SOY BAROMETER 2012
THE SECRET LIFE OF SOY

This publication was originally designed for a Dutch readership, but has been translated into English due to popular demand. We trust that the information provided will also prove insightful and interesting to an international audience.
Soy is becoming increasingly popular: products such as soy yoghurt are available in various flavours, but soy is also hidden in many products, so that we eat it without knowing it. Soy meal is an important ingredient in cattle feed, which finds its way into the meat, dairy and eggs we consume. Soybean oil is used in other foodstuffs, as well as in cosmetics, detergents and biodiesel.

Soy production provides income, but has major social-, ecological- and economic consequences in production countries. With the aim of putting the issues surrounding soy on the map and finding solutions and ways to make soy production fairer and more sustainable, a number of Dutch civil society organisations joined forces to form the Dutch Soy Coalition in 2004. The Dutch Soy Coalition collaborates with scientists, the private sector and other civil society organisations in countries that produce, process and consume soy.

In 2008, the Dutch Soy Coalition launched a strategy based on the three R’s of Replacement, Reduction and Responsibility, which are seen as the key to change. Replacement is about finding possible alternatives to soy in animal feed. Reduction stands for reducing (meat) consumption. Responsibility is about limiting the most adverse effects of soy production for humans and the environment (sustainability). This publication focuses mainly on reduction and responsibility.

In order to move towards more responsibility, a growing number of actors in the Netherlands are in agreement that the soy we process and use should, at the very least, be responsibly produced. But when is the production of soy really responsible? And how much responsible soy is currently being processed and used by the Netherlands? To answer these and other questions, the Dutch Soy Coalition published the first Soy Barometer in 2009. The 2012 Soy Barometer is the second to be published. Background information can be found in a separate report, which can be obtained from the secretariat of the Soy Coalition.

**NEGATIVE EFFECTS OF THE EXPANDING SOY PRODUCTION AREA**

**DEFORESTATION**
Forests and other vegetation have been cut down to make way for soy cultivation. In addition to the loss of biodiversity and clean water, this has also led to the increase of greenhouse gases which, in turn, have a negative impact on climate change.

**SOIL DEGRADATION**
The disappearance of the vegetation dries out the soil, giving free rein to wind and water, which causes erosion. The soil becomes less fertile and this, in turn, requires the use of artificial fertilisers to compensate for the poor soil quality.

**LAND CONFLICTS**
Large farm enterprises and businesses have been known to get hold of land by clearing parts of the forest illegally or by dispossessing local communities of their land. Tenants and small communities with no deeds to their land find it hard to fight for their rights.

**GENETIC MODIFICATION**
Some 85% of all the soy in South America has been made resistant to the herbicide glyphosate (also called Roundup Ready soy) through genetic modification (GM). The use of genetically modified soy has led to heated discussions between its supporters and detractors.

**FOOD SECURITY**
Soybean production puts the local food supply at risk. Land that was originally used for the cultivation of corn, rice, oats and beans, is now used for the cultivation of soy, which is largely exported.

**MODERN SLAVERY**
Cases of forced labour practices have been reported in soy farming. Some workers are expected to pay back their ‘advances’, employment is seasonal and working conditions are sometimes bad.

**PESTICIDES & FERTILISERS**
The use of pesticides and fertilisers creates health risks for the population. It also contaminates ground- and surface water, which has a negative effect on biodiversity.

**SCALE INCREASES**
Small-scale farmers and local communities are often displaced from their land to make room for large-scale soy cultivation. Most soy is grown on a very large scale (monoculture).

**BIO DIESEL**
Soybean oil is increasingly being used to make biodiesel. New land is often cleared and forests felled to make room for soybean cultivation, or indirectly for agriculture or livestock farming displaced by the production of soy. This leads to additional greenhouse gases, which causes biodiesel to have a negative impact on climate change.
SOY IS EVERYWHERE

Soy is an annual plant with an edible bean that delivers high protein and fat yields. The plant grows in temperate, subtropical- and tropical climates in the United States, South America (especially South-Central Brazil, Argentina and Paraguay), Asia (especially Central India and Northeast China) and, to a limited extent, in Europe (Italy, Serbia and Romania).

