Corporate actors in the South American soy production chain

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Focus on Finance

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Summary and conclusions

This paper is prepared for World Wide Fund for Nature Switzerland, to serve as a basis for discussions about global WWF initiatives towards the edible oil sector. The acreage planted with various types of oil crops, especially oil palms and soybeans, is growing strongly in parts of Asia and South America. Several other studies have indicated that this rapid expansion process is stimulating deforestation of primary forests and High Conservation Value Forests in these regions. The development of the edible oil sector therefore is a source of serious concern to WWF.

Against this background, this study aims to identify the main corporate actors involved in the South American soybean production chain. Geographically, this production chain is defined as including the South American soybean production countries Brazil, Argentina, Bolivia and Paraguay, as well as their European export markets. This study concentrates on the main players upstream in South America and the main players downstream in Europe, which is by far the most important export market for South American soybeans and soy meal.
This paper will serve as a basis for WWF to identify and jointly work with key stakeholders involved in the South American soybean production chain - investors, financiers, traders, and other key players - towards more sustainable soy production.

Global soy market

Globally, soybean production is increasing rapidly (+47% over the past six years), driven mainly by the demand for soy meal from the animal feed industry. As soy meal is very rich of proteins and has a low percentage of raw cellulose, it is especially suited for compound feed for single stomached animals such as pigs and poultry.
On a global scale, 87% of total soybean production is being crushed and 13% is used by the food industry directly. Crushing soybeans on average yields 79% soy meal and 18% soy oil. Soy meal is the most important oilmeal in the world by far, with a global market share of 59%.
Although soy oil - which is used by the food, detergents, cosmetics and chemical industries - is only a by-product of soy meal production, soy oil now ranks as the most important edible oil in the world with a global market share of 23%.

Although the United States dominate the soybean sector of old, the South American countries have contributed most to the rise in the global soybean output. Total South American soybean acreage increased with 66% over the past six years, reaching an area of 30 million hectares at present (which is around 7.5 times the size of Switzerland).
Still clearly behind the United States (43% of global soybean production), Brazil now is the second soybean producing country in the world with a market share of 23%. Argentina ranks third, with a 16% share of world production and the highest growth rate (143%) over the past seven years. Paraguay and Bolivia account for another 2% respectively 1% of world production. The total South American share of the global soybean market amounts to 42%.

South American soybean sector

The South American soybean sector is to a large extent oriented on exports to markets outside South America. Of total soybean production 33% is exported directly, while 62% is first crushed inside South America. An important part of the resulting South American production of soy meal and soy oil is then exported as well (78% and 65%, respectively).

Main export markets for South American soybeans are the European Union (45%) and China (35%). Within the European Union, the Netherlands, Spain and Germany are the most important destinations.

Main export market for South American soy meal is the European Union (62%). The most important markets within the European Union are France, Italy, the Netherlands, and Spain. The largest export markets for South American soy oil are Iran, India, and Bangladesh. Only minimal amounts of soy oil are being exported to the European Union.

Between the four South American soybean producing countries, differences are visible in the percentage of soybeans exported and crushed. These differences are attributable mainly to differences in tax structures, domestic crushing costs and transport costs to sea ports. Also, there are clear differences in the relative importance of various export markets.

South American soybean production countries

In **Brazil** the soybean harvest growth over the past six years (50%) has resulted mainly in a strong growth of soybean exports (322%). At present 39% of production is being exported outside South America. Still a larger part (58%) is crushed in Brazil, but crushing increased only modestly (8%) over the past six years. Exports of soy meal and soy oil even declined (with 2% respectively 6%) over the past six years, as domestic consumption increased. At present, 63% of soy meal production and 37% of soy oil production is exported.

The most important export markets for Brazilian soybeans are the European Union (59%) and China. Within the EU, the Netherlands, Germany and Spain are the main importers.
The European Union also is the most important export market for Brazilian soy meal, with a market share of 76%. Within the EU, France, the Netherlands and the United Kingdom are the main importers.
The most important export markets for Brazilian soy oil are Iran and India. Almost no Brazilian soy oil is being exported to the EU.

In **Argentina** the enormous output growth over the past six years (118%) has also caused a strong increase of the soybean export with 181% Of domestic supply at present 25% is being exported outside South America. But, different from Brazil, the amount of soybeans crushed also doubled. The domestic crushing percentage therefore only decreased lightly and still is higher (66%) than in Brazil. Different from Brazil, the Argentinean soy meal and soy oil production is almost completely exported. Soy meal and soy oil exports therefore doubled as well over the past six years.

Argentinean soybean exports have shifted away from the European Union to China and other Asian countries during the past two years The export share of the European Union declined from 74% in 1997 to only 10% in 2001. The main export markets within the European Union are Spain, the Netherlands and Germany.
The European Union still is the most important export market for Argentinean soy meal, with a market share of 57%. The main EU-destinations for Argentinean soy meal are Italy, Spain, the Netherlands and Denmark.
The most important export markets for Argentinean soy oil are India, Iran, and Bangladesh. Almost no Argentinean soy oil is exported to the European Union.

In **Paraguay** soybean production increased with 62% over the past six years. Of total production, 26% is crushed and 24% is exported outside South America. Main soybean export market outside South America is the European Union (81%). The main EU-destinations for Paraguayan soybeans are the Netherlands, Spain and Germany. Crushing increased with 39% over the past six years. Most soy meal and soy oil is being exported, but mainly to markets inside South America.

In **Bolivia** soybean production increased with 74% over the past six years, but domestic crushing increased even more (208%). As a consequence, Bolivia now imports soybeans (from Brazil and Paraguay) while exports have stopped.

As crushing increased strongly, soy meal and soy oil output also increased in the same pace. A large part is exported, but mainly to markets inside South America.

Soy consumption in the European Union

The European Union is the main export market for South American soybeans. Soybean production in the European Union accounts for only 6% of total supply, while imports contribute 94%. Total imports stayed roughly equal over the past six years, but while imports from other countries (mainly the United States) decreased strongly, imports from South America doubled.
South American soybeans now account for 60% of total EU-imports and for 56% of total soybean supply on the EU-market. As 89% of total supply is being crushed, one can assume that around 56% of the EU soy meal and soy oil production is from South American origin.

The European Union also is the most important export market for South American soy meal. Imports account for 57% of total EU-supply, and 95% of imports is now coming from South America.
As 56% of EU soy meal production is from South American origin and 95% of EU soy meal imports is from South America, around 79% of total EU soy meal supply is from South American origin.
As EU soy meal exports are minimal, also 79% of total EU soy meal consumption is from South American origin. Soy meal from South American origin accounts for 57% of all oilmeal consumption in the EU. As in Europe oilmeals are for 78% consumed by the animal feed industry, it is very probable to assume that almost every compound feed producer in Europe will use large amounts of soy meal from South American origin.

As the European Union does not import soy oil, around 56% of total soy oil on the EU-market is from South American origin. Around 36% is exported and 64% is further processed by refineries and oleochemical companies, which supply to the European food, cosmetics, detergents and chemical industries.
It should be emphasized, however, that other edible oils can be used for many of the same products as soy oil, which means that the total edible oil market should be taken in account. Of the total amount of edible oils processed annually in the EU, only 6% consists of soy oil from South American origin. This makes it very difficult to trace which companies in the European food, cosmetics, detergents and chemical industries are using sizeable amounts of soy oil from South American origin.

Major players in the South American soy production chain

Soybean trading and crushing in the four South American soybean production countries is dominated by a limited number of large, international commodity trading companies. The four most important of these are:

- Archer Daniels Midland (ADM) — United States
- Bunge — United States
- Cargill — United States
- Louis Dreyfus — France

Moreover, the three American trading companies mentioned also control 80% of the European soybean crushing industry.

Although these trading companies usually don't invest in soybean growing as such, their influence on the expansion of the sector is very large. Soybean farmers are often very dependent on these trading companies for seed, credit, other inputs and off take. Through their control of the main export market, the European Union, they also provide the production sector the opportunities for expansion. These traders therefore are in a perfect position to promote sustainable cultivation of soybeans in South America as well as to reduce the deforestation pressure exerted by the soybean production sector.

Financial stakeholders of the soybean traders and crushers

The financial stakeholders of the four main soy trading and crushing companies mentioned above, could help to convince them that they should use their key positions in the South American soy production chain to promote sustainable cultivation of soybeans in South America as well as to reduce the deforestation pressure exerted by the soybean production sector. The following financial stakeholders are found to be most influential:

• ABN AMRO Bank	The Netherlands
• Bank of America	United States
• BNP Paribas	France
• Citigroup	United States
• Commerzbank	Germany
• Crédit Agricole	France
• Crédit Lyonnais	France
• Crédit Suisse	Switzerland
• Deutsche Bank	Germany
• HSBC Bank	United Kingdom
• ING Bank	The Netherlands
• IntesaBci	Italy
• J.P. Morgan Chase & Co	United States
• Rabobank	The Netherlands
• Société Générale	France

Conclusions

- The tremendous growth of the South American soybean acreage, which is stimulating deforestation of primary forests and High Conservation Value Forests, is largely export-driven. As the European Union is the most important export market for soybeans and soy meal from South America, the expansion of the South American soybean sector could therefore in principle be mitigated by influencing its European customers. Largest obstacle, however, is to identify actors with a strong leverage which are susceptible to public pressure.

