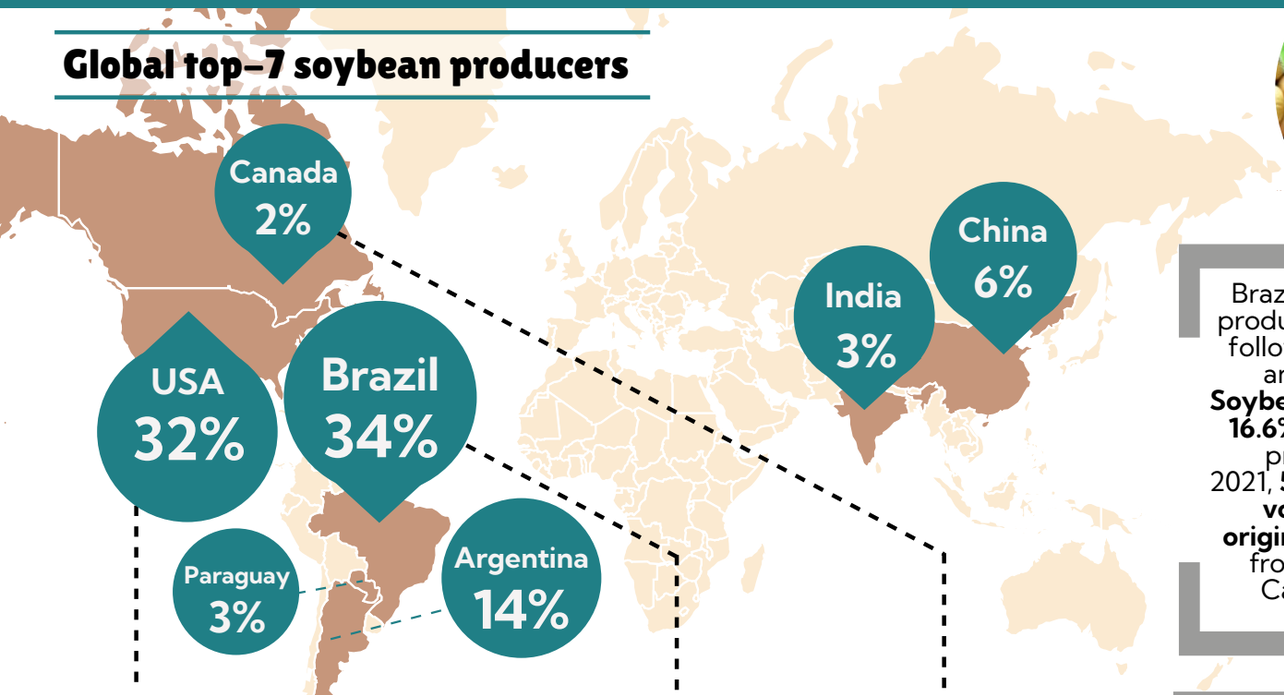
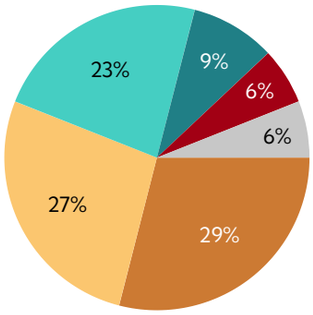
Soy

Production & Trade

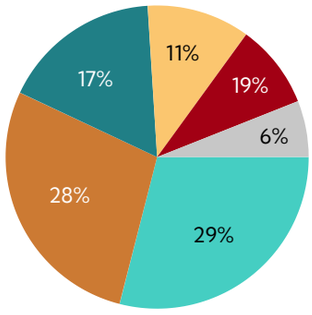
Global top-7 soybean producers



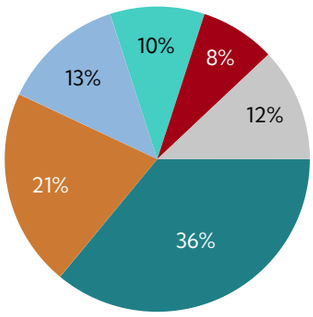
Top 5 EU27 + UK recipients of USA exports



Top 5 EU27 + UK recipients of Brazil exports



Top 5 EU27 + UK recipients of Canada exports



Germany · Spain · Portugal · Other EU27+UK countries · Italy · Netherlands · Belgium

Note: Next to soybeans (HS 1201), other relevant soy products under scope of the EU Deforestation Regulation are soybean flour and meal (HS 120810), soybean oil (HS 1507) and soy oilcake (HS 2304). Also isolates soy protein (35040091) and textured protein substances (HS 21061020) are relevant.