The most recognisable soy products are food items such as soy milk, soy sauce, tofu and other meat substitutes. Yet only 6% of the soybeans produced worldwide are used for such foods, mostly in Asia. Soybeans are usually crushed or pressed to produce soybean meal and soybean oil.

Soybean meal is used as an ingredient in cattle feed, because it is highly nutritious. The strong growth in the global demand for soy has been a direct result of the increased consumption of meat, dairy and eggs in recent decades, which has caused an increase in global livestock numbers. Soy meal is also used in noodles, baby food, flour and breakfast cereals. Lecithin, a valuable by-product of the crushing process, is used as an emulsifier by the food industry (to keep foods, such as chocolate, soft).

Soybean oil, which is pressed from the soybean, finds its way into foods such as cooking oil, margarine, sauces and soups, but can also be found in ready meals, (cereal) products, salty snacks, biscuits, sweets and ice creams. Soybean oil is also used in cosmetics, detergents and industrial products. While soy mainly finds its way into food and feed applications, an increasing amount is being used for biodiesel.
The soy chain starts with the cultivation of the soybean at millions of small-scale farms in China, India and South America, ranging from one or a few hectares to much larger farms. In South America, soybean is cultivated on farms as large as 100,000 hectares. Global soy production has increased by 60% in the last 20 years.

The soy is harvested, bought up, processed and traded in the form of beans, flour and oil. The trading and processing of soybeans is dominated worldwide by four multinational companies: Archer Daniel Midlands (ADM), Bunge, Cargill and Louis Dreyfus. These large traders sell their (processed) soy to the animal feed-, food- and cosmetics industries. These industries, in turn, are dominated by a number of multinational organisations, such as Unilever, Danone, Procter & Gamble, Kraft and Nestlé, who incorporate soy into their products directly or indirectly. Soybean oil, and meat, dairy and eggs which come from livestock that have been fed soy, are used in many end products, such as biscuits, snacks or ready meals.

China and the European Union are the largest importers of soy in the world. In 2011, China accounted for more than half of the world’s imports of soybeans. The country’s economic and demographic growth and the increased meat consumption coupled to these developments have strongly increased China’s demand for soy.
Dutch Import & Export of Soy

Within the European Union (EU), the Netherlands is the leading soy importer: about a quarter of all soy imported by the EU transits through the ports of Amsterdam and Rotterdam. The Netherlands is therefore an important link in the European soy chain. Most of the soy imported by the Netherlands comes from South America, where deforestation is still taking place to make way for soy plantations, and where the expansion of and production of soy goes hand in hand with social- and land conflicts, because such expansion often occurs in vulnerable areas.

To grow just the amount of soy imported annually by the Netherlands, a surface area comparable to the size of the Netherlands is required. Part of the imported soy is immediately exported, and another part is first processed (crushed) in the Netherlands and then exported or processed into Dutch animal feed, food and other products.

Of the 8.7 million tonnes of soy (soybeans, soybean meal or -oil) imported into the Netherlands in 2011, some 7.4 million tonnes were exported, mainly to other countries in Europe, either directly or indirectly, after being processed into soybean meal and fed to livestock in the form of meat, poultry, eggs and dairy.

Dutch ports, companies, supermarkets and Dutch subsidiaries of multinationals make enormous profits from the transit of soy through the Netherlands and the processing of soy into animal feed and food products. They are therefore co-responsible for the effects of soy cultivation in the countries of origin and can impose requirements on the way in which this takes place.
There are two soybean processing plants (known as crushing plants) in the Netherlands. They are owned by two of the biggest soy traders in the world: ADM in Rotterdam and Cargill in Amsterdam. In 2011 these factories crushed 2.2 million tonnes of soybeans - 68% of all soybeans imported by the Netherlands. Of the total of all soy (soybeans, soybean meal and -oil) that was imported in 2011 (8.7 million tonnes) some 63% was exported to countries such as Germany, Belgium, Poland and the United Kingdom, possibly after crushing in the Netherlands.

