislation, institution capacity building and law enforcement.	8.0
	Presence of a regulatory framework for quality standards (Law 8944/2012) that still needs to be completed.	7.8
	Lack of a national olive oil strategy.	7.4
	Small organic farmers not financed for organic farming through governmental subsidies.	7.3
	Concerning the procedures for registration of Geographical Indications in accordance with EU standards, no request submitted so far, but some applications have been filled according to the Albanian GI rules.	7.3
	In recent years, decreased subsidies allocated to the sector.	7.2



RET&E	The service system along the supply chain is still weak at all levels: limited demand from operators, limited and unprofessional supply.	8.0
	Operators' low education profile.	7.6

Thematic areas	Opportunities	Score
Products and processing	Strengthening of technical relations with Italian and EU producers and factories for innovative technologies.	8.4
Market development	Increasing urbanization and tourism development can provide opportunities for the development of the olive oil market.	8.6
	Interesting opportunities originating from the integration into EU agricultural markets and policies.	8.1
	Typical high-quality products (made from local cultivars) greatly in demand for export to European rich countries.	7.4
LC&P	Progress in the establishment of a National Legal Framework for GI .	8.0
	Current setting up of a farm register and establishment of the land parcel information system, as integral parts of national integrated administration and control system.	7.8
RET&E	Albanian research and education centres involved in the international networks.	7.7



Thematic areas	Threats	Score
Production and processing	Lack of investment capital in agribusiness, and lack of credit	8.6
	Risk of new phytosanitary issues	8.0
	Risk related to climate change	6.6
Market development	Farmers and agribusiness operators are not yet sufficiently prepared to manage opportunities and challenges resulting from the integration into EU agricultural markets and policies.	7.6
	In other Mediterranean countries, the sector is growing faster and in a more organized way.	7.4
	High quantities of seed oil imports.	7.4
	Cheap import of agrifood products is a limit to the commercialization of domestic products.	7.3
	Low confidence in quality and safety of domestic products favouring consumption of imported products.	6.8
	Imports of olive oils from non-EU countries.	6.8
Legislation, certification and policies	Secondary certification system for propagation material not effectively implemented.	8.0
	Land property rights insecure and ambiguous.	7.9
	IPARD II Programme 2014-2020 funded by the EU, particularly implementing the Instrument for Pre-accession Assistance for Rural Development, ongoing without however including the olive sector.	7.4
RET&E	Limited funding for research, education and training.	8.3
	National framework for organic sector not implemented.	7.3



Annex II - Detailed survey elaboration

Results - Nurseries' questionnaires

Table 1. Nursery/operator profile

Indicators / Regions	Berat	Elbasan	Fier	Vlora	Tirana	Total
No. of respondents	9	3	17	18	9	56
Average age of respondent	59	41	53	55	50	51
Gender (%)						
Male	100	100	100	100	88.9	98.2
Female	0.0	0.0	0.0	11.1	1.8	
Primary	11.1	0.0	11.8	16.7	11.1	12.5
Secondary	0.0	100	47.0	0.0	0.0	19.6
Vocational -						
Agricultural	55.6	0.0	41.2	55.6	11.1	41.1
Non-agr.	0.0	0.0	11.1	11.1	5.4	
University -						
Agricultural	22.2	0.0	0.0	5.5	55.6	14.3
Non-agr.	0.0	0.0	0.0	11.1	1.8	
Post-graduate -						
Agricultural	11.1	0.0	0.0	11.1	0.0	5.3
Non-agr.	0.0	0.0	0.0	0.0	0.0	
Entrepreneur	100	100	100	89.0	88.9	94.6
Function of respondent (%)						
Manager	0.0	0.0	0.0	0.0	11.1	1.8
Both	0.0	0.0	0.0	5.5	0	1.8
Other	0.0	0.0	0.0	5.5	0	1.8
Average period of business activity (year)	18.1	8.3	12.9	20.8	12.9	14.6
Ownership (%)						
Public	0.0	0.0	0.0	5.5	0.0	1.8
Private	100	100	94.5	100	98.2	
Nursery as only source of income (%)	66.7	100	17.6	100	88.9	67.8
Possession of fiscal registration (%)	66.7	33.3	47.1	77.8	100	67.8
Membership of associations (%)	22.2	0.0	5.9	5.5	0.0	7.1

**Table 2. Nursery details**

Indicators / Regions	Berat	Elbasan	Fier	Vlora	Tirana	Total
Average nursery size (ha)	0.64	0.43	0.14	0.58	1.12	0.48
Fragmented nurseries (%)	33.3	66.7	17.6	27.8	33.3	28.6
Olives as main production (%)	100	66.7	94.1	94.4	66.7	89.3
Oil olives - average size (ha)	0.14	0.33	0.09	0.42	0.35	0.27
Table olives - average size (ha)	0.14	0.30	0.02	0.05	0.18	0.14
Land owned - average size (ha)	4.97	1.03	1.44	4.48	1.63	2.71

