



# Composition and quality of vegetable oils and fats

## Soybean oil



### Introduction

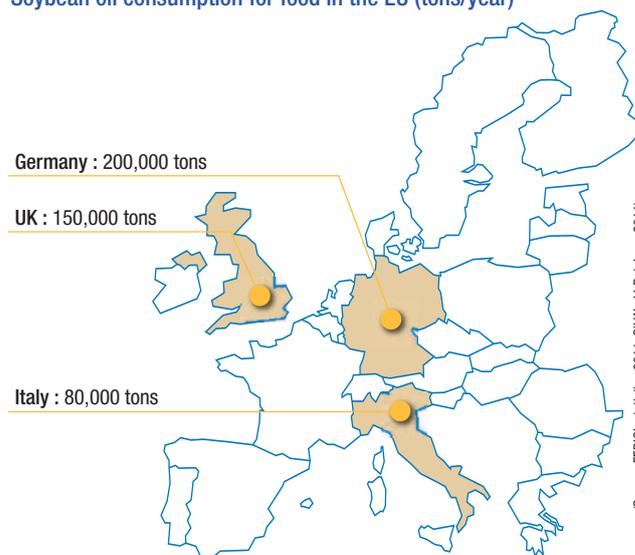
Soybean is a species of legume, native to East Asia, widely grown as a multi-purpose bean. It is grown in areas with hot summers (optimum growing conditions in temperatures of 20 to 30 °C).

The main producing countries are the USA, Brazil and Argentina. The cultivation of soybean in Europe is limited, with a total European production of 1,100,000 tons.

In Europe, soybean oil is mainly consumed in food in Germany, the UK and Italy and marginally used in the other EU countries.

Soybeans can yield up to 20% of soybean oil and are an excellent source of protein for the animal feed industry.

Soybean oil consumption for food in the EU (tons/year)



### Nutritional composition

	100 g	1 tablespoon (10 g)	% GDA (10 g)
<b>Energy</b>	3700 kJ 900 kcal	370 kJ 90 kcal	4.5%
<b>Fats</b>	100 g	10 g	14%
Of which			
Saturated fatty acids	14 - 16 g	1.4 - 1.6 g	7.0 - 7.5%
Mono-unsaturated fatty acids	23 - 26 g	2.3 - 2.6 g	6.8 - 7.1%
Polyunsaturated fatty acids	58 - 62 g	5.8 - 6.2 g	37.5 - 38.8%
Of which			
Omega-6	52 - 55 g	5.2 - 5.5 g	38.6 - 39.3%
Omega-3	6 - 7 g	0.6 - 0.7 g	27.3 - 31.8%
Cholesterol	0 mg	0 mg	/
<b>Vitamin E</b>	11 - 15 mg (92 - 125%*)	1.1 - 1.5 mg (9.2 - 12.5%*)	/

(\*) : % of Recommended Daily Allowances, RDAs

No protein, carbohydrate or salt.

Variability in the nutritional composition can occur due to geographical variability (soil, weather, varieties, etc.)

Soybean oil is rich in polyunsaturated fatty acids, in omega-6 fatty acids and in omega-3 fatty acids.





### Nutritional benefits

Soybean oil is interesting for its richness in polyunsaturated fats, mainly omega-6 fatty acids. It contains also omega-3 fatty acids.

### Nutritional and health claims

According to Regulation (EC) No 1924/2006, food products can bear only nutrition claims approved by the European Commission, based on the scientific assessment of the claim by the European Food Safety Authority (EFSA)<sup>1</sup>.

Due to its nutritional profile, soybean oil can bear the following nutrition claims:

<b>Nutrition Claims</b>
High Omega-3 fatty acids <i>(more than 0.6 g Alpha-linolenic acid per 100 g and 100 kcal)</i>
High polyunsaturated fat <i>(more than 45% of the fatty acids are from polyunsaturated fats, which represent more than 20% of the energy content)</i>
High unsaturated fat <i>(more than 70% of the fatty acids are from unsaturated fats, which represent more than 20% of the energy content)</i>
High vitamin E <i>(more than 30% of Recommended Daily Allowances (RDA) of vitamin E set at 12 mg/day)</i>

(1) [http://ec.europa.eu/food/food/labellingnutrition/index\\_en.htm](http://ec.europa.eu/food/food/labellingnutrition/index_en.htm)  
<http://www.efsa.europa.eu/en/topics/topic/nutrition.htm>

In addition, EFSA has assessed positively the following health claims:

<b>Health claims – Positive EFSA opinion</b>
Alpha-linolenic acid (omega-3 fatty acids) contributes to the maintenance of normal blood cholesterol concentrations.
Linoleic acid (omega-6 fatty acids) contributes to the maintenance of normal blood cholesterol concentrations.
Essential fatty acids (omega-3 and omega-6 fatty acids) are needed for the normal growth of children.
Vitamin E protects lipids, proteins and DNA against oxidative damages.

### Recommended uses

Soybean oil can be used for frying, cooking and dressings. It is also used as an ingredient in food applications.



### New varieties

Research on new varieties of soybean is on-going to try to develop beans with an improved nutritional profile.

Example: low-linolenic soybean for flavour and oxidative stability, increased omega-3 (stearidonic acid) soybean, high stearic acid soybean, soybean with a reduced saturated fat content (essentially palmitic fatty acid), etc.

Vegetable oils and fats must be part of a normal balanced and healthy diet.

They are rich in unsaturated fatty acids, are a source of essential fatty acids (from omega-3 and omega-6 families, which the body cannot produce), are high in vitamin E, and contain no dietary cholesterol.

FEDIOL, the EU Vegetable Oil and Proteinmeal Industry, is the Federation representing the interests of the European oilseed crushers, vegetable oils producers/processors and protein meals producers. With more than 35 companies in 16 EU countries, FEDIOL members crush 36 million tonnes of oilseeds a year, and refine 17.5 million tonnes of oilseed/soybean oils and tropical oils, which amounts to 90% of the European food market for vegetable oils and fats (excluding olive oil). There are more than 150 vegetable oils and fats production facilities across Europe, employing approximately 20 000 people.



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