The remaining soy was further processed into products in the Netherlands: 19% into products that were later exported and 16% for consumption in the Netherlands. The livestock sector is by far the major soybean processing sector in the Netherlands. Soybean meal, and to a lesser extent, soybeans and soybean oil, are used as animal feed. Although almost all the feed is intended for Dutch livestock farmers, a large proportion of the soy used in feed eventually makes its way to other European countries in the form of pigs, chickens, eggs and dairy.

More than 100 animal feed companies are active in the Netherlands. These companies produced some 1.4 million tonnes of feed in 2011, with a soy content of between 13% and 18%. Almost 2.2 million tonnes of soy – more than a quarter of the total Dutch import in 2011 – was used for animal feed, of which the pork- and poultry sectors were the heaviest users. Soybean oil and soybeans were also used directly and indirectly, processed into various foodstuffs as livestock products (meat, eggs and dairy).
SOY CONSUMPTION IN THE NETHERLANDS

The Dutch consume about 13% of all imported soy in the Netherlands: some 1.1 million tonnes. The majority of soy is consumed in the Netherlands in the form of livestock products, because the Dutch are fond of meat, eggs and dairy. In 2011, the Netherlands produced 10 billion eggs, of which no less than 3 billion were directly consumed or incorporated into finished products in the Netherlands. Some 7.5 million pigs were consumed by the Dutch in 2011, a third of the total number of pigs produced in the Netherlands. About 762,000 tonnes of poultry was produced, of which almost half was intended for the Dutch market.

Most of the livestock products and foodstuffs containing soy reach Dutch consumers through retail channels. In fact, 59% of all meat is bought in the supermarket (compared with 4% purchased at the butcher). Some 35% of the remaining meat reaches the consumer through hospitality channels and 2% through other channels. Some 81% of sandwich meats are sold via supermarket, but the sale of eggs takes the cake, with a supermarket sales share of almost 89%.

Supermarket chains play a leading role in the procurement and marketing of soy based products and are therefore a crucial link in finding ways to replace soy, to make soybean production more sustainable, or to reduce the consumption of animal proteins, the three Rs previously mentioned.
STANDARDS FOR RESPONSIBLE SOY

Discussions about the effects of the increasing expansion of soy cultivation have led to the creation of various certifiable standards for responsible soy in recent years.

Organic soybean growers rely on the regulations for organic farming. Organic farmers may not use chemical pesticides, fertilisers or genetically modified organisms - only organic means. Crop rotation is an integral part of organic production. Socio-economic issues play no significant role.

EcoSocial is a hallmark developed by the Instituto Biodinâmico for Rural Development (IBD) in Brazil. In addition to organic farming criteria, Fairtrade criteria for improving the living conditions of small-scale farmers have also been included in this system.

The ProTerra standard is based on the Basel Criteria for Responsible Soy Production from 2004, which focuses mainly on deforestation, land rights and sustainable production. This standard also prohibits the use of genetically modified (GM) soy.

The Round Table on Responsible Soy (RTRS) is an international platform, in which soy producers, traders, processors, banks and civil society organisations work together to develop criteria for the responsible cultivation of soybeans worldwide. The RTRS standard outlines various social- and environmental controls, and may be used for both GM and non-GM soy.

The certification for GM-free soy indicates that no genetically modified soy was used in the entire chain. There are no other social- or environmental criteria associated with this label.

The table does not provide information about the extent of attention given to the various criteria by the different standards.

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Quantity in the Netherlands in 2008 in tonnes
- 11,200 | 500 | 0 | 72,350 | 0 | 48,840

Responsorable soy processed in the NL in 2011(%)
- 9.0% | 4.0% | 0.0 | 8.1% | 74.4% | 4.6%

The table does not provide information about the extent of attention given to the various criteria by the different standards.
Some Dutch companies have been involved in or have taken initiatives to encourage the cultivation of sustainable soy, sometimes in collaboration with civil society organisations.