- Of total EU soy meal consumption 79% is from South American origin. As soy meal is mainly consumed by the animal feed industry, it is justified to assume that every compound feed producer in Europe uses large amounts of soy meal from South American origin. It therefore seems sensible to focus attention on the European compound feed industry and its customers: the stock raising and meat processing industries.

- Of total EU soy oil consumption 56% is from South American origin. But of the total amount of edible oils processed annually in the EU, only 6% consists of soy oil from South American origin. This makes it very difficult to trace which companies in the European food, cosmetics, detergents and chemical industries are using sizeable amounts of soy oil from South American origin. Focussing attention on these industries therefore doesn't seem sensible.

- Four international commodity trading companies (Archer Daniels Midland, Bunge, Cargill and Louis Dreyfus) dominate soybean trading and crushing in South America, as well as soybean crushing in Europe. These traders therefore are in a perfect position to promote sustainable cultivation of soybeans in South America as well as to reduce the deforestation pressure exerted by the soybean production sector.
  But at the other hand: their vested interests are strong, and they do not seem to be very susceptible to consumer pressure as they don't sell their products directly to end-consumers. Probably, Archer Daniels Midland and Bunge could be a bit more susceptible as they are listed companies, which Cargill and Louis Dreyfus are not.

- Addressing the financial stakeholders (shareholders, banks, bondholders) of these four key players, could be an indirect way to get leverage over the development of the South American soybean production sector. Many highly-visible and well-known financial institutions are strongly involved in financing the operations of these four key players. Identifying which of these financial institutions provide the best leverage and are most susceptible to public pressure, therefore seems very sensible.

Introduction

This paper is prepared for World Wide Fund for Nature Switzerland, to serve as a basis for discussions about global WWF initiatives towards the edible oil sector. The acreage of various types of oil crops, especially oil palms and soybeans, is growing strongly in parts of Asia and South America. Several other studies have indicated that this rapid expansion process is stimulating deforestation of primary forests and High Conservation Value Forests in these regions. The development of the edible oil sector therefore is a source of serious concern to WWF.

Against this background, this study aims to identify the main corporate actors involved in the South American soybean production chain. Geographically, this production chain is defined as including the South American soybean production countries Brazil, Argentine, Bolivia and Paraguay, as well as their European export markets. This study concentrates on the main players upstream in South America and the main players downstream in Europe, which is by far the most important export market for South American soybeans and soy meal.
This paper will serve as a basis for WWF to identify and jointly work with key stakeholders involved in the South American soybean production chain - investors, financiers, traders, and other key players - towards more sustainable soy production.

This paper is an updated and extended version of the reports “Corporate EU actors in the Brazilian and Indonesian soy bean and oil palm production chains” and “US corporate actors and the South American soy bean production chain”, which were prepared by Focus on Finance for WWF Switzerland and WWF US respectively in 2000.
World Wide Fund for Nature Switzerland is organizing a workshop on “Addressing Investors and Consumers of Palm Oil and Soy” on 7 and 8 November 2002 in Zürich (Switzerland). This paper serves as background information for the discussions at the workshop.

The contents of this paper are as follows. Chapter 1 will present a global overview of the soybean production chain, explaining all stages involved. The chapter includes figures on the main production and consumption countries in the world, on the main uses of soybean products, and on the main competing edible oils and oilmeals.

Chapter 2 provides a regional overview of the South American soybean production sector, including detailed production, processing and export figures. The country profiles in chapter 3 give more detailed information on production, trading, crushing, refining and financing the soybean sectors of Brazil, Argentine, Bolivia and Paraguay.

Chapter 4 describes the European soybean trading and processing sector, including an overview of import, processing and consumption figures. The main traders, crushers, manufacturers and retailers are identified and described. Where possible, flows of South American soybeans and derived products to European traders and processors as well as between European traders and processors and European manufacturers will be identified.

Chapter 5 analyses the financial stakeholders involved in financing the four main players in the South American soybean production chain: Archer Daniels Midland (ADM), Bunge, Cargill and Louis Dreyfus. Information is provided on shareholders, banks, bondholders and other financial stakeholders of these three companies.

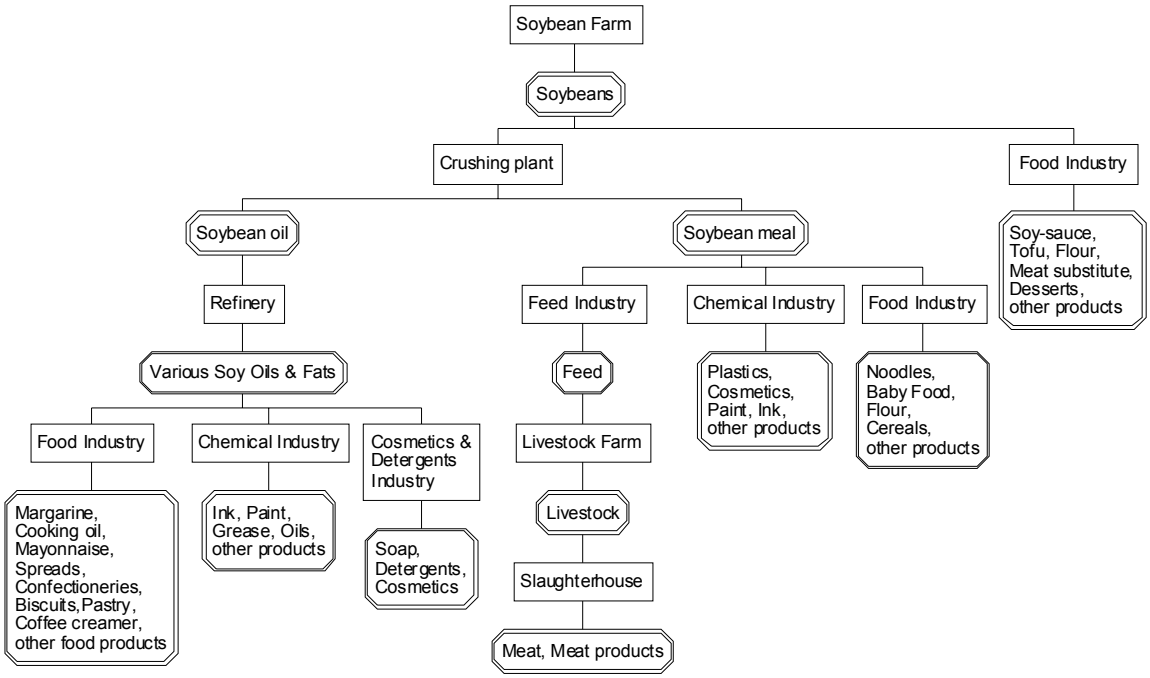
In the first annex an index of all companies and financial institutions mentioned in this report is presented.

This paper by no means aims to identify all corporate actors involved in the South American soybean production chain. The aim is to provide a first assessment of which corporate actors might be able to provide leverage for improving sustainable cultivation of soybeans in South America as well as reducing the deforestation pressure exerted by the soybean production sector.

Chapter 1 The global soybean production chain

1.1 Overview of the soybean production chain

In this chapter the soybean production chain, from soybean to end-consumer, will be described systematically.[1] The following diagram gives a schematic overview of this soybean production chain.[2]



The following paragraphs will describe the principal stages in the soybean production chain, as shown in the figure above.

1.1.1 Soybean farms

Soybeans can be grown in moderate, sub-tropical and tropical climates. The soybean is an annual crop, and it is grown on family farms as well as on plantations. It is important to note that these farms and plantations generally grow other crops as well, in a crop rotation scheme intended to prevent plant diseases and soil exhaustion. A very attractive aspect of growing soybeans from an agricultural point of view, is that the crop ties up nitrogen in the soil. As most crops need extra nitrogen to perform well, growing soybeans means that the next crop in the rotation scheme needs less fertilizer input.
When prices are high, farmers will grow soybean more often in their rotation scheme. But when prices are low, they will shift to another crop. This means that the global output of soybeans will react more strongly and more quickly to changes in world market prices than is possible for multi-annual crops as oil palm.
The global average yield per hectare of soybeans is 2.3 tonnes, but there are strong differences between countries. Italian farmers on average record the highest yield: 3.7 tonnes per hectare.[3]

1.1.2 Soybean traders

After the harvest, the soybeans are bought, collected and transported to crushing plants or processing industries. These stages in the production chain are the domain of the soybean traders, which can vary from small, local companies to large, international conglomerates. The small, local traders usually will sell the soybeans to a crushing plant or processing industry in their own region, or to a large, international trader. The large, international traders sell the soybeans to crushing plants all over the world, in production and consumption countries. Often these crushing plants are owned by the same international trading group. Of the total world soybean production, around 87% is crushed.[4] The other 13% is used as seed, or processed in another way by some specific food industries. Products derived from non-crushed soybeans are for instance soy-sauce, tofu, and other meat and dairy substitutes.

1.1.3 Crushing plants

In the crushing plant, the soybeans are crushed. Crushing yields two products: soy oil and soy meal. As the oil content of the soybean is not very high, mechanical crushing - as is used for rapeseed, sunflowerseed and palm kernels - does not yield enough oil. Therefore a solvent extraction process is used, during which the oil is leached or washed from flaked oilseeds by the use of hexane. This process reduces the residual oil in the soy meal to as little as 1%. As hexane is very explosive, this process needs extensive safety measures.