Brazil is the world's largest producer of soybeans (34%), followed by the USA (32%) and Argentina (14%). **Soybean**s (HS 1201) represent **16.6%** of EU imports of soy products by value. In 2021, **57% of the EU imported volumes of soybeans originated from Brazil**, 30% from the USA, 8% from Canada, and 3% from Ukraine.

Soybean cake (HS 2304) represents 78.5% of EU imports of soy products by value. Among forest-risk countries 47.8% of the EU imported volumes of soybean cake in 2020 originated from Brazil, 37.9% from Argentina, 3% from Paraguay, and 0.9% from Nigeria.

Soybean oil (HS 1507) represents 4.7% of EU imports of soy products by value. Among forest-risk countries, 7.7% of the EU imported volumes of soybean oil in 2020 originated from Paraguay and 0.4% from Argentina.

In **2020**, the top 7 producing countries of soybeans **comprised 94% of soybeans production worldwide**. Other countries with **1% share or more (but less than 2%)** in global soybeans production are Russia, Bolivia, Ukraine, and Uruguay. **In the EU, Italy, France, and Austria are soy producers (< 1 %).**

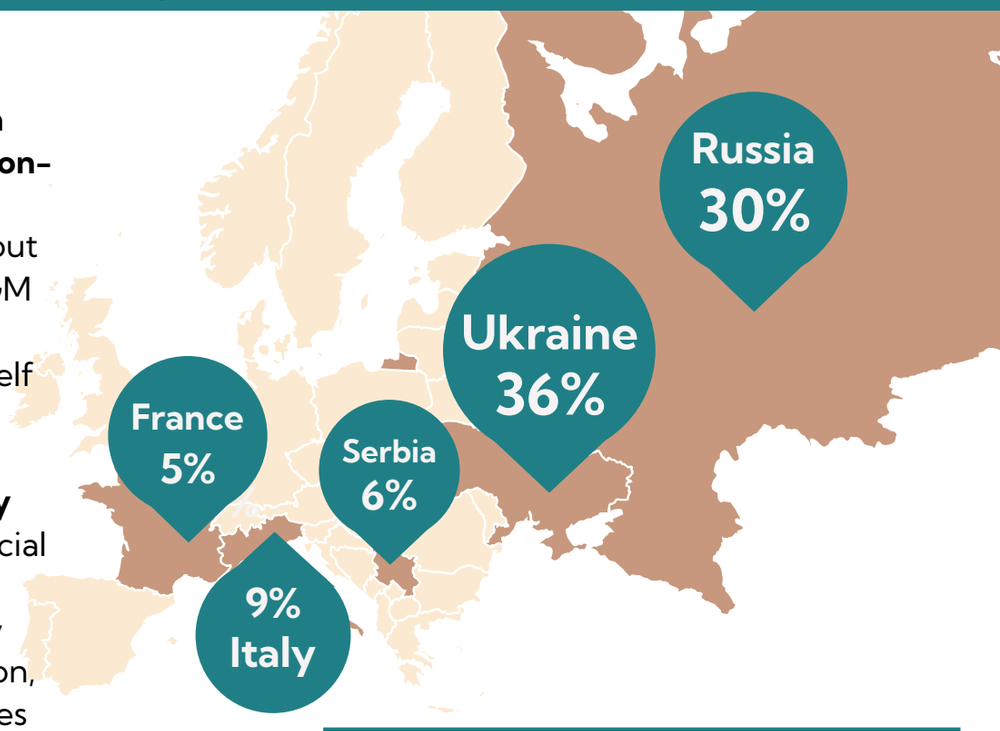
The EU also imports protein concentrates and textured protein substances, **largely from China and the US** (respectively 49% and 13% of non-EU imports). These are processed for instance from **soy and peas**, and are relevant for their use in vega(n) products. China is the largest importer of Brazilian soybeans. **Major EU recipients of Chinese protein concentrates** are the Netherlands (25%), Germany (22%), Spain (14%), Romania (13%) and Italy (8%).

Soy

Soy: non GM supply relevant for the vegan sector

The world's major soy producers are in North and South America. However, **non-GM soy production on the European continent is on the rise** (combined about 10 million tonnes; 11 % of global non-GM soy acreage.) This is among others stimulated by EU (members) protein self sufficiency policies.

Europe is the third largest non GM soy producer after China and India. In official soy trade data, no difference is made between non GM/ GM or between soy suitable for animal/human consumption, which makes it hard to get exact figures of non GM trade for the vegan sector.



Top-5 soybean European producers

In 2021, the top 5 European producing countries of soybeans **comprised 86% of soybean production in Europe** (including the European part of Russia). Other producing countries with 2% share or more in European soy production include Romania, Austria, Croatia, Hungary, and Slovakia.