Table 3. Labour structure

Indicators / Regions	Berat	Elbasan	Fier	Vlora	Tirana	Total	
Permanent employees (%)	Nonfamily members	63.3	57.1	73.1	74.5	71.0	70.5
	Family members	36.7	42.9	26.9	25.5	29.0	29.5
Seasonal employees (%)	Nonfamily members	72.0	61.5	53.5	77.4	78.4	70.3
	Family members	28.0	38.5	46.5	22.6	21.6	29.7

Table 4. Market channels

Indicators /Regions	Berat	Elbasan	Fier	Vlora	Tirana	Total	
Market place for oil olive seedlings (%)	Farmers	100	100	100	94.4	100	98.9
	Other nurseries	0.0	0.0	0.0	0.0	0.0	0.0
	Retailers	0.0	0.0	0.0	5.6	0.0	1.1
	Other	0.0	0.0	0.0	0.0	0.0	0.0
Market place for table olive seedlings (%)	Farmers	100	100	100	92.9	100	98.6
	Other nurseries	0.0	0.0	0.0	0.0	0.0	0.0
	Retailers	0.0	0.0	0.0	7.11	0.0	1.4
	Other	0.0	0.0	0.0	0.0	0.0	0.0
Growing and sale of grafted seedlings (%)	Only grafted	100	100	88.2	66.7	66.7	84.3
	Only not grafted	0.0	0.0	0.0	0.0	11.1	2.2
	Grafted and not	0.0	0.0	11.8	33.3	22.2	13.5



Production and sales of oil and table varieties (%)	Only table	0.0	0.0	0.0	0.0	0.0	0.0
	Only oil	11.1	33.3	58.8	27.8	33.3	32.9
	Both	88.9	66.7	41.2	72.2	66.7	67.1

Figure 1. Main oil and table olive cultivars produced by interviewed operators per region

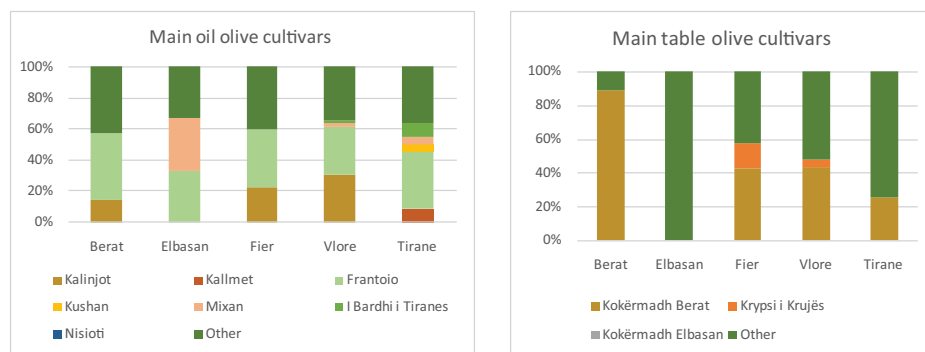


Table 5. Nurseries' economic results

Indicators /Regions	Berat	Elbasan	Fier	Vlora	Tirana	Total
Profitable businesses (%)	100	100	100	100	100	100
Olive seedlings as only source of income (%)	100	66.7	70.6	88.9	66.7	80.4
Recording revenues and expenses (%)	88.9	66.7	70.6	100	100	87.5
Declined significantly	0.0	33.3	35.3	5.5	22.3	17.9
Declined somewhat	66.7	0.0	29.4	66.7	55.5	50.0
Remained the same	33.3	33.3	29.4	16.8	11.1	23.2
Improved somewhat	0.0	0.0	5.9	5.5	0.0	3.6
Improved significantly	0.0	33.3	0.0	5.5	11.1	5.4