During the crushing process around 79% of the soybean is processed into meal. This meal is often toasted, dried and grinded. The end-product is a very protein-rich meal, with a protein-content of around 44% (when the beans are crushed together with the hulls) or around 48% (when the beans are dehulled before crushing). Soy meal is a favoured ingredient for livestock compound feed but is also used for food and non-food purposes.
Around 18% of the soybean is processed into crude soy oil, which is supplied to refineries, and oleochemical plants.
After the crushing process, 3% of the soybean input is left as waste.

Although the price of soy oil per tonne is higher than that of soy meal, the large meal-content of the soybean means that around 70% of soybean revenues is derived from soy meal. This means that the world demand for soybeans is mainly driven by the compound feed industry (and ultimately: the meat processing industry). This contrasts with the world demand for palm oil, which is mainly driven by the food industry.

Crushing plants can be dedicated solely to crushing soybeans, but often they also crush other oilseeds. A crushing plant can be located near a soybean growing area, near a harbour in a soybean producing country, or within a soybean consuming market. The location choice depends mainly of:

- **Logistic costs**: crushing near the growing area reduces transport costs, as you don't have to transport worthless residues and you can transport soy meal and soy oil directly to different end user region;
- **Crushing costs**: which depend mainly on the scale of the plant, the technology applied and the capacity utilisation;
- **Taxes**: by specific import and export taxes some countries try to stimulate their own crushing industry.

1.1.4 Refineries and oleochemical plants

The crude soy oil produced by a crushing plant, is further processed in a refinery. The processing of soy oil in refineries can include refining, bleaching, deodorizing, splitting, fractioning and hydrogenating. The resulting refined types of oil can be bottled and sold directly to consumers, or they can be supplied to final processing industries in the food, animal feed and chemical sectors.

The oleochemical industry also is an intermediate processing industry, which uses crude soy oil as well as refined soy oil as inputs, apart from numerous other edible oils and fats. The processes performed by olechemical plants result in numerous forms of oils and fats, each with their own chemical and physical properties and each with their own applications in the food and chemical industries.

Compared to palm oil, soy bean oil in pure form is less saturated (20 vs. 50%). For use in food, soy oil needs more often hydrogenation than palm oil. This increases the processing costs of soy oil.

1.1.5 Final processing industries

The soybean production chain yields three intermediate products:

- Whole soybeans 13% of total world crop
- Soy oil 16% of total world crop
- Soy meal 69% of total world crop

Some whole soybeans are used as seed for the next year, but essentially these three intermediate products are processed in four different final processing industries:

- **Food industry**

  The food industry uses whole soybeans to produce soy sauce, tofu, and other meat substitutes. Soy oil is mainly used for table oil, but also for products like mayonnaise, margarine, and other oil and fat containing food products, like confectioneries, pastry, snacks and coffee whitener. Soy meal is used for noodles, baby food, flour, cereals, and other products.

- **Compound feed industry**

  The compound feed industry blends soy meal with other meals and other components (including some soy oil), to produce animal feed for the livestock industry. As soy meal is very rich of proteins and has a low percentage of raw cellulose, it is especially suited for compound feed for single stomached animals such as pigs and poultry.

- **Cosmetics industry**

  Soy oil is used by the cosmetics and detergents industry in the preparation of products like cosmetics, detergents, and soap. Soy meal is also used for cosmetics and other products.

- **Chemical industry**

  Soy oil is used by the chemical industry in the preparation of products like paint, lacquer, soy diesel, and soy ink. Soy meal is used for paint, ink, plastics, pharmaceuticals, and other products.

Globally, these industries increasingly use whole soybean-derived ingredients. Consumption trends for soy oil and soy meal will be described separately in the following paragraphs.

1.1.6 Retail chains

The products mentioned above which are manufactured by the food and chemical industries, reach individual consumers through the retail industry. This is also true for compound feed, after it is used to raise livestock which consequently is processed into meat and meat products by slaughterhouses and food companies.

1.1.7 Financial institutions

Financial institutions - banks, credit agencies, insurance companies, pension funds, and mutual funds - will play a role in all stages of the soybean production chain, as almost all companies in the world use capital provided by financial institutions. This capital can be provided in two ways:

- **Equity**

  Equity is sold in the form of shares. Financial institutions and individuals buying shares, become co-owners of the company. A shareholding gives right to an annual dividend, but can also increase in value when the company performs well. Equity is generally provided by insurance companies, pension funds, mutual funds, and private investors, but not by banks. (Investment) Banks however play an essential role in finding investors willing to buy the shares of a certain company.

- **Debt**

  Debt is capital which is borrowed by the company. The creditor (provider of debt) does not become co-owner of the company, but is entitled to a fixed interest and to repayment of the debt. Debt is often provided by banks and credit agencies, in the form of trade credits and (syndicated) loans.
  But debt can also be provided by insurance companies, pension funds, mutual funds, and private investors, in the form of bonds or notes. Bonds and notes are tradable pieces of debt. Banks usually don't buy bonds, but to issue bonds a company does need the help of an (investment) bank.

1.2 Global soybean production and crushing

The largest soybean producing countries in the world are summarized in Table 1.

Table 1 Main soybean producing countries (in 1,000 MT)							
Country	**1995/96**	**1998/99**	**1999/00**	**2000/01**	**2001/02**	**Share**	**Growth**
United States	59,175	74,599	72,225	75,055	78,669	43%	33%
Brazil	23,872	31,377	34,127	39,058	41,800	23%	75%
Argentina	12,448	20,800	21,200	27,300	30,200	16%	143%
China	13,300	15,153	14,251	15,401	15,450	8%	16%
India	4,350	5,300	5,160	5,010	5,300	3%	22%
Paraguay	2,395	3,053	2,980	3,585	3,150	2%	32%
Canada	2,293	2,737	2,766	2,703	1,582	1%	-31%
European Union	940	1,582	1,229	1,149	1,233	1%	31%
Bolivia	887	1,071	974	1,232	1,150	1%	30%
Indonesia	1,689	1,306	1,383	1,019	910	0%	-46%
Others	3,244	3,610	3,888	3,747	3,955	2%	22%
World total	**124,593**	**160,588**	**160,183**	**175,259**	**183,399**	**100%**	**47%**

Table 1 shows that the global soybean production has risen with a staggering 47% during the past six years. After some stagnation in the late 1990's, strong growth has occurred in the first years of this century. The United States still is the largest producer in the world, but its market share (43% at present) is slowly decreasing.
Brazil ranks second with a market share of 23% and Argentina ranks third with a market share of 16%. As Brazil and Argentina record the strongest growth - 75% respectively 143% in the past six years - all other producers lose market share. Production in Canada and Indonesia is even declining, but China and India also aren't able to follow the South American pace.
Paraguay and Bolivia do show reasonable growth, and their global market shares are now 2% and 1% respectively. Total market share for the four South American production countries amounts to 42%. [5]

Table 2 gives an overview of the largest soybean crushing countries in the world, and the relationship with their domestic soybean production. [6]

Table 2 Global soybean crushing in 2001/02 (in 1,000 MT)					
Country	**Production**	**Share**	**Crushing**	**Share**	**Surplus**
United States	78,669	43%	46,600	29%	32,069
Brazil	41,800	23%	23,700	15%	18,100
Argentina	30,200	16%	20,715	13%	9,485
China	15,450	8%	20,400	13%	-4,950
India	5,300	3%	4,640	3%	660
Paraguay	3,150	2%	982	1%	2,234
European Union	1,233	1%	17,430	11%	-16,200
Bolivia	1,150	1%	1,430	1%	-231
Japan	271	0%	3,900	2%	-3,629
Mexico	122	0%	4,550	3%	-4,438
Taiwan	6	0%	2,380	1%	-2,374
Others	6,048	3%	13,013	8%	-6,965
World total	**183,399**	**100%**	**159,740**	**100%**	**23,660**

On a global scale, 87% of total soybean production is being crushed. The four largest soybean producing countries in the world (United States, Brazil, Argentina and China) are also the most important crushing countries, followed by the European Union.
But the three largest production countries crush much less soybeans than their annual production. The surplus is mainly supplied to countries where crushing capacity is exceeding domestic soybean production. Among these countries, the European Union, China, Mexico and Japan are the most important. The crushing plants in these countries complement domestic soybean production mainly with soybean imports from the United States, Brazil, Argentina and Paraguay.[7]

1.3 Global soy meal consumption

Crushing 1,000 tonnes of soybeans on average yields 793 tonnes of soy meal. With a market share of 59% at present, soy meal is the most consumed oilmeal in the world by far, as is shown in Table 3. It is still increasing its market share, because its consumption is growing faster than that of all other oilmeals (except for palm kernel meal). While global oilmeal consumption increased with a quarter in only six years time, global soy meal consumption increased with a staggering 37%. [8]

Table 3 World consumption of oilmeals (in 1,000 MT)							
Meal type	**1995**	**1998**	**1999**	**2000**	**2001**	**Share**	**Growth**
Soy meal	88,022	102,115	107,095	109,991	120,500	59%	37%
Rapeseed meal	17,017	19,028	20,281	22,124	20,902	10%	23%
Cotton meal	15,037	15,325	15,039	14,557	15,184	7%	1%
Corngluten feed	13,231	13,773	14,196	14,605	14,383	7%	9%
Sunflower meal	10,205	10,052	10,870	10,985	9,712	5%	-5%
Groundnut meal	6,343	6,355	6,806	6,464	7,110	3%	12%
Fish meal	6,787	5,653	6,221	7,138	7,026	3%	4%
Palm kernel meal	2,375	2,761	3,032	3,181	3,467	2%	46%
Corngerm meal	3,027	2,923	3,038	3,050	3,058	1%	1%
Copra meal	1,939	1,796	1,385	1,765	1,980	1%	2%
Linseed meal	1,330	1,345	1,410	1,349	1,221	1%	-8%
Sesame meal	739	897	865	890	946	0%	28%
Total	**166,051**	**182,023**	**190,239**	**196,100**	**205,491**	**100%**	**24%**

The main soy meal consuming countries and regions are listed in Table 4.

