

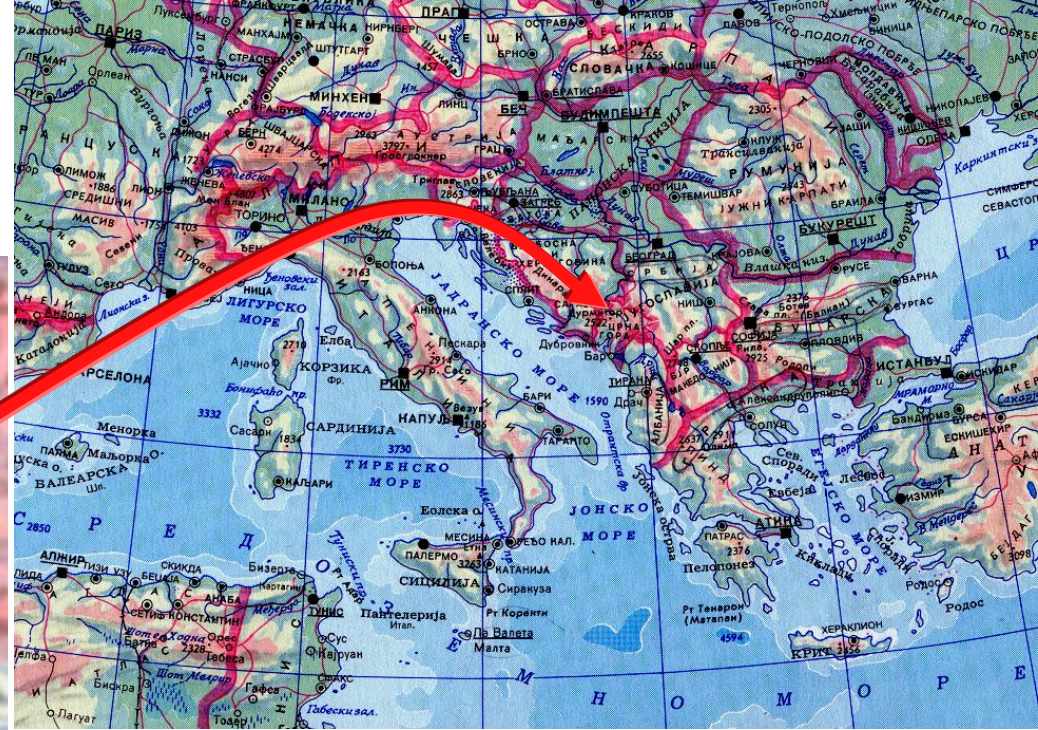
OLIVE GROWING IN MONTENEGRO, SITUATION AND PROSPECTS

Biljana Lazovic

University of Montenegro

Biotechnical Faculty - Centre for Subtropical Cultures, Bar





Montenegro:

- Area – 13.812 km²,
- Total population – 650.000
- Population density – 47 inhab./km²
- Capital – Podgorica
- Divided into 21 municipalities
- Coastline: 293.5 km



📍 Olive growing zone in Montenegro lies between $18^{\circ}25'$ and $19^{\circ}25'$ east and $41^{\circ}52'$ and $42^{\circ}30'$ north.



Olive growing



Olive orchards cover about 3,200 ha, or about 1/3 of the total surface under fruit trees in Montenegro.

- Olives are grown along a coastline of about 293 km, influenced by the Mediterranean climate.
 - Average temperature is 15.5°C, with absolute min of -8.5°C, absolute max of 40.0° C.
 - Average annual rainfall is 1652 mm.
- The olive growing area is mainly hilly (85%), on the slopes of the mountain massifs of Orjen, Lovcen and Rumija.

Olive cultivation has a long tradition in Montenegro

Proof of its long history is found in groves thousands of years old, with two outstanding specimens - the 'Old olive' in Bar estimated to be more than 2000 years old...





...and the 'Big olive' in Ivanovici near Budva, estimated to be about 2000 years old

And many other old olive trees on different locations along the coast and Scadar lake



Maestral



Murici



Divanovici

Number of trees

No of olive trees in Montenegro - trends					
1911	1965	1979	1995	2003	2009*
620,122	530,000	450,000	412,264	412,000	460,250

* Statistic book, 2010.

A total number of about 420.000 trees is estimated at present, showing a decline of about 30% over the past 90 years of the last century

The average age of olive trees is 150-200 year



- Tree height is 7 – 10m or even up to 15 m.
- This is not suitable for agricultural practices, such as pest control and harvesting
- The majority of olive trees need rigorous pruning and lowering of the tree height.



Photo: M. Adakalic,

- Yields of about 4,8 kg/tree (1995-2003), or about 1,0 l oil/tree, is not sufficient to cover national consumption.