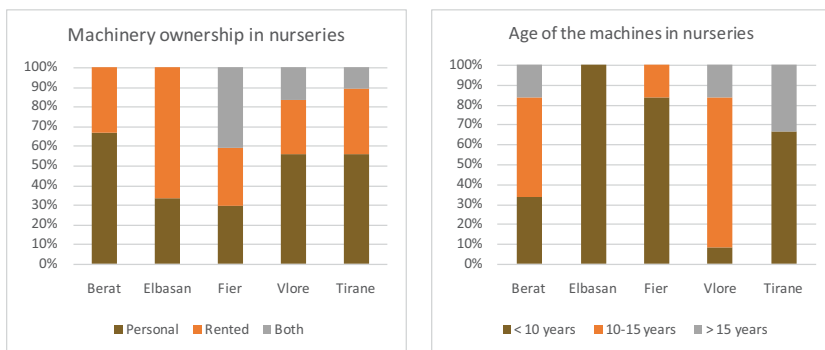
	<i>Spilocaea oleaginea</i>	100	100	100	100	88.9	98.2
Control of main diseases (%)	<i>Cercospora clado-sporioides</i>	0.0	0.0	0.0	0.0	11.1	1.8
	<i>Pseudomonas savastanoi</i>	0.0	0.0	0.0	0.0	0	0.0
	Other	0.0	0.0	0.0	0.0	0	0.0
	Organic fertilizers used (%)	100	100	64.7	88.9	100	85.7
	Inorganic fertilizers used (%)	100	100	88.2	100	100	96.4
	Mother olive blocks growing (%)	88.9	66.7	58.8	94.4	66.7	76.8
	Seedling purchasing (%)	0.0	33.3	47.1	16.7	22.2	25.0

Table 7. Investments and mechanization

Indicators / Regions		Berat	Elbasan	Fier	Vlora	Tirana	Total
Irrigation applied (%)	Supplemental irrigation	0.0	0.0	0.0	0.0	0.0	0.0
	Irrigation schedule	100	100	100	100	100	100
	No irrigation	0.0	0.0	0.0	0.0	0.0	0.0
	Localized irrigation system present (%)	88.8	66.6	94.1	16.7	44.4	58.9
	Fertigation system present (%)	33.3	33.3	64.7	5.5	33.3	33.9
	Foliar spray used (%)	55.5	100	70.6	72.2	55.5	67.9
Source of irrigation water (%)	Own well	66.7	0.0	100	88.9	100	85.7
	Collective well	33.3	66.7	0.0	0.0	0.0	8.9
	Private well	0.0	33.3	0.0	11.1	0.0	5.4
	Garage owned (%)	66.7	0.0	52.9	55.5	66.7	55.4
	House in the nursery (%)	66.7	66.7	58.8	88.9	33.3	66.1
	Storage owned (%)	0.0	100	58.8	83.3	55.5	58.9
	Electricity in the nursery (%)	77.8	100	88.2	88.9	100	89.3
	Subsidies and other support received (%)	55.5	33.3	0.0	5.5	22.2	16.1



Figure 2. Ownership and age of the machinery used





Results – Producers' questionnaires

Table 8. Producer/operator profile

Indicators / Regions	Berat	Elbasan	Fier	Vlora	Tirana	Total
No. of respondents	88	64	90	100	61	403
Average age of respondent	55	52	55	57	55	55
Gender (%)						
Male	96.6	98.4	98.9	98.0	100	98.3
Female	3.4	1.6	1.1	2.0	0	1.7
Primary	30.7	23.4	23.3	27.0	16.4	24.8
Secondary	0.0	51.5	40.0	2.0	26.2	21.6
Vocational	55.7	9.4	13.4	35.0	29.6	29.8
Agricultural						
Non-agr.	8.0	1.6	10.0	21.0	4.9	10.2
University	4.5	9.4	11.1	5.0	18.0	8.9
Agricultural						
Non-agr.	0.0	4.7	1.1	10.0	4.9	4.2
Post-graduate	1.1	0.0	1.1	0.0	0.0	0.5
Agricultural						
Non-agr.	0.0	0.0	0.0	0.0	0.0	0.0
Entrepreneur	89.8	93.8	98.9	98.0	73.8	92.1
Function of respondent (%)						
Manager	0.0	0.0	1.1	0.0	3.3	0.7
Both	10.2	3.1	0.0	0.0	21.3	6.0
Other	0.0	3.1	0.0	2.0	1.6	1.2
Average period of business activity (year)	22	15	24	23	19	20.6
Nursery as only source of income (%)	69.3	43.8	41.1	56.0	26.2	49.1
Possession of fiscal registration (%)	21.6	54.7	74.4	17.0	26.2	38.2
Membership of associations (%)	0.0	14.1	3.3	1.0	8.2	4.5