Table 4 World consumption of soy meal (in 1,000 MT)							
Country/region	**1995**	**1998**	**1999**	**2000**	**2001**	**Share**	**Growth**
United States	24,275	26,409	27,796	27,941	28,962	24%	19%
European Union	25,614	26,228	27,651	26,067	28,784	24%	12%
China	5,403	11,823	11,415	13,889	15,708	13%	191%
Brazil	4,933	5,924	6,431	6,869	7,243	6%	47%
Japan	3,672	3,685	3,736	3,593	3,794	3%	3%
Mexico	2,194	2,891	3,077	3,298	3,715	3%	69%
Eastern Europe	2,568	3,145	2,900	2,937	3,507	3%	37%
Thailand	1,220	1,729	2,043	2,244	2,596	2%	113%
South Korea	1,822	1,800	2,034	2,151	2,245	2%	23%
Canada	1,646	1,899	2,001	2,044	2,242	2%	36%
Others	14,675	16,582	18,011	18,958	21,704	18%	48%
Total	**88,022**	**102,115**	**107,095**	**109,991**	**120,500**	**100%**	**37%**

Table 4 shows that the United States and the European Union are the largest consumers of soy meal in the world, with a market share of 24% each. But especially in the EU, growth is slowing down. The main soybean producing countries China and Brazil also rank high with market shares of 13% and 6 respectively. But the third largest soybean producer in the world, Argentina, only consumes a minimal amount of soy oil.
The strongest growth is taking place in China and Thailand. Soy meal consumption in China increased threefold in the past six years, increasing China's global market share to 13%. [9]

1.4 Global soy oil consumption

Crushing 1,000 tonnes of soybeans on average yields 182 tonnes of soy oil. Soy oil is the most consumed edible oil in the world, as is shown in Table 5. It is still increasing its market share (now 23%), because its consumption is growing faster than that of all other edible oils (except for palm oil and palm kernel oil). While global edible oil consumption increased with more than a quarter in only six years, global soy oil consumption increased with a staggering 41%.[10]

Table 5 World consumption of edible oils (in 1,000 MT)

Oil type	1995	1998	1999	2000	2001	Share	Growth
Soy oil	19,436	23,638	24,440	25,132	27,362	23%	41%
Palm oil	14,710	17,653	19,436	21,542	23,616	20%	61%
Rapeseed oil	10,650	12,286	13,161	14,452	14,009	12%	32%
Sunflower oil	8,462	8,574	9,205	9,351	8,716	7%	3%
Tallow & Grease	7,466	7,706	8,175	8,122	8,154	7%	9%
Lard	5,637	6,513	6,648	6,702	6,819	6%	21%
Butter, as fat	5,727	5,788	5,900	5,995	6,055	5%	6%
Groundnut oil	4,303	4,498	4,744	4,557	5,021	4%	17%
Cotton oil	3,862	4,082	3,891	3,856	4,059	3%	5%
Coconut oil	3,247	3,175	2,715	2,961	3,518	3%	8%
Olive oil	2,037	2,455	2,514	2,688	2,779	2%	36%
Palm kernel oil	1,932	2,148	2,505	2,570	2,751	2%	42%
Corn oil	1,830	1,872	1,895	1,947	2,025	2%	11%
Fish oil	1,391	933	1,252	1,427	1,248	1%	-10%
Sesame oil	588	708	691	717	757	1%	29%
Linseed oil	694	661	706	724	672	1%	-3%
Castor oil	466	446	437	483	481	0%	3%
Total	**92,438**	**103,137**	**108,314**	**113,225**	**118,041**	**100%**	**28%**

The main soy oil consuming countries and regions are listed in Table 6. It is important to note that the consumption figures in this table refer to the countries and regions in which the final processing industries are located. The products of these final processing industries can of course be exported again to end-users in other countries and regions. The EU margarine industry for instance exports relatively much margarine to Eastern Europe and the Former Soviet Union.[11]

Table 6 World consumption of soy oil (in 1,000 MT)							
Country/region	**1995**	**1998**	**1999**	**2000**	**2001**	**Share**	**Growth**
United States	5,909	6,937	7,184	7,265	7,515	27%	27%
China	2,348	3,216	2,839	3,164	3,473	13%	48%
Brazil	2,482	2,866	2,804	3,020	2,935	11%	18%
India	688	1,188	1,595	1,656	2,234	8%	225%
European Union	2,029	1,875	1,798	1,717	1,995	7%	-2%
Mexico	435	688	714	716	806	3%	85%
Japan	697	667	703	685	719	3%	3%
Iran	358	609	714	640	688	3%	92%
Former Soviet Union	120	251	403	369	542	2%	352%
Taiwan	505	486	456	438	461	2%	-9%
Bangladesh	314	333	476	496	422	2%	34%
Others	3,551	4,522	4,754	4,966	5,572	20%	57%
Total	**19,436**	**23,638**	**24,440**	**25,132**	**27,362**	**100%**	**41%**

Table 6 shows that, except for Argentina, the largest soybean producing countries in the world are also the largest consuming countries of soy oil. The United States is the leading consumer, with a market share of 27%, followed by China (13%) and Brazil (11%).
The European Union only plays a modest role, with a global market share of 7%. Consumption in the EU and Taiwan is even declining, as a consequence of strong competition by palm oil and palm kernel oil.
Strong growth is occurring in the countries of the Former Soviet Union, India, Iran, Mexico and China.

Chapter 2 The South American soybean production sector

2.1 South American soybean production

Soybean production in South America is rising in a tremendous pace. Production figures for the South American soybean producing countries are provided in Table 7.

Table 7 Soybean production in South America

Country	1995/96	1998/99	1999/00	2000/01	2001/02	Share	Growth
Brazil	23,872	31,377	34,127	39,058	41,800	55%	75%
Argentina	12,448	20,800	21,200	27,300	30,200	40%	143%
Paraguay	2,395	3,053	2,980	3,585	3,150	4%	32%
Bolivia	887	1,071	974	1,232	1,150	2%	30%
Ecuador	91	10	77	102	60	0%	-34%
Colombia	94	72	39	38	56	0%	-40%
Uruguay	14	19	12	7	28	0%	100%
Venezuela	3	6	5	5	6	0%	100%
South America	**39,804**	**56,408**	**59,414**	**71,327**	**76,450**	**100%**	**92%**
% of world total	32%	35%	37%	41%	42%		

As Table 7 shows, the market share of the South American countries on the global soybean production market has increased from 32% to 42% in the past six years. This market share is increasing, as soybean production in South America grows faster (92% in the past six years) than outside South America (26% in the same period). Of the global production increase since 1995, 62% was realised in South America.[12]
Within South America, Brazil and Argentina are dominant. Brazil is the largest producer, but Argentina is catching up as it has a stronger growth figure (143% vs. 75%). Outside Brazil and Argentina, only Paraguay and Bolivia have some modest soybean production. The production in other South American countries is negligible, and these countries will not be addressed in the rest of this study.

The strong increase in soybean production figures in South America can be attributed for around 70% to an expansion of the area planted with soybeans, as is shown in Table 8. The other 30% can be attributed to higher yields per hectare, which are caused by various factors such as the increased usage of high-yielding varieties, improved production techniques, et cetera.

Table 8 Soybean areas in South America (in 1,000 ha)							
Country	**1995/96**	**1998/99**	**1999/00**	**2000/01**	**2001/02**	**Share**	**Growth**
Brazil	10,700	13,061	13,657	13,931	16,335	55%	53%
Argentina	5,899	8,320	8,800	10,401	11,400	38%	93%
Paraguay	833	1,166	1,177	1,209	1,330	4%	60%
Bolivia	428	589	628	617	645	2%	51%
Ecuador	83	8	42	64	40	0%	-52%
Colombia	45	34	19	18	23	0%	-49%
Uruguay	8	9	9	12	12	0%	50%
Venezuela	2	2	3	3	3	0%	50%
Total	**17,998**	**23,189**	**24,335**	**26,255**	**29,788**	**100%**	**66%**

As can be seen in Table 8, the total area planted with soybean in South America has increased with 66% in six years. At present almost 30 million hectares, an area around 7.5 times the size of Switzerland, are planted with soybeans in South America. [13]
South American soybean production increased with 92% (see Table 7), while the planted area increased with 66% in the same period. This means that around 30% of output growth can be contributed to higher yields per hectare. This productivity growth is apparent in Brazil and Argentina, which both saw their output grow faster than their planted acreage (see Table 7). Paraguay and Bolivia however recorded a higher growth of their planted area than their production growth (see Table 7) and thus saw their yields per hectare decrease.

2.2 South American soybean export

What happens with South American soybeans after the harvest? Table 9 shows that soybean imports from outside South America (i.e. the United States) are minimal. Table 9 also gives an overview of the two main destinations of the South American soybean supply: exports outside South America and crushing inside South America.