Currently, **6-7 % of global soy is used for direct human consumption**, merely based on **non GM soy**. Soy production in Europe, Asia and Africa (except South Africa) is mostly non GM.

Foremost suppliers for European soy food and plant-based markets are: Europe (domestic production), Brazil, India, USA, Canada, and China. Main European markets for **non GM soy** (feed and food) are: **Germany, Scandinavia, France, Italy. Austria, Switzerland and Serbia** (in declining order).

Yields in Europe, including organic yields, are promising, mainly in **Italy, Serbia, Austria, Croatia**. In Europe, soy if often explicitly used as **nitrogen fixer and rotation crop**.

Soy

Environmental Risks

Land use & deforestation

734,01 ha

of Brazil's Cerrado vegetation was cleared in 2020, an increase of 13.2% compared to 2019

Soy expansion is a major direct driver of forest loss and conversion in several key global ecosystems, particularly in Brazil's Amazon and the Cerrado (the world's most biodiverse savanna. **Estimates point to 28.3% of Cerrado's total deforestation in 2020 being linked to soy expansion.** Only 3% of the Cerrado native vegetation is under legal protection, compared with 46% of the Amazon.

Particularly relevant for vega(n) products that are based on **soy protein concentrates originating from China is that these processed protein substances may ultimately originate from deforestation-risk soybean production in Latin America.**

Emissions

2.30 kg CO2eq

is the carbon footprint per kg of soy oil

While GHG emissions are particularly high linked to soy production and linked conversion in Latin America, several **vega(n) producers have indicated they largely source soy products from Europe (e.g. France) and China** that are less directly linked to deforestation and GHG emissions.

Overall, the **carbon footprint of soybeans is low** (0.60 kg CO2eq per kg of soybeans) **to moderate** (2.30 kg CO2eq per kg of soy oil), but this excludes deforestation-linked emissions.

Vega(n) products such as soy drink, tofu, and vegetarian burgers have relatively low estimated emissions varying from 0.8-5.9 kg CO2 eq (RIVM). Nevertheless, since China is the largest importer of Brazilian soybeans, **processed soy products originating from China, often used in European vega(n) products, may not be free from imported deforestation risk.**

Biodiversity Loss

Stretching over 200 million hectares , the size of Germany, France, England, Italy, and Spain combined, the Cerrado is a wooded grassland that provides critical ecosystem services to the world. It **protects biodiversity, stabilizes regional climate, and regulates watersheds** that provide 40% of Brazil's fresh water. It contains 5% of all biodiversity in the planet, with 1,600 animal species and 12,000 plant species—of which nearly half are found exclusively in the Cerrado. Its deep root systems act as a critical carbon sink, estimated to store 13.7 billion tons of carbon underground. **Conversion of the Cerrado and Amazon vegetation directly results in critical biodiversity loss.**

On the other hand, the soy crop can fix nitrogen, and can therefore be used as a rotation crop.

Soy

Environmental Risks

Water Footprint

The global average water footprint of soybean is **2.145 m3 per ton, which is relatively low**. However, RIVM data indicates that in the period 1996-2005, global soybean production contributed **5% to the total water footprint** of crop production in the world. Moreover, soy production is linked to reduction of Brazil's freshwater resources.

2.145 m3/ton

Is the global average water footprint of soybean production

US News reports that "**from 1991 to 2020, 15% of surface water in Brazil was lost** as a result of deforestation, the construction of large hydropower plants as well as dams and reservoirs for irrigation of crops". The impacts for local communities is significant.

Social Risks

Land appropriation

Soy expansion in Latin America is frequently linked to human rights violations, particularly to land grabbing and displacement of local and indigenous communities, and the absence of prior consultation with local communities. Many company-community land conflicts are linked to soy production in Brazil, where armed security staff guard soy farms from which the land was previously owned by local and indigenous communities without formal land entitlements. Loss of natural habitat may endanger local livelihoods and food security of local communities.

Labor conditions

Deforestation from soy production decreases food supplies for indigenous communities, as well as **local wages, and employment for local farmers as a result of increased mechanisation**. Particularly labour conditions in China linked to the production of protein concentrates and textured protein substances require close monitoring.

Health & Safety

Genetically modified (GM) soy makes up for **90 percent** of the Brazilian total of soy production. The production of GM crops has **polluted water resources**, thus affecting the livelihoods and health of local communities. Moreover, local and indigenous communities in Brazil face **toxic exposures from aerial and ground pesticide spraying** over soy plantations near their homes, schools and workplaces. This causes health problems, such as sweating, elevated heart rate, vomiting, as well as nausea, headache and dizziness.

90%

of soy produced in Brazil is genetically modified