**Table 9. Farm's land use data**

Indicators /Regions		Berat	Elbasan	Fier	Vlora	Tirana	Total
Average farm size (ha)		2.1	1.5	1.7	3.2	1.9	2.1
Fragmented farms (%)		90.9	92.2	82.2	83.0	77.0	85.1
Olive as main production (%)		56.8	76.6	74.4	84.0	73.8	73.2
Average total olive surface (ha)		1.1	0.9	1.2	2.5	1.0	1.4
Land owned - average size (ha)		1.1	0.7	1.1	2.4	0.9	1.3
Land rented - average size (ha)		0.0	0.2	0.1	0.1	0.1	0.1
Oil olives - average size (ha)		0.5	0.9	1.2	2.5	0.9	1.2
Oil olives new plantings - average size (ha)		0.4	0.9	1.0	0.9	0.8	0.8
Table olives - average size (ha)		0.6	0.1	0.4	0.4	0.3	0.4
Table olives new plantings - average size (ha)		0.4	0.1	0.2	0.4	0.3	0.3
Farm layout (%)							
	Regular	27.3	48.5	53.3	18.0	57.4	38.7
	Irregular	46.6	31.2	26.7	45.0	31.1	37.0
	Both	26.1	20.3	20.0	37.0	11.5	24.3
	5x5	0.0	20.3	0.0	3.0	26.3	8.0
	6x6	22.7	40.6	12.2	12.0	16.4	19.6
	7x7	25.0	12.5	17.8	12.0	1.6	14.6
	Other	52.3	26.6	70.0	73.0	55.7	57.8
Average trees density (trees/ha)		239	292	285	203	307	265

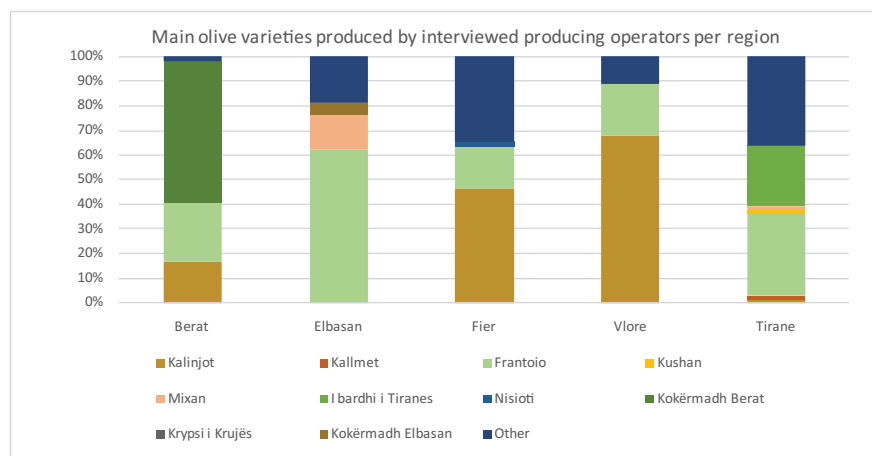
Table 10. Quality characteristics and procedures

Indicators / Regions		Berat	Elbasan	Fier	Vlora	Tirana	Total
Olive oil categories (%)							
	Extra-virgin	11.4	37.5	70.0	59.0	11.5	40.4
	Virgin	88.6	62.5	30.0	41.0	88.5	59.6
	Refined	0.0	0.0	0.0	0.0	0.0	0.0
	Olive pomace oil	0.0	0.0	0.0	0.0	0.0	0.0
Type of containers/bags for olives transportation (%)							
	Plastic bag	59.1	75.0	87.8	94.0	39.3	73.7
	Jute bag	4.5	1.6	0.0	1.0	13.1	3.5
	Plastic box	36.4	23.4	12.2	5.0	41.0	21.8
	Carriage	0.0	0.0	0.0	0.0	0.0	0.0
	Other	0.0	0.0	0.0	0.0	6.6	1.0



Average days from harvesting to processing		1.9	1.9	1.7	2.4	2.7	2.1
Interested in Geographical Indication label (%)		92.0	56.3	56.7	66.0	65.6	67.9
Organic production (%)	Organic olives	1.1	0.0	0.0	0.0	0.0	0.2
	Organic olive oil	0.0	0.0	0.0	0.0	0.0	0.0
	Treated green olives	97.6	87.2	79.2	53.8	97.8	90.6
Processing method for table olives (%)	Olives darkened by oxidation (ripe olives)	0.0	2.6	20.8	46.2	2.2	6.4
	Natural black olives	2.4	10.2	0.0	0.0	0.0	3.0
	Other	0.0	0.0	0.0	0.0	0.0	0.0

Figure 3. Main olive varieties produced by interviewed operators per region



**Table 11. Labour structure**

Indicators / Regions		Berat	Elbasan	Fier	Vlora	Tirana	Total
Permanent employees (%)	Nonfamily members	62.0	75.5	51.0	71.5	64.8	65.2
	Family members	38.0	24.5	49.0	28.5	35.2	34.8
Seasonal employees (%)	Nonfamily members	64.2	66.7	55.3	66.2	57.7	62.8
	Family members	35.8	33.3	44.7	33.8	42.3	37.2