Table 9 South American soybean export and crushing (in 1,000 MT)							
Item	**1995**	**1998**	**1999**	**2000**	**2001**	**Share**	**Growth**
Production	41,811	56,482	56,408	59,414	71,327	100%	71%
Imports	331	354	147	196	255	0%	-23%
Supply	**42,142**	**56,836**	**56,555**	**59,610**	**71,582**	**100%**	**70%**
Exports	7,112	13,405	12,955	16,603	23,378	33%	229%
Crushing	32,141	39,250	40,518	40,684	44,514	62%	38%

Table 9 shows that 33% of total South American soybean supply is exported directly to countries outside South America. Of total production 62% is crushed in South America itself. Exports are growing faster than domestic crushing, which means that the South American soybean sector becomes increasingly export-oriented.[14]

Soybean crushing will be treated in the next paragraph. Firstly, we will focus on the export of uncrushed South American soybeans. An overview of how the different South American countries contribute to the rising exports of uncrushed soybeans to countries outside South America, is presented in Table 10. [15]

Table 10 South American soybean exports by country (in 1,000 MT)							
Country	**1995**	**1998**	**1999**	**2000**	**2001**	**Share**	**Growth**
Brazil	3,671	9,136	8,772	11,311	15,496	66%	322%
Argentina	2,495	2,770	2,982	4,053	7,009	30%	181%
Paraguay	852	1,450	1,179	1,174	846	4%	-1%
Bolivia	94	43	4	65	1	0%	-99%
Others	0	6	18	0	26	0%	> 100%
Total export	**7,112**	**13,405**	**12,955**	**16,603**	**23,378**	**100%**	**229%**

With a market share of 55% Brazil is the largest South American producer of soybeans (see Table 7), but its market share in South American soybean exports is even higher: 66%. This indicates that Brazil is more oriented towards the export of uncrushed soybeans than Argentina is. Brazil also showed the largest soybean export growth figure over the past six years (322%).
Paraguay's market share in the export of uncrushed soybeans has decreased over the past six years from 12% to 4%, which is equivalent to its share in the South American production of soybeans (see Table 7).
Bolivian soybean exports at the other hand have completely stagnated as Bolivia at present is crushing more soybeans than it produces domestically. Although Bolivian export statistics

The main export markets for South American soybeans (outside South America) are listed in Table 11.

Table 11 Export markets for South American soybeans (in 1,000 MT)								
Export market	**1995**	**1998**	**1999**	**2000**	**2001**	**EU share**	**Total share**	**Growth**
Netherlands	1,665	2,727	2,908	2,624	3,637	34%	16%	118%
Spain	939	1,342	1,649	1,374	1,858	18%	8%	98%
Germany	957	1,496	1,522	1,516	1,758	17%	8%	84%
Belgium/Luxemburg	390	717	638	358	767	7%	3%	97%
Portugal	362	382	317	337	675	6%	3%	86%
Italy	359	533	525	379	657	6%	3%	83%
United Kingdom	94	504	540	401	523	5%	2%	456%
France	341	249	272	178	520	5%	2%	52%
Other EU-countries	172	246	177	149	219	2%	1%	27%
European Union	**5,279**	**8,196**	**8,548**	**7,316**	**10,614**	**100%**	**45%**	**101%**
China	105	1,359	2,123	5,220	8,180		35%	7,690%
Japan	693	780	693	841	801		3%	16%
Thailand	19	234	332	397	773		3%	3,968%
Others or undefined	1,016	2,836	1,259	2,829	3,010		13%	196%
Total	**7,112**	**13,405**	**12,955**	**16,603**	**23,378**		**100%**	**229%**
% to EU	74%	61%	66%	44%	45%			

Table 11 shows that the European Union is the single most important export market for South American soybeans, with a 45% market share. But although exports to the EU doubled in the past six years, its market share declined from 74%. Inside the European Union, the Netherlands, Spain and Germany are the most important export markets. Outside the EU, exports to China and Thailand are growing very strongly while exports to Japan are stagnating.[16]

2.3 South American soybean crushing

Around 62% of South American soybeans was crushed in South America itself in 2001 (see Table 9). Table 12 provides an overview of the amounts crushed in the various countries.

Table 12 South American soybean crushing (in 1,000 MT)							
Country	**1995**	**1998**	**1999**	**2000**	**2001**	**Share**	**Growth**
Brazil	21,309	21,873	21,476	21,180	23,104	52%	8%
Argentina	9,103	15,292	17,058	17,031	18,274	41%	101%
Bolivia	449	837	860	1,120	1,381	3%	208%
Paraguay	659	646	664	728	916	2%	39%
Colombia	243	239	250	281	435	1%	79%
Venezuela	219	224	106	199	180	0%	-18%
Chile	0	57	50	65	94	0%	> 100%
Ecuador	150	45	24	41	61	0%	-59%
Others	9	37	30	39	69	0%	667%
Total	**32,141**	**39,250**	**40,518**	**40,684**	**44,514**	**100%**	**38%**

As table 3.4 shows, the amount of soybeans crushed in South America increased with 38% in the past six years. Brazil and Argentina dominate South American soybean crushing. But while soybean crushing in Brazil stagnated, it doubled in Argentina in the past six years. The Argentinean share of total South American crushing (41%) now is in line with its total production share (40%, see Table 7).[17]
This contrary developments are caused partly by the abolishment in 1997 of Brazilian soybean taxes. Since then, export of uncrushed beans has become relatively more attractive compared to domestic crushing. Also, crushing costs on average are lower in Argentina than in Brazil. As a result, it is more attractive for global soybean traders to crush Argentinean soybeans domestically, and export the resulting soy oil and soy meal. Consequently, Argentina has overtaken Brazil as the largest exporter of soy oil and soy meal in South America (see Table 13 and Table 15).[18]

2.4 South American soy meal exports

Crushing 1,000 tonnes of South American soybeans on average yields 785 tonnes of soy meal, with only very limited fluctuations between different countries. The relative contribution of each country to total South American soy meal production therefore follows from Table 12.

Table 13 provides an overview of the total South American soy meal production as well as South American soy meal exports. [19]

Table 13 South American soy meal production and export (in 1,000 MT)							
Production/export	**1995**	**1998**	**1999**	**2000**	**2001**	**Share**	**Growth**
Soy meal production	25,464	31,097	31,756	31,948	34,980		37%
Export Argentina	6,887	11,560	13,088	12,931	14,404	53%	109%
Export Brazil	11,563	10,780	10,911	9,527	11,289	41%	-2%
Export Bolivia	198	542	626	820	920	3%	365%
Export Paraguay	450	402	367	411	591	2%	31%
Export others	0	9	12	36	33	0%	> 100%
Total export	**19,098**	**23,293**	**25,004**	**23,725**	**27,237**	**100%**	**43%**
% exported	75%	75%	79%	74%	78%		

As Table 13 shows, production and export of South American soy meal increased more or less in the same pace over the past six years (a growth of 37% respectively 43%). The percentage of South American soy meal output which is exported therefore stays stable at around 75%.
But this growth is solely attributable to Argentina, which doubled its soy meal exports over the past six years. Paraguay and Bolivia only play a marginal role and Brazilian exports stagnated, Argentina now has overtaken Brazil as the largest soy meal exporter of South America. But as Brazilian crushing is increasing again to meet domestic demand, soy meal exports also started to revive recently.

The main export markets for South American soy meal are listed in Table 14. [20]

Table 14 South American soy meal export markets (in 1,000 MT)								
Destination	**1995**	**1998**	**1999**	**2000**	**2001**	**EU share**	**Total Share**	**Growth**
France	3,477	3,139	3,311	3,560	3,798	23%	14%	9%
Italy	1,670	1,682	2,088	2,249	2,705	16%	10%	62%
Netherlands	1,230	1,254	1,971	1,843	2,490	15%	9%	102%
Spain	1,627	1,639	2,690	2,278	2,202	13%	8%	35%
Germany	1,770	1,225	1,283	1,204	1,393	8%	5%	-21%
Denmark	1,331	1,222	1,246	1,358	1,321	8%	5%	-1%
Belgium/Luxemburg	813	926	1,035	1,030	1,055	6%	4%	30%
United Kingdom	707	642	846	828	1,043	6%	4%	48%
Portugal	233	443	549	395	268	2%	1%	15%
Other EU-countries	424	337	529	549	515	3%	2%	21%
European Union	**13,282**	**12,509**	**15,548**	**15,294**	**16,790**	**100%**	**62%**	**26%**
Thailand	407	548	923	784	1,072		4%	163%
Egypt	361	438	408	522	767		3%	112%
South Korea	501	310	600	554	914		3%	82%
China	86	2,173	420	403	15		0%	-83%
Others or undefined	4,461	7,315	7,105	6,168	7,679		28%	72%
Total Exports	**19,098**	**23,293**	**25,004**	**23,725**	**27,237**		**100%**	**43%**
% to EU	70%	54%	62%	64%	62%			

The European Union still is the largest export market for South American soy meal by far, although its market share (62% at present) is declining slightly. Upcoming export markets are to be found in East Asia and North Africa.
The surge and decline of soy meal exports to China are notable: after increasing meal imports China increased its crushing capacity and is now self sufficient for soy meal production.

2.5 South American soy oil exports

Crushing 1,000 tonnes of South American soybeans on average yields 185 tonnes of soy oil, with only very limited fluctuations between different countries. The relative contribution of each country to total South American soy oil production therefore follows from Table 12.