The Task Force Sustainable Soy was established at the end of 2006. This platform of Dutch companies and traders in the soy chain wants to make a contribution to responsible soy. To this end, it was agreed that all soy for the Dutch market must be sustainably produced according to the RTRS criteria by 2015. Soy-related export is not covered by this objective.

In December 2008, Nevedi and a number of companies from the livestock chain founded the Initiative Sustainable Soy (IDS). Their goal was to make a head start with the purchase of responsible soy, produced according to criteria which best corresponded to the RTRS standard that was still under development.

These two initiatives led to the signing of a letter of intent in December 2011, which served as a precursor for the Foundation Project Chain Transition Responsible Soy. Major players in the animal production and food sector, all supermarket chains in the Netherlands (with the exception of ALDI) and a number of civil society organisations signed this letter of intent. Its objective is to take gradual steps towards the acquisition of 100% responsible soy by 2015.

In 2010, 15 Dutch zoos announced that they would only use responsible soy in their feed going forward.

The Soy Producer Support Initiative (SOYPSI) was founded by Solidaridad and the RTRS in 2009, with the aim of supporting small-scale farmers and farm workers and preparing them for certification. Under the initiative, companies can invest in a fund for sustainable soy production. Since the start of the initiative, projects have been kicked off in Brazil and India and the programme has developed into the Farmer Support Programme.

In 2006, Brazilian soy processors and -traders and civil society organisations signed the Soy Moratorium, in which they agreed to no longer buy soy from newly deforested land in the Amazon region for a minimum period of two years. The Moratorium is still in force and has been annually renewed since then.

The use of 100% responsible soy is a good start. However, the existing standards will have to be further developed and the criteria tightened and followed by all actors. So doing, the criteria and standards will contribute to the global production, transport and trade of soy that is free of social- and environmental problems.
Now that we have outlined how much soy is imported, processed and traded in the Netherlands, the question arises what part thereof is produced and certified in accordance with any of the aforementioned standards for responsibly produced soy.

The main soybean importers indicate that they have imported approximately 660,000 tonnes of responsible soy, or 8% of the total import of 8.7 million tonnes.

But, where does all this soy end up? It is not possible to answer this question in detail, because there is a lack of sufficient information. rtrs soy, for example, is jointly purchased by the feed producers, and cannot be attributed to specific product groups. An estimate of how much responsible soy was processed into various products was made based on available data from sectors such as animal feed producers, large slaughterhouses and the food industry. We estimate that at least 3% (168,000 tonnes) of the soybeans intended for Dutch consumption and export (2.4 million tonnes), were responsibly produced in 2011*. This was almost double the 2008 percentage, when the share was 4%.

Non-gM soy was included in this calculation, even though that standard does not include additional environmental or social criteria. If this soy, which only meets the criterion of ‘non-gM’, would not be included, it would dramatically change the overall picture: only 2.6% of the total soy imported into the Netherlands would be considered certified according to one or more of the other standards.

The (dairy) livestock industry has made the biggest investment in the responsible production of soy. Other product groups have invested much less or have not invested in responsibly produced soy.

The manufacturers of the following products have used responsible soy in their product chains or have invested in responsible soy:

- Organic beef, pork, chicken and eggs
- Pork with the Milieukeur (a Dutch sustainability certification) at Keurslagers (a Dutch association of butchers with a strict quality-control system)^
- Chicken from Gildehoen (a concept that promotes animal welfare)^
- Milk, yoghurt, desserts etc. from brands such as Arla and Campina
- Beemster brand cheese^©
- Ben&Jerry’s brand ice-cream^©
- Organic soy products, such as soy milk and tofu
- Ad van Geloven brand snack

* rtrs certificates were purchased for these products, which form part of the estimated 7% of responsibly produced soy in the Netherlands that is processed into products.

^ These certificates support responsible soy production or supports responsible production via another way (soypsi).
Animals in the Dutch livestock industry eat more than 14 million tonnes of animal feed annually. The energy-rich cereals used in animal feed are mainly produced in the EU. Most of the protein crops used in the production of animal feed, mainly soybeans, come from South America.