Table 12. Output sales

Indicators / Regions		Berat	Elbasan	Fier	Vlora	Tirana	Total
Share of product sold - apart from self-consumption (%)	Nearly everything	5.7	0	10.0	14.0	6.6	8.0
	Majority	81.8	46.9	63.3	61.0	55.7	63.0
	About half	11.4	18.7	18.9	11.0	3.3	12.9
	Less than half	1.1	34.4	7.8	14.0	34.4	16.1
Type of products for sale (%)	Only olives	13.6	7.8	4.5	5.0	0.0	6.5
	Only olive oil	4.6	51.6	54.4	46.0	26.2	36.7
	Both	81.8	40.6	41.1	49.0	73.8	56.8
Milling type (%)	Discontinuous (traditional)	0.0	0.0	0.0	4.0	0.0	0.9
	Continuous (modern)	100	100	100	96	100	99.1

Table 13. Market channels

Indicators /Regions		Berat	Elbasan	Fier	Vlora	Tirana	Total
Oil olives (%)	Directly to consumers	54.3	81.2	100	95.7	82.1	82.6
	Through middlemen	28.6	0.0	0.0	3.2	0.0	6.4
	Through associations/ cooperatives	0.0	18.8	0.0	0.0	0.0	3.8
	To processors	17.1	0.0	0.0	1.1	17.9	7.2
	Other	0.0	0.0	0.0	0.0	0.0	0.0



	Directly to consumers	34.5	100	100	100	100	86.9
	Through middlemen	63.1	0.0	0.0	0.0	0.0	12.6
Table olives (%)	Through associations/ cooperatives	0.0	0.0	0.0	0.0	0.0	0.0
	To processors	2.4	0.0	0.0	0.0	0.0	0.5
	Other	0.0	0.0	0.0	0.0	0.0	0.0
	Directly to consumers	66.2	91.4	100	95.7	100	90.6
	Through middlemen	33.8	0.0	0.0	3.3	0.0	7.4
Olive oil (%)	Through associations/ cooperatives	0.0	6.9	0.0	0.0	0.0	1.4
	To processors	0.0	1.7	0.0	1.1	0.0	0.6
	Other	0.0	0.0	0.0	0.0	0.0	0.0

Table 14. Farm's economic results

Indicators / Regions		Berat	Elbasan	Fier	Vlora	Tirana	Total
	Profitable businesses (%)	100	85.9	80.0	99.0	75.4	89.3
	Olive cultivation as only source of income (%)	37.5	56.3	44.4	70.0	26.2	48.4
	Recording revenues and expenses (%)	22.7	35.9	28.8	35.0	42.6	32.3
Business profitability over the last 24 months (%)	Declined significantly	2.3	0.0	11.1	18.0	11.5	9.2
	Declined somewhat	36.4	3.1	27.8	14.0	18.0	20.8
	Remained the same	33.0	3.1	24.4	26.0	13.1	21.6
	Improved somewhat	22.6	56.3	26.7	27.0	41.0	32.8
	Improved significantly	5.7	37.5	10.0	15.0	16.4	15.6
Factors affecting productivity (%)	Natural calamities	55.7	7.8	88.9	37.0	49.2	49.9
	Lack of knowledge	3.4	53.1	0.0	6.0	1.6	10.9
	Lack of financing	31.8	31.3	8.9	25.0	36.1	25.6
	Unavailability of inputs	0.0	0.0	0.0	5.0	0.0	1.2
	Pests and diseases	0.0	0.0	0.0	0.0	0.0	0.0
	Market decline	9.1	7.8	20.0	12.0	8.2	7.4
	Other	0.0	0.0	2.2	15.0	4.9	5.0