Table 15 provides an overview of total South American soy oil production, as well as export of soy oil to countries outside South America. [21]

Table 15 South American soy oil production and export (in 1,000 MT)							
Production/export	**1995**	**1998**	**1999**	**2000**	**2001**	**Share**	**Growth**
Soy oil production	5,930	7,244	7,565	7,489	8,241	100%	42%
Export Argentina	1,545	2,464	3,016	3,020	3,384	63%	119%
Export Brazil	1,764	1,367	1,552	1,073	1,653	31%	-6%
Export Bolivia	51	104	89	154	185	3%	263%
Export Paraguay	91	102	94	98	133	2%	46%
Total export	**3,451**	**4,037**	**4,751**	**4,345**	**5,355**	**100%**	**55%**
as % of production	58%	56%	63%	58%	65%		

As Table 15 shows, export of South American soy oil increased with 55% in the past six years. This growth is stronger than the output growth of soy oil (42%), which means that the proportion of total output which is exported is rising, to 65% at present.
As is the case with soy meal exports, Argentina has overtaken Brazil as the largest soy oil exporter of South America. Argentinean exports of soy oil more than doubled in the past six years. As Brazilian crushing has stagnated until 2000, exports declined. But in 2001 a strong increase in exports occurred.
The largest export markets for South American soy oil are Iran, India, and Bangladesh. As only minimal amounts of soy oil are being exported to the European Union we will not elaborate on the export destinations of South American soy oil.

Chapter 3 South American soybean production countries

3.1 Brazil

3.1.1 Soybean production

Soybean production in Brazil is growing rapidly. Table 16 does provide an overview of the total harvested acreage and of the total soybean production volume in Brazil during the last seven years. [22]

Table 16 Soybean acreage and production in Brazil

Indicator	1995/96	1998/99	1999/00	2000/01	2001/02	Growth
Acreage (1,000 ha)	10,700	13,061	13,657	13,931	16,335	53%
Production (1,000 MT)	23,872	31,377	34,127	39,058	41,800	75%
Yield (MT/ha)	2.23	2.40	2.50	2.80	2.56	15%

As Table 16 shows, the harvested soybean acreage in Brazil increased with more than 50% in the past six years to a total area of 16.3 million hectares (four times Switzerland). Total production even increased more (75%), as productivity also increased (15%).

Soybean farmers in Brazil vary considerable in size. There are many family farms growing soybeans, sometimes cooperating in cooperatives. But there are also some very large agricultural enterprises. Information on some of the largest producers is presented in Table 17.[23]

Table 17 Large soybean growers in Brazil

Group	Acreage (ha)	Annual production (MT)
Andre Maggi	150,000	1,000,000
Camilas cooperative		40,000
Itamarati		

3.1.2 Soybean trading and export

Soybean trading in Brazil is dominated by a few large, international traders:

- Cargill — United States
- Bunge — United States
- Archer Daniels Midland (ADM) — United States
- André et Cie. — Switzerland
- Louis Dreyfus — France

Of these five, Archer Daniels Midland (ADM) claims to be the most important.[24]

Part of the soybean farmers deliver their harvest directly to these large international traders. Others deal with intermediate traders, who deliver eventually to the large international trading houses. Besides its domestic production, Brazil also imports a limited amount of soybean imports, mainly from Paraguay.
The total supply on the Brazilian market (production plus imports), is further directed by the large, international traders in different directions. They have the possibility to crush the soybeans in their Brazilian crushing plants, or to ship them to markets outside South America. Table 18 indicates the relative importance of these two main options.[25]

Table 18 Brazilian soybean crushing and exports (in 1,000 MT)

Option	1995	1998	1999	2000	2001	Share	Growth
Production	26,068	32,665	31,377	34,127	39,058	98%	50%
Imports	878	406	582	807	854	2%	-9%
Supply	**26,946**	**33,071**	**31,959**	**34,934**	**39,912**	**100%**	**48%**
Crushing	21,309	21,873	21,476	21,180	23,104	58%	8%
Export	3,671	9,136	8,772	11,311	15,496	39%	322%

As Table 18 shows, the amount of soybeans crushed domestically only increased 8% during the last six years. (Domestic crushing will be discussed further in paragraph 3.1.3).
The growth of supply on the Brazilian market (48%) was almost completely absorbed by strongly increased exports (322%). As a consequence, Brazil now exports 39% of its total supply of soybeans, compared to only 14% in 1995.

The remarkable growth in soybean exports from Brazil was caused by the abolishment at the end of 1996 of the Brazilian value added tax system on exports of soybeans, oils and meals. This made export of soybeans relatively more attractive than local crushing. As Brazilian soybeans can be produced at lower costs and have a higher oil content than US soybeans, Brazilian soybeans have a competitive advantage over US soybeans on the world market. After the abolishment of Brazilian taxes, Brazilian soybeans therefore became relatively more attractive to overseas markets. It depends on the difference in transport costs however, how large this competitive advantage for export to a given export market will be.[26]

An overview of the main export markets for Brazilian soybeans is provided in Table 19. [27]

Table 19 Export markets for Brazilian soybeans (in 1,000 MT)								
Export market	**1995**	**1998**	**1999**	**2000**	**2001**	**EU share**	**Total share**	**Growth**
Netherlands	961	1,611	1,758	2,399	3,158	34%	20%	229%
Germany	502	1,423	1,307	1,341	1,539	17%	10%	207%
Spain	667	984	1,342	1,125	1,380	15%	9%	107%
Belgium/Luxemburg	171	669	600	335	755	8%	5%	342%
Italy	171	428	464	343	590	6%	4%	245%
Portugal	278	311	190	320	584	6%	4%	110%
United Kingdom	58	436	530	400	520	6%	3%	797%
France	225	211	261	154	516	6%	3%	129%
Greece	0	67	69	4	98	1%	1%	> 100%
Other EU countries	0	27	16	26	50	1%	0%	> 100%
European Union	**3,033**	**6,167**	**6,537**	**6,447**	**9,190**	**100%**	**59%**	**203%**
Other countries	638	2,969	2,235	4,864	6,306		41%	889%
Total	**3,671**	**9,136**	**8,772**	**11,311**	**15,496**		**100%**	**322%**
% to EU	83%	68%	75%	57%	59%			

Although the export of Brazilian soybeans to the European Union tripled in the past six years, the market share of the European Union decreased from 83% to 59%, as exports to countries outside the EU increased ninefold.
The most important markets within the EU are the Netherlands, Germany and Spain. Strong growth occurs in exports to Belgium, the United Kingdom and Italy.

3.1.3 Soybean crushing

As Table 18 shows, 58% of the Brazilian soybean supply is crushed domestically. There are more than hundred soybean crushing plants in Brazil, with a total capacity of around 38 million tonnes per year. [28] With annual crushing of 23.1 million tonnes in 2001 (See Table 18) capacity utilisation is low.

The largest crushing plants are owned by four large, international trading groups already mentioned in paragraph 3.1.2:

- Archer Daniels Midland (ADM) — United States
- Bunge — United States
- Cargill — United States
- Louis Dreyfus — France

The *big four* have a combined market share of 43%. This dominant market share has been quickly built during the 1990s through the acquisition of local companies. The American trader Bunge, which incorporated Brazil's largest crusher Ceval Alimentos S.A. in 1997, now is the market leader with a share of 25%.[29]

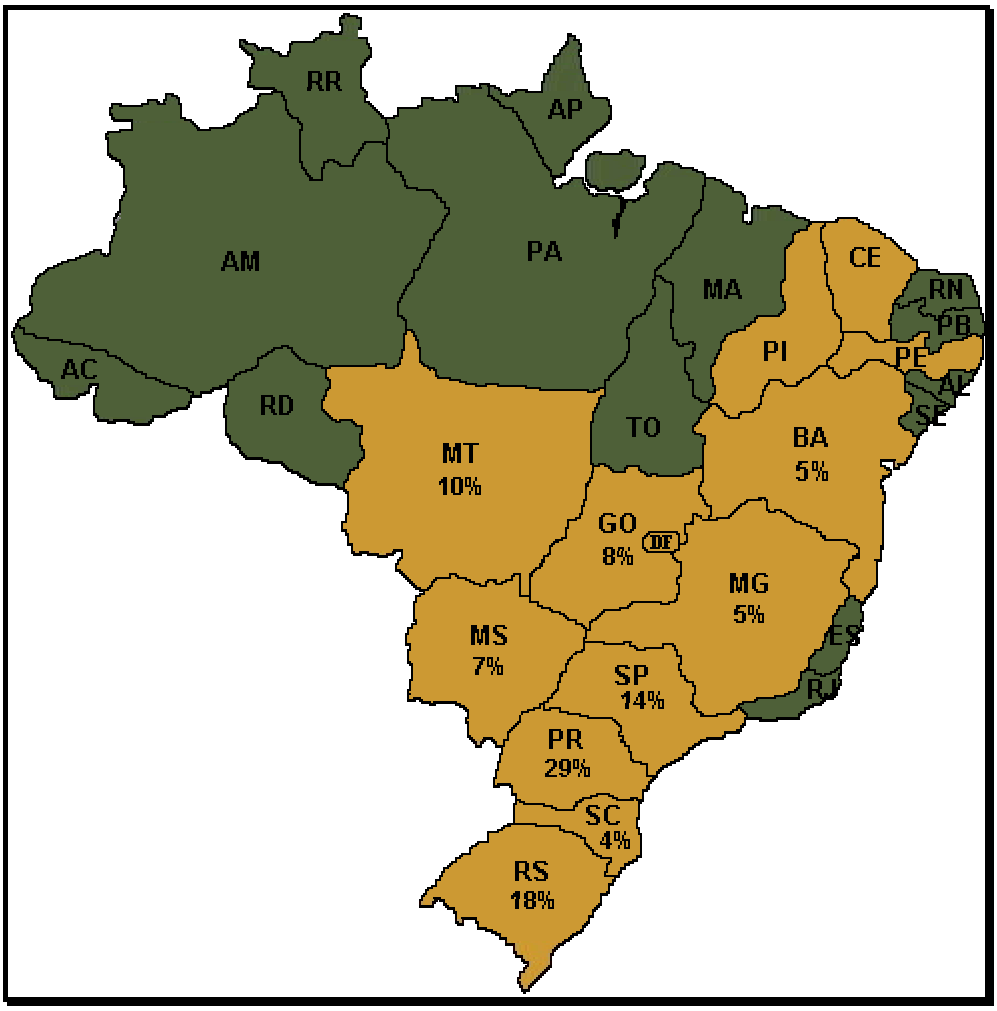


Figure 1 Spatial distribution of Brazilian soybean crushing capacity

Names and details of the main crushing companies are provided in Table 20.[30]