In addition to the aforementioned social- and environmental problems in soybean producing countries, soybean import also has other consequences in Europe. In the Netherlands, for example, it creates a surplus of manure: manure from cattle fed with South American soy remains in the Netherlands. Conversely, the minerals from farmland in South America no longer return back to their natural environment.

Studies to find alternatives are currently being conducted. Europe can also cultivate protein crops. So, for example, experiments with soy cultivation in the Netherlands are currently being carried out. Better crop rotation is good for the soil quality and protein crops, such as soybeans ensure that more nitrogen - essential for the growth of crops – is fixed from the air into the soil.

Some consider the Dutch dependence on imported soy to be undesirable. In the Van Doorn Commission’s report ‘Only sustainable meat in 2020’, companies and civil society organisations stated that half of the protein-rich raw materials for animal feed must come from Europe by 2020, provided that the final result is more sustainable.

All parties in the soy chain have an important role to play. First, by investing in research to improve the yield of soy and other European protein crops. In addition, feed companies in different countries can purchase their protein animal feed from national- and regional suppliers, in order to minimise the loss of minerals.

**EU Dependency on Protein Import**

These environmental problems are being passed on to other countries.

**Disadvantages of Soy Import**

- Deforestation
- Soil degradation
- Pesticides and fertilisers
- Exhausted agricultural land causes high food prices

**Alternatives for Soy Import: Production in Europe**

Increase of crop diversity in Europe.

**Restoration of Nutrient Cycle**

- Increase of crop diversity in Europe.
Some 265.7 million tonnes of soy was harvested from a total area of 103,900,000 hectares in 2010/2011 worldwide. Production has increased by more than 25% since 2007. The total area required for soy cultivation has expanded by 6500,000 hectares in three years - an area twice as large as the Netherlands. This expansion has created both social- and environmental problems in the production countries.

The Netherlands is the largest importer of soybeans in the European Union. With a soybean import of 8.7 million tonnes, the Netherlands was responsible for 23% of the total soy entering the EU in 2011. An area almost the size of the Netherlands was needed in the countries of origin for the production of just the soy imported into the Netherlands in 2011.

The cultivation and trade of soybeans is very profitable for the producing countries. However, the growing acreage required to produce soybeans is leading to deforestation, biodiversity loss and issues related to health, food security and working conditions for the local population in the expansion areas, especially in South America. All players in the soy chain must contribute to solving these problems. This can be done by reducing consumption of animal proteins, replacing soy in feed with alternatives and improving the sustainability of soy cultivation.

A number of standards for responsible soy exist, including organic, EcoSocial, Fairtrade, Proterra and rtrs. Worldwide, the proportion of soy that is certified according to these standards is still small, but growing. In addition, there is also a certification for non-GM soy, but because no further environmental- or social criteria apply to the way that this soy is cultivated, non-GM soy is not necessarily sustainable. This non-GM soy has been included in the Soy Barometer, because it is an important environmental- and health criterion for many consumers.
Several initiatives to encourage the cultivation of responsible soy or to find alternatives for imported soy currently exist in the Netherlands. Companies have made agreements with civil society organisations to buy responsible soy and to take advice on these matters. Many feed- and food companies have welcomed these initiatives, but supermarkets still have a much more active role to play. No agreements have been made concerning the export and transit of soy: the big soy traders are not under any obligation so far.

Of the 2.4 million total tonnes of soybeans processed in Dutch food chains – for products intended for the Dutch market and for export - only 7% was produced responsibly in 2011. This includes non-GM soy. While this figure is almost double that of 2008 (4% of the 3.3 million tonnes) it is still very limited. In practice, this means that there is no guarantee that the rest of the soy processed and consumed in the Netherlands (more than 93%) did not come from vulnerable expansion areas where soy cultivation has negative social- and ecological consequences.

The Dutch Soy Coalition urges the Dutch livestock sector, supermarkets and soy traders to take responsibility and make the commitment to achieving the goal of 100% responsible soy by 2015.