Table 15. Growing method and inputs

Indicators / Regions	Berat	Elbasan	Fier	Vlora	Tirana	Total
Growing method (%)	94.3	65.6	95.6	95.0	65.6	85.9
	34.4	4.4	5.0	34.4	13.9	
Integrated						
Organic	0.0	0.0	0.0	0.0	0.2	
Possession of plant health certificate for the products (%)	83.0	79.7	61.1	86.0	90.2	79.4
Current	39.8	65.6	34.4	64.0	60.7	51.9
phytosanitary status (%)	60.2	31.3	60.0	35.0	39.3	46.1
Average	0.0	3.1	5.6	1.0	0.0	2.0
Poor	97.7	82.8	81.1	50.0	100	76.2
Pesticide used (%)	2.8	2.1	2.7	2.7	2.5	2.6
Average number of treatments per year	1.1	0.0	0.0	0.0	0.0	0.2
Organic plant protection products used (%)	97.7	82.8	81.1	50.0	100	80.2
Synthetic chemical pesticides used (%)	100	56.8	95.6	74.5	0.0	73.6
<i>Bactrocera oleae</i>	0.0	9.1	4.4	11.8	73.8	15.2
<i>Prays oleae</i>	0.0	0.0	0.0	13.7	2.4	2.7
<i>Saissetia oleagina</i>	0.0	2.3	0.0	0.0	4.8	1.0
<i>Otiorthynchus cribricollis</i>	0.0	31.8	0.0	0.0	19.0	7.5
Other	100	100	98.6	100	93.2	98.7
<i>Spilocaea oleagina</i>	0.0	0.0	0.0	0.0	0.0	0.0
<i>Cercospora cladosporioides</i>	0.0	0.0	1.4	0.0	4.5	1.0
<i>Pseudomonas savastanoi</i>	0.0	0.0	0.0	0.0	2.3	0.3
Other	76.1	68.8	87.8	72.0	91.8	78.9
Organic fertilizers used (%)	85.2	96.9	86.7	59.0	77.0	79.7
Inorganic fertilizers used (%)	2.3	2.1	2.0	2.1	2.3	2.1
Average pruning frequency (after no. of years)						



Table 16. Investments and mechanization

Characteristics / Regions	Berat	Elbasan	Fier	Vlora	Tirana	Total	
Irrigation applied (%)	Supplemental irrigation	15.9	21.9	42.2	17.0	31.1	25.3
	Irrigation schedule	4.6	12.5	16.7	14.0	23.0	13.7
Localized irrigation system present (%)	No irrigation	79.5	65.6	41.1	69.0	45.9	61.0
	Own well	44.4	18.2	56.6	45.2	51.5	46.5
	Collective well	50.0	36.4	62.2	61.3	78.8	60.5
Source of irrigation water (%)	Collective well	44.4	54.5	5.7	35.5	12.1	24.2
	Private well	5.6	9.1	32.1	3.2	9.1	15.3
Garage owned (%)	17.0	1.6	26.7	16.0	21.3	17.1	
House on the farm (%)	47.7	4.7	12.2	14.0	22.9	26.1	
Storage owned (%)	12.5	39.1	7.8	14.0	22.9	17.6	
Electricity on the farm (%)	15.9	4.7	17.8	16.0	27.9	16.4	
Type of olive oil containers used (%)	Stainless steel	90.9	60.9	81.1	91.0	60.7	79.4
	Plastic	1.1	21.9	0.0	1.0	22.9	7.4
	Other	21.9	0.0	1.0	22.9	7.4	7.4
Olive mill present on the farm (%)	4.5	6.3	5.6	2.0	0.0	3.7	
Processing for third parties (%)	100	100	100	100	0.0	100	
Point of sale present on the farm (%)	3.4	1.6	4.4	6.0	1.6	3.7	
Other agribusiness structure present on the farm (%)	3.4	1.6	1.1	5.0	6.6	3.5	
Subsidies and other support received (%)	15.9	40.6	18.9	25.0	34.4	25.6	



Figure 4. Ownership and age of the machinery used

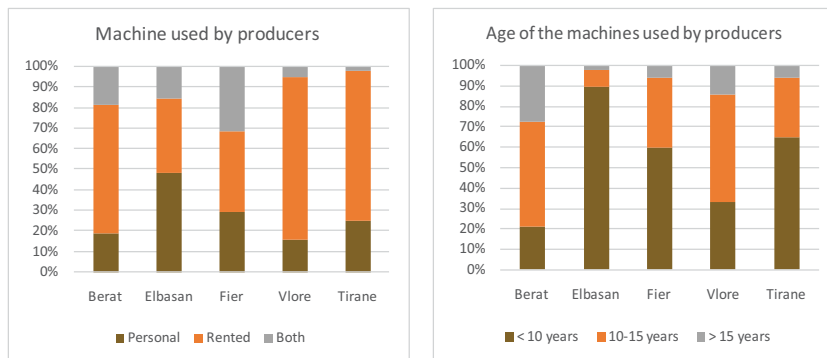


Table 17: Type of machines owned by the farmers in each region (number and % of total).