Table 20 Main Brazilian soybean crushing companies			
Company	**Parent group**	**Capacity (MT/day)**	**Share**
Ceval Alimentos	Bunge, USA	29,180	25%
Coinbra	Louis Dreyfus, France	8,350	7%
ADM	Archer Daniels Midland, USA	6,890	6%
Sadia			
Cargill	Cargill, USA	6,700	6%
Total big four		**51,120**	**43%**
ABC-Inco	Algar, Brazil	1,700	1%
Agrorganica		500	
Baldo		360	
Bertol		1,200	1%
Bianchini		1,500	1%
Braswey		2,300	2%
Campo Oeste			
Caramuru		1,500	1%
Carol		450	
Coamo		3,000	3%
Cocamar		1,500	1%
Comigo		550	
Comove			
Coopavel		600	
Cooperalfa		550	
Dureino			
Encomind			
Esteve			
Exin		60	
Fatisul		1,500	1%
Giovelli		180	
Granol		1,500	1%
Granóleo		2,500	2%
Imcopa		1,500	1%
Klemm		300	
Lasa			
Maeda			
Merlin		1,250	1%
Oleoplan		300	
Óleos Menu			

Table 20 Main Brazilian soybean crushing companies			
Olvego		1,200	1%
Olvepar		1,500	1%
Ovetril		700	
Pacaembú			
Perdigão		1,500	1%
Piraque			
Produtos Orlândia		1,500	1%
Soceppar		1,500	1%
Sperafico		600	
Warpol		300	
Zaffrari		1,000	1%
Total for Brazil		**107,950**	**100%**

In the mid-1990s, crushing costs in Brazil were 16% above world average, while crushing costs in the European Union were 7% below world average. The difference was mainly caused by a higher volume throughput, higher capacity utilisation, and lower logistic costs. Since Brazilian taxes on soybeans were abolished at the end of 1996, this cost differential favours crushing in Europe over crushing in Brazil.
However, during the 1990s international soybean traders have invested heavily in the Brazilian crushing industry and its logistics. Over time, this can make crushing in Brazil more favourable again.
Another important factor which favours EU crushing over Brazilian crushing, is the import tariff of 8.8% applied by the European Union on soy oil. Under the WTO agreement, this import tariff will be gradually reduced to 6.4%, making Brazilian crushing more attractive again.[31]

3.1.4 Soy meal production and export

In Brazil, crushing 1,000 tonnes of soybeans on average yields 785 tonnes of soy meal. Figures on soy meal production and the main export markets for Brazilian soy meal are provided in Table 21.[32]

Table 21 Export markets for Brazilian soy meal (in 1,000 MT)								
Export market	**1995**	**1998**	**1999**	**2000**	**2001**	**EU share**	**Total share**	**Growth**
France	3,286	2,868	2,905	3,011	3,517	41%	31%	7%
Netherlands	646	699	966	960	1,273	15%	11%	97%
United Kingdom	498	455	655	737	948	11%	8%	90%
Germany	949	679	572	552	773	9%	7%	-19%
Belgium/Luxemburg	324	366	326	540	625	7%	6%	93%
Italy	631	295	330	302	619	7%	5%	-2%
Spain	1,262	628	843	639	394	5%	3%	-69%
Denmark	680	563	203	303	162	2%	1%	-76%
Austria	36	167	124	100	105	1%	1%	192%
Other EU countries	436	204	167	171	153	2%	1%	-65%
European Union	**8,748**	**6,924**	**7,091**	**7,315**	**8,569**	**100%**	**76%**	**-2%**
Non-EU countries	2,815	3,856	3,820	2,212	2,720		24%	-3%
Soy meal exports	**11,563**	**10,780**	**10,911**	**9,527**	**11,289**		**100%**	**-2%**
% to EU	76%	64%	65%	77%	76%			
Soy meal production	**16,710**	**17,167**	**16,742**	**16,517**	**18,005**			**8%**
% exported	69%	63%	65%	58%	63%			

As domestic crushing only increased modestly (see Table 18), the production of soy meal also has grown only slightly (8%) over the past six years. Export of soy meal is declining slowly, as domestic consumption increases. But still 63% of Brazilian soy meal production is exported.

As exports to the European Union also have remained fairly constant in the past seven years, the EU remains the largest export market by far (present market share 76%).Only in 1998 and 1999 when China temporarily imported large quantities of soy meal, this percentage dropped.
But within the EU, concentration of imports on a few key markets can be observed. Brazil lost market share to Argentina in Italy and Spain, and strongly increased soy meal exports to the Netherlands, the United Kingdom and Belgium. France remains the most important export market for Brazilian soy meal though (market share 31%).[33]

The stagnating export of Brazilian soy meal to the EU corresponds with the increasing export of Brazilian soybeans to the EU (see Table 19): market circumstances have been more favourable for exporting soybeans to the EU and crushing them there, instead of crushing in Brazil and exporting soy meal to the EU. As pointed out in paragraph 3.1.3, this situation can change when the EU import tariff on soy meal is reduced, and the Brazilian crushing industry becomes more mature and more cost efficient.

3.1.5 Soy oil production and export

In Brazil, crushing 1,000 tonnes of soybeans on average yields 190 tonnes of soy oil. Production and export figures for Brazilian soy oil are provided in Table 22. [34]

Table 22 Brazilian soy oil production and export						
Soy oil	**1995**	**1998**	**1999**	**2000**	**2001**	**Growth**
Production	4,015	4,163	4,106	4,036	4,430	10%
Export	1,764	1,367	1,552	1,073	1,653	-6%
% exported	44%	34%	38%	27%	37%	

As domestic crushing only increased modestly (see Table 18), the production of soy oil also has grown only modestly (10%) in the past six years. Export of soy oil is declining slowly, as domestic consumption increases. Compared with the export of Brazilian soy meal (see Table 21), a much smaller part of Brazilian soy oil production is exported (37% vs. 63%). This means that a much larger percentage is consumed domestically.

The most important export markets for Brazilian soy oil are Iran (25%) and India (24%). Less than 1% of Brazilian soy oil exports is destined at the European Union market. This contrasts heavily with the situation for soy meal, where 76% of total exports is directed to the EU (see Table 21).

3.1.6 Government support for the soybean sector

The Brazilian government is actively promoting the development of the soybean sector in various ways.

- From 1990 to 1999, the state-owned development bank Banco Nacional de Desenvolvimento Econômico e Social (BNDES) provided credits with a total value of US$ 10.5 billion to the Brazilian agribusiness sector. The greater part of BNDES agribusiness credits was allocated after 1995, seeking to boost the sector's productivity, an important element in the government's anti-inflation plan ("Real Plan"). Programs such as the BNDES' Program for Modernizing the Agricultural Vehicle Fleet (Moderfrota), boosted the sector's performance and opened up new agricultural frontiers. Although the total planted area fell from 36.9 million hectares in 1990 to 36.6 million hectares in 2000, production leapt almost 50% from 56 million tonnes to 84 million tonnes in the same period. The gain in productivity was largely a result of the sector's modernization achieved through BNDES credits.[35]
  Soybean farmers can receive BNDES credits up to a maximum of R$ 200,000 (around US$ 85,100) per farmer. These credits are provided through commercial banks and carry official interest rates (8.75 percent/year).[36]

- BNDES is also providing cheap credits to soybean crushing companies. In August 2001 BNDES approved a R$ 9 million credit to crushing company ABC-Inco to increase capacity from 1,500 to 1,800 tons per day.[37]

- Another important aspect of government support to the soybean sector are its investments in infrastructure development. In recent years large areas of land adjacent to the Amazon region in the states of Mato Grosso, Goias and Tocantins have been planted with soybeans. Infrastructure in these regions was poorly developed, increasing costs to transport soybeans to export ports and crushing plants. Under the *avança Brazil* programme, R$ 3.4 billion of investments (approximately US$ 1 billion) in infrastructure - roads, waterways, railways - in the central and northern regions of Brazil are foreseen to reduce domestic transportation costs.[38]

- Until the end of 1996 the Brazilian government supported the domestic crushing industry by its value added tax system on exports of soybeans, oils and meals. Since this system has been abolished, the export of soybeans has become relatively more attractive than local crushing. In fact, the abolishment of these export taxes was very effective in stimulating soybean production and export, rather than domestic processing and consumption.[39]

- Brazil's national research network (EMBRAPA) successfully adapted temperate-zone plant varieties (particularly soybeans) to the tropical conditions of its vast interior savannas, while retaining high-yield potential. Previously, the acidic soils and humid, tropical climate posed severe barriers to the development of commercial agriculture in Brazil's interior.[40]

3.2 Argentina

3.2.1 Soybean production

Soybean production in Argentina is growing rapidly. Table 23 does provide an overview of the total harvested acreage and of the total soybean production volume in Argentina during the last seven years.[41]

Table 23 Soybean acreage and production in Argentina

Indicator	1995/96	1998/99	1999/00	2000/01	2001/02	Growth
Acreage (1,000 ha)	5,899	8,320	8,800	10,401	11,400	93%
Production (1,000 MT)	12,448	20,800	21,200	27,300	30,200	143%
Yield (MT/ha)	2.11	2.50	2.41	2.62	2.65	26%

As Table 23 shows, the harvested soybean acreage in Argentina almost doubled in the past six years. Total planted acreage now amounts to 11.4 million hectares (almost three times Switzerland). As productivity was also raised (with 26%) in the same period, total soybean production increased with 143%.