- Most olive groves are between 0.2ha and 2.0ha.
- Relatively large areas exist in the area of Lustica (20,000 trees) and in Ulcinj – Valdanos (80,000 trees), which are protected by law.
- About 95% of olive groves are in private ownership.



Tendencies for olive groves

Mass migration from agricultural areas and from olive growing after World War II resulted in olive abandonment.





- Olive groves of old trees with semi-natural understorey are an important type of high nature value farmland.
- But currently only about 50% of olive trees are in farming use.
- The majority are in danger of urbanization, because the Montenegro coast is very attractive for tourism development.

Olive diversity

- There are many autochthonous varieties (domestic and domesticated)
- The olives of the Montenegrin Coast can be divided in two sub-area:
 - Bar sub-area – municipalities of Ulcinj, Bar and Budvu, where the Žutica variety predominates, with 95-98%,
 - Boka Kotorska sub-area – includes municipalities of Tivat, Kotor and H. Novi. Beside Žutica, there are other varieties Crnica, Lumbardeška, Sitnica, Šarulja i dr.
- In general, the Žutica variety predominates (65%), followed with Crnica (14.8%), Sitnica (5.5%), Lumbardeška (6.6%) and Šarulja (4.5%), while the other varieties are present in about 2%.
- Foreign varieties Picholine, Leccino, Coratina, Itrana, Ascolana tenera are present at about 3% of the total. There is interest for varieties with large fruits and resistance to the low winter temperatures.

Production and consumption

- Depending on the year the total production of olive oil in Montenegro is estimated at 400-500 tonnes. Records on processing and disposal on the market are to be improved.
- National production falls far short of domestic requirements, which means that we import olive oil and canned olives from Italy, Spain, Greece.
- Total olive oil production of Montenegro is consumed at home and sold on the local market. The average price is 8-10 euros for 1 litre.
- Estimated olive oil consumption in Montenegro is less than 0.5 l/citizen. There is recent increasing interest in consumption for health reasons.
- From the same reason surplus of olive oil is sold during the summer through tourism. Tourism is a potential market for the future - the challenge is to improve and increase production and olive oil quality.

Plant material production

- The Ministry of Agriculture supports the production of plant material through an assigned budget line.
- Plants are produced by rooting (mist propagation), but there are recent requests for grafted Zutica for windy areas.
- Foreign varieties are mainly imported from Italy – table olives and those resistant to low temperatures.

Intensive olive growing - 1ha with Arbequina variety planted in 2006 in Podgorica by 'Plantaze' – a vine-growing company



Photo: M.Adakalic, Arbequina orchard



'Traditional' ways of harvesting by picking the fruits from the ground are slowly changing.

Because of unfavourable terrain and the tree height, mechanical harvesting is impossible.

Photo: T. Perovic



Nowadays, nets are widely used for harvesting, also hand shakers and other mechanical tools.

Harvesting time is estimated according to the fruit colour and the oil content.

Agricultural measures

- In general the majority of olive groves in Montenegro need regenerative pruning and revitalization
- A budget line was assigned from the Ministry of Agriculture to support the revitalization of olive groves.



Intensive revitalization of olive groves in the municipalities of Ulcinj, Bar and in Boka Kotorska



Olive plant protection

The main issues are with:

Pests

Bactrocera oleae – Monitoring and control is supported by the Ministry of Agriculture and realized by the Biotechnical Faculty.

Prays oleae

Pathogens

Spilocaea oleaginea



Photo: M.Adakalic, Olive fly trap checking

Olive farmers are grouped into 4 Olive Grower Associations.
Registered members through Associations provide:

- assistance,
- connection to the Ministry of Agriculture,
- to the extension services,
- get support with pest control,
- quality of soil,
- machinery credits, etc.

Associations also organise traditional events about olives and olive oil :

- ‘Maslinijada’ in Bar, following the harvest
- ‘Days of young olive oil’ in Boka Kotorska in early spring.

Of the 25 existing olive mills in Montenegro, only 10 with the traditional press system are active





There are 12 centrifugal 2-phase olive mills introduced in last 3-4 years in olive processing.

Average capacity of mills is 250-500 kg of fruit/hour





Eight of the 2-phase mills are located in the southern part of olive growing area.



Olive oil quality control

- Basic analyses (acidity, peroxide, UV...) are done in the Centre for Subtropical Cultures.
- Farmers' interest in olive oil analyses is increasing
- There is no sensorial analysis.
- Awareness on organoleptic oil characteristics is very important – from the level of the Ministry to the farmers and producers.



Photo: M. Adakalic, Detail from the 'House of olive' in the Old City of Bar