Machine/Region	Berat	Elbasan	Fier	Vlora	Tirana	Total (%)
Tractor	14	1	16	13	5	29.3
Motor hoe	17	9	15	5	3	29.3
Sprayer	2	3	4	3	1	7.8
Carriage	0	0	0	0	0	0.0
Harrow	0	0	0	0	1	0.6
Pneumatic scissor	0	0	0	0	0	0.0
Motor saw Sweeper	0	0	0	0	0	0.0
Harvester	0	0	0	0	1	0.6
Harvesting Shaker	0	0	0	1	0	0.6
Other	0	42	0	0	11	31.8



Results - Processors' questionnaires

Table 18. Processor/operator profile

Indicators / Regions	Berat	Elbasan	Fier	Vlora	Tirana	Total
No. of respondents	14	11	20	23	16	84
Average age of respondent	50	51	45	51	53	50
Gender (%)						
Male	92.9	100	100	100	81.3	95.2
Female	7.1	0.0	0.0	0.0	18.7	4.8
Primary	21.4	18.2	15.0	0.0	0.0	9.5
Secondary	0.0	54.5	50.0	8.7	43.9	29.8
Vocational	71.4	0.0	10.0	26.1	25.0	26.2
University	7.1	0.0	10.0	47.8	0.0	16.7
Education of respondent (%)						
Agricultural	0.0	9.1	10.0	13.1	12.5	9.5
Non-agr.	0.0	18.2	5.0	4.3	6.2	5.9
Post-graduate	0.0	0.0	0.0	0.0	6.2	1.2
Non-agr.	0.0	0.0	0.0	0.0	6.2	1.2
Entrepreneur	85.7	90.9	95.0	100	93.8	94.0
Function of respondent (%)						
Manager	0.0	0.0	5.0	0.0	0.0	1.2
Both	0.0	9.1	0.0	0.0	6.2	2.4
Other	14.3	0.0	0.0	0.0	0.0	2.4
Average period of business activity (year)	6.3	9.8	9.7	13.5	10.9	10.0
Nursery as only source of income (%)	85.7	81.8	70.0	91.3	100	85.7
Possession of fiscal registration (%)	28.6	9.1	35.0	39.1	12.5	27.4
Membership of associations (%)	42.8	18.2	25.0	52.2	31.3	35.7



Table 19. Olive oil mills details

Indicators / Regions	Berat	Elbasan	Fier	Vlora	Tirana	Total
Possession of voluntary certification (%)	14.3	0.0	15.0	13.0	12.5	11.9
Type of olive processing (%)	Traditional (batch)					
	0.0	9.1	0.0	4.3	0.0	2.4
Type of clients (%)	Continuous					
	100	90.9	100	95.7	100	97.6
Average age of machines (years)	Internal					
	0.0	0.0	5.0	0.0	0.0	1.2
Average plant capacity (t/day)	Third parties					
	100	100	95.0	100	100	98.8
Average quantity of produced oil (t/year)	Total					
	8.0	16.1	6.3	10.8	13.1	10.9
Personal olive oil production (no. of processors)	Conventional					
	18.1	18.5	18.0	25.3	10.9	18.2
Average quantity of personal oil processed (t/year)	Organic					
	83.5	69.3	68.2	83.8	44.0	69.8
Use of residual vegetable water (%)	Conventional					
	83.5	69.3	68.2	83.3	43.4	69.5
Type of clients (%)	Organic					
	0.0	0.0	0.0	5.5	4.5	2.0
Personal olive oil production (no. of processors)	Extra-virgin					
	6	2	2	9	5	24
Average quantity of personal oil processed (t/year)	Virgin					
	7	1	13	4	11	36
Use of residual vegetable water (%)	Refined					
	0	0	2	0	0	2
Personal olive oil production (no. of processors)	Other					
	0	0	0	0	0	0
Average quantity of personal oil processed (t/year)	Extra-virgin					
	2.1	6.7	6.0	8.8	4.6	5.6
Use of residual vegetable water (%)	Virgin					
	4.5	6.0	6.2	2.5	2.9	4.4
Personal olive oil production (no. of processors)	Refined					
	/	/	2.5	3.0	/	1.1
Average quantity of personal oil processed (t/year)	Other					
	/	/	/	/	/	/
Use of residual vegetable water (%)	Internal - fertilization					
	0.0	0.0	0.0	4.3	0.0	0.2
Personal olive oil production (no. of processors)	Provided to third parties					
	0.0	0.0	0.0	0.0	0.0	0.0



Use of olive pomace (%)	Internal reuse (energy) Provided to third parties	100	100	100	95.7	100	98.8
		71.4	90.9	95.0	82.6	93.8	86.9
Type of packaging for personal olive oil (%)	Bottles	12.5	25.0	7.1	40.0	45.5	26.9
	Cans	0.0	0.0	0	0.0	0	0.0
	Other	87.5	75.0	92.9	60.0	54.5	73.1



