

# An overview of sunflower production in the Balkan region

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**A**griculture is the main source of income for people living in the countries that make up the Balkan region of Southeast Europe. The region is traversed by many rivers whose broad, fertile plains offer the potentially high yields of quality crops.

The Danube, Sava and Kupa rivers, described in some literature as forming the northern boundary of the Balkans, are the lifeblood of regional agriculture, while the rugged terrain of the Southern Balkans is not suitable for grain production. But despite this, the Balkan region has a land use rate twice as high as that of the rest of the world.

The regional economies of countries such as Albania, Macedonia, Serbia and Bulgaria depend heavily on agricultural production and trade. Although animal production and horticultural cropping of fruit and vegetables are practised in most

parts of the Balkan Peninsula, including the mountainous areas, the primary agricultural income for farms in rural areas comes from grain production. Cereals such as wheat, barley and corn are cropped throughout the Balkans.

On a commercial scale crops such as sunflower, potato and tobacco are also cultivated in the Balkan countries. Sunflower and rapeseed are the dominant oilseed crops, while olives are common in the coastal Mediterranean areas.

## Sunflower production in the Balkans

There have been many new developments since sunflower production during the Soviet era. These include development of the first hybrids by the Fundulea Institute in Romania and the first commercial hybrid production.

Sunflower is the most important oilseed crop in the region. It is the second biggest area planted with sunflower other than

the Northern Black Sea region, with almost 20% of global sunflower production and planted area (Table 1). Romania, Bulgaria and Turkey are among the world's top ten sunflower producing countries and Moldova and Serbia are also important regional producers of the crop.

The following is a short summary of sunflower production in key countries in the region.

## Romania

Romania is the leading sunflower producing country in the European Union. As a traditional crop in Romania, sunflower is the primary crop in a rotation system with corn and wheat. Due to higher profitability and higher export demand in recent years, sunflower production increased by 60% with record production in 2013. Romania exports sunflower seed, sunflower meal and unprocessed oil.

**Table 1: Area under sunflower harvested and production by season in the Balkan region.**

Country	Harvesting area 1 000ha				Seed production 1 000mt			
	2013	2012	2010	2007	2013	2012	2010	2007
Romania	1 095	1 088	810	830	2 196	1 260	1 285	570
Bulgaria	860	680	692	520	1 937	1 348	1 380	525
Turkey	630	570	500	475	1 450	1 100	1 020	690
Moldova	275	295	252	230	505	295	382	170
Serbia	188	167	169	155	513	366	378	295
Croatia	41	33	26	21	131	90	80	54
Greece	77	65	56	12	336	82	85	19
Macedonia	6	5	4	4	9	9	8	5
Albania	2	2	2	2	3	3	3	2
Bosnia	1							
Herzegovina		1	1	1	1	1	1	1
Montenegro	-	-	-	-	-	-	-	-
Kosovo	-	-	-	-	-	-	-	-
Balkan total	5 188	4 918	4 522	4 257	9 094	6 566	6 632	4 338
World total	25 892	25 451	23 923	21 305	40 190	35 976	33 605	26 430
%	20,04	19,32	18,9	19,98	22,63	18,25	19,74	16,41

**Figure 1: Map of the Balkan region of Southeast Europe.**

### Bulgaria

In Bulgaria, boosted by high demand from Turkey, sunflower production has grown to a record harvest of two million tons. Expanded planting areas and favourable weather during the growing season in 2013 made these yields possible. The country's proximity to Turkey, one of the world's major importers of sunflower, gives it a logistical advantage in terms of exports. Bulgaria exports mainly sunflower seed to Turkey and to other European countries, but with recently increased crushing capacity Bulgaria has been able to start exporting unprocessed oil and meal.

### Turkey

Turkey is the largest country in the Balkan Peninsula – taking up almost 50% of the land surface of the region – and has the biggest population. The Trakya region, which is the European part of Turkey, has more level topography and productive plains and is Turkey's primary production area, with more than 50% of total sunflower production and planting area. Turkish sunflower production and planted areas have increased almost 50% in recent years due to higher prices and increasing production, mainly in the mid-Anatolian region.

Known as one of the main sunflower import destinations worldwide, Turkey imported sunflower seed, unprocessed oil and meal to the value of roughly \$3 billion in 2013. Turkey is well positioned to supply countries in the Middle East and North Africa and its oilseed crushing capacity is four times greater than what would be required for domestic

consumption. Despite regional instability, the demand for sunflower oil is high and Turkey exported \$1 million worth of processed oil in 2013.

### Other countries

Sunflower production is growing in Moldova, Serbia, Greece, Croatia and other countries in the peninsula. Serbia, a top producer, leads the way in research, and Moldova has a long historical association with sunflower cultivation. In Greece,

sunflower is a primary crop in rotation, especially in the northern part of the country.

### Production problems in the region

Sunflower is generally well adapted to a range of climatic conditions. It is easy to mechanise with a consequent low labour component. These advantageous adaptations make it possible for sunflowers to be cultivated in many parts of the world. But it is here, in the Balkans and Europe, that sunflower seed oil is widely preferred as a vegetable oil.

With a spring and summer growing season, this crop is negatively affected by seasonal drought and higher temperatures. Production and yield therefore depend on good summer rainfall and favourable climatic conditions.

Sunflower tends not to have as many diseases as other commercial crops. However, there are diseases such as downy mildew, *Macrophomina*, *Phomopsis* and *Sclerotinia* that affect the crop severely in some years in various areas in the Balkans, as well as in other parts of the world. Apart from disease and abiotic stress, the main problems affecting seed and oil yield in sunflower are broomrape parasitic plants and weeds. Broomrape (*Orobancha cumana* Wallr.) is the greatest limiting factor for sunflower yield in the region, with new breeds of the parasite appearing every 20 years against resistant cultivars.

Hybrid cultivars are generally used in sunflower production in all the Balkan countries. In addition to the oil type of sunflower, confectionery sunflower (black seed in the Balkan area; white and grey seed in Turkey) is also produced.

While further chemical control is not an option, genetically disease-resistant hybrids are available. Genetically resistant sunflower cultivars against new breeds of broomrape are developed and used widely in production. Imidazolinones (IMI) herbicide resistant hybrids control key weeds and broomrape together if applied post emergence. Known as the Clearfield production system, this non-GMO system has been successfully used in sunflower production for the past decade.

### Future of sunflower production

Sunflower production will continue in the Balkan Peninsula, satisfying high export and domestic demand as the primary and preferred source of vegetable oil, and as the main crop in rotation due to its higher profitability. New cultivars should be genetically resistant, since virtually the entire region is infested with new breeds of parasitic broomrape and downy mildew.

Herbicide resistant cultivars – to both IMI and Sulfonylurea (SU) herbicides – that provide non-GMO solutions will be popular since they provide efficient control of broomrape and the key weeds in sunflower production. Pre-emergence herbicides, mechanical weeding and hand-hoeing are not preferred methods of controlling weeds due to the shortage of labour in the region. Hybrids with IMI, SU herbicide, broomrape genetic and downy mildew resistance will give farmers options, enabling them to select and apply the right herbicide for their specific conditions.

Higher oleic type sunflower, perceived as a healthier frying oil, has recently gained global popularity. In the Balkans there has been some growth in the production of this type of sunflower, which will expand due to higher consumer demand.

Sunflower is therefore an important crop of this region, providing agricultural trade and production and opportunities for expansion, and meeting domestic consumers' needs for vegetable oil. Production in the Balkan region looks set to increase, supported by strong demand and the development of new technology. 🌱

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