The soybean production regions are concentrated in the northern and central regions of Argentina, as is shown below.[42]

Soybean farmers in Argentina vary considerable in size. There are many family farms growing soybeans, sometimes cooperating in cooperatives. But there are also some very large agricultural enterprises.

3.2.2 Soybean trading and export

Soybean trading in Argentina is dominated by a few large, international traders: [43]

- Cargill — United States
- Bunge — United States
- ConAgra — United States
- Glencore — Switzerland
- André et Cie. — Switzerland
- Louis Dreyfus — France

Part of the soybean farmers deliver their harvest directly to these large international traders. Others deal with intermediate traders, who deliver eventually to the large international trading houses.
Argentinean soybean supply consists of domestic production and a modest amount of imports. Total soybean supply is split in two main directions. A part is crushed in Argentinean crushing plants, and a part is shipped to markets outside South America. Table 24 indicates the relative importance of these two main options.[44]

Table 24 Argentinean soybean crushing and exports (in 1,000 MT)

Option	1995	1998	1999	2000	2001	Share	Growth
Production	12,500	19,800	20,800	21,200	27,300	99%	118%
Imports	0	470	294	238	342	1%	> 100%
Supply	**12,500**	**20,270**	**21,094**	**21,438**	**27,642**	**100%**	**121%**
Crushing	9,103	15,293	17,058	17,031	18,274	66%	101%
Exports	2,495	2,770	2,982	4,053	7,009	25%	181%

As Table 24 shows, production more than doubled (118%) and the amount of soybeans crushed domestically doubled over the past six years. (Domestic crushing will be discussed further in paragraph 3.2.3).
Exports increased with 181% over the past six years. Argentina now exports 25% of its soybean supply, a sharp increase from only 14% two years ago. The reason for this is probably that domestic crushing cannot be expanded much more without large investments in new crushing capacity. And under present economic conditions, trading and crushing companies probably are hesitant to commit these funds.

Along with the expansion of soybean exports, important shifts are visible in the destinations of Argentina's soybean exports. An overview of the main export markets for Argentinean soybeans is provided in Table 25. [45]

Table 25 Export markets for Argentinean soybeans (in 1,000 MT)								
Export market	**1995**	**1998**	**1999**	**2000**	**2001**	**EU share**	**Total share**	**Growth**
Spain	216	303	159	30	277	39%	4%	28%
Netherlands	555	319	543	87	102	14%	1%	-82%
Germany	381	73	172	154	100	14%	1%	-74%
Portugal	46	71	20	16	84	12%	1%	83%
Greece	127	87	73	105	64	9%	1%	-50%
Italy	188	86	30	20	63	9%	1%	-66%
Belgium/Luxemburg	88	16	38	23	12	2%	0%	-86%
France	92	30	1	2	4	1%	0%	-96%
Other EU-countries	77	98	22	15	9	1%	0%	-88%
European Union	**1,770**	**1,083**	**1,058**	**452**	**715**	**100%**	**10%**	**-60%**
Other countries	725	1,687	1,924	3,601	6,294		90%	768%
Total	**2,495**	**2,770**	**2,982**	**4,053**	**7,009**		**100%**	**181%**
% to EU	71%	39%	35%	11%	10%			

While total Argentinean soybean exports increased with 181% over the past six years, exports to the European Union decreased with 60%. The share of the European Union in Argentinean soybean exports therefore declined from 74% in 1997 to only 10% in 2001. Within the European Union, Argentina is focussing its soybean exports on Spain and Portugal.
But more importantly, Argentina has decisively shifted soybean exports away from the European Union to China and other Asian countries during the past two years. Now that China has strongly expanded its crushing capacity, its demand for soybeans has similarly increased.

3.2.3 Soybean crushing

As is shown in Table 24, soybean crushing in Argentina doubled over the past six years. But as domestic production increased even faster, the percentage of Argentinean soybean supply which is crushed domestically decreased to the present level of 66%.
Compared to Brazil, where 58% of domestic supply is crushed (see Table 18), still a higher proportion of Argentinean soybeans is crushed domestically. There are two reasons for this. Firstly, crushing costs of Argentinean crushing plants are lower as they are more modern and capacity utilisation is higher. Secondly, Argentina still levies an export tax of 3.5% on soybean exports, and restitutes 1.4% and 3.2% for exports of crude oils and refined oils, respectively. As a result, it is more attractive for global soybean traders to crush Argentinean soybeans domestically, and export the resulting soy oil and soy meal. [46]
Consequently, Argentina has overtaken Brazil as the largest exporter of soy oil and soy meal in South America (see Table 13 and Table 15).

In Argentina there are 32 crushing companies active, operating 51 plants (including sunflower and peanut crushing plants). Total installed capacity stands at 90,000 tonnes a day, or 27 million tonnes a year. With annual crushing of 18.3 million tonnes in 2001 (see Table 24), capacity utilisation is not very high.[47]
Details are provided in Table 26.[48]

Table 26 Main Argentinean soybean crushing companies			
Company	**Parent group**	**Capacity (MT/day)**	**Share**
Saceif Louis Dreyfus	Louis Dreyfus, France	12,000	13%
Chabás		10,000	11%
Terminal 6i		6,500	7%
La Plata Cereal	Bunge, United States	6,400	7%
Cargill	Cargill, United States	4,800	5%
Vicentin		4,500	5%
Pecom Agra	ConAgra (50%), US	4,500	5%
Buyatti		4,400	5%
Santa Clara		4,200	5%
Oleaginosa Oeste		2,200	2%
Molino Cañuelas		600	1%
Germaiz		410	
Olca		312	
Tanoni		300	
Extender		200	
Oleos Santafesinos		200	
Nidera			
Molinos Rio de la Plata	Pérez Companc, Argentina		
Oleaginosa Moreno	Glencore, Switzerland		
Total for Argentina		**90,000**	**100%**

3.2.4 Soy meal production and export

In Argentina, crushing 1,000 tonnes of soybeans on average yields 800 tonnes of soy meal. Figures on soy meal production and the main export markets for Argentinean soy meal are provided in Table 27. [49]

Table 27 Export markets for Argentinean soy meal (in 1,000 MT)								
Export market	**1995**	**1998**	**1999**	**2000**	**2001**	**EU share**	**Total share**	**Growth**
Italy	1,033	1,387	1,758	1,947	2,086	25%	14%	102%
Spain	365	995	1,847	1,639	1,808	22%	13%	395%
Netherlands	584	555	1,005	883	1,216	15%	8%	108%
Denmark	651	659	1,043	1,055	1,159	14%	8%	78%
Germany	821	546	710	643	617	8%	4%	-25%
Belgium/Luxemburg	489	560	709	490	430	5%	3%	-12%
France	191	271	406	545	280	3%	2%	47%
Portugal	0	300	495	358	248	3%	2%	N/a
Greece	135	88	138	212	153	2%	1%	13%
United Kingdom	209	185	191	91	95	1%	1%	-55%
Other EU-countries	50	21	154	103	124	2%	1%	118%
European Union	**4,528**	**5,567**	**8,456**	**7,966**	**8,216**	**100%**	**57%**	**81%**
Non EU-countries	2,359	5,993	4,632	4,967	6,188		43%	162%
Soy meal exports	**6,887**	**11,560**	**13,088**	**12,931**	**14,404**		**100%**	**109%**
% to EU	66%	48%	65%	62%	57%			
Soy meal production	**7,384**	**12,280**	**13,438**	**13,473**	**14,492**			**96%**
% exported	93%	94%	97%	96%	99%			

Total Argentinean soy meal production doubled over the past six years, in line with the increase in domestic crushing (see Table 24). Almost the entire Argentinean soy meal production is being exported and soy meal exports therefore also doubled.
Different from Argentinean soybean exports (see Table 25) the European Union still is the main export market for Argentinean soy meal although its market share declined a little bit from 65% to 57%. Argentinean soy meal exports to the European Union almost doubled and are bound to overtake those of Brazil soon (see Table 43).
Within the European Union, Argentinean soy meal exports increasingly concentrate on the four main markets: Italy, Spain, Netherlands and Denmark. These four countries together now account for 44% of total soy meal exports from Argentina.

3