Table 20. Table olive processors' details

Indicators / Regions	Berat	Elbasan	Fier	Vlora	Tirana	Total
Number of table olive processors	1	0	1	0	0	2
Possession of voluntary certification (n.)	1	/	0	/	/	1
Treated green olives	1	/	1	/	/	2
Olive darkened by oxidation (ripe olives)	0	/	0	/	/	0
Natural black olives	1	/	0	/	/	1
Other	0	/	0	/	/	0
Type of clients						
Internal	1	/	n.a.	/	/	1
Third parties	0	/	n.a.	/	/	0
Kokërmadh Berat	1	/	n.a.	/	/	1
Krypsi i Krujës	/	/	n.a.	/	/	0
Kokërmadh Elbasan	/	/	n.a.	/	/	0
Other	/	/	n.a.	/	/	0
Average age of machines (years)	5.0	/	n.a.	/	/	5.0
Average plant capacity (t/day)	5.0	/	n.a.	/	/	5.0
Total	120	/	5.0	/	/	62.5
Conventional	120	/	5.0	/	/	62.5
Organic	0	/	0.0	/	/	/
Type of table olives packaging (n.)						
Bottles	0	/	n.a.	/	/	/
Cans	0	/	n.a.	/	/	/
Other	1	/	n.a.	/	/	1

Table 21. Quality characteristics and procedures

Indicators / Regions	Berat	Elbasan	Fier	Vlora	Tirana	Total	
Interested in Geographical Indication label (%)	50.0	81.8	80.0	100	100	84.5	
Possession of HACCAP (%)	50.0	0.0	5.0	34.8	18.8	22.6	
Possession of UNI EN ISO 9001:2015 (%)	42.9	0.0	15.0	17.4	6.3	16.7	
Type of containers for oil storage (%)	Stainless steel	71.4	100	88.9	100	72.7	84.6
	Plastic	28.6	0.0	11.1	0.0	27.3	15.4
	Other	0.0	0.0	0.0	0.0	0.0	0.0

Table 22. Labour inputs

Indicators / Regions	Berat	Elbasan	Fier	Vlora	Tirana	Total
Permanent employees (%)	17.4	7.1	24.7	28.1	18.2	21.9
Seasonal employees (%)	82.6	92.9	75.3	71.9	81.8	78.1

Table 23. Economic results of the mill/processing unit

Indicators / Regions	Berat	Elbasan	Fier	Vlora	Tirana	Total	
Profitable businesses (%)	100	100	100	100	100	100	
Recording of revenues and expenses (%)	100	100	100	95.7	100	98.8	
Business profitability over the last 24 months	Declined significantly	14.3	0.0	10.0	8.7	0.0	7.1
	Declined somewhat	50.0	0.0	25.0	17.4	25.0	23.8
	Remained the same	21.4	9.1	35.0	26.1	6.3	21.4
	Improved somewhat	14.3	72.7	20.0	17.4	50.0	31.0
	Improved significantly	0.0	18.2	10.0	30.4	18.7	16.7

**Table 24. Marke channels for own olive oil and table olives (%)**

Indicators / Regions		Berat	Elbasan	Fier	Vlora	Tirana	Total
Market channels for extra virgin olive oil (%)	Directly to consumers	100	100	100	88.9	80	93.8
	Through middlemen	0.0	0.0	0.0	0.0	0.0	0.0
	Retailers	0.0	0.0	0.0	0.0	0.0	0.0
	Processors	0.0	0.0	0.0	0.0	0.0	0.0
	Exporters	0.0	0.0	0.0	11.1	20	6.2
	Directly to consumers	100	100	92.3	100	100	98.5
Market channels for virgin olive oil (%)	Through middlemen	0.0	0.0	0	0.0	0.0	0.0
	Retailers	0.0	0.0	7.7	0.0	0.0	1.5
	Processors	0.0	0.0	0	0.0	0.0	0.0
	Exporters	0.0	0.0	0	0.0	0.0	0.0
	Directly to consumers	/	/	/	/	/	/
Market channels for refined olive oil (%)	Through middlemen	/	/	/	/	/	/
	Retailers	/	/	/	/	/	/
	Processors	/	/	/	/	/	/
	Exporters	/	/	/	/	/	/
	Directly to consumers	/	/	/	/	/	/
Market channels for olive pomace oil (%)	Through middlemen	/	/	/	/	/	/
	Retailers	/	/	/	/	/	/
	Processors	/	/	/	/	/	/
	Exporters	/	/	/	/	/	/
	Directly to consumers	100	/	100	/	/	100
Market channels for table olives (%)	Through middlemen	0.0	/	0.0	/	/	0.0
	Retailers	0.0	/	0.0	/	/	0.0
	Exporters	0.0	/	0.0	/	/	0.0
	Other	0.0	/	0.0	/	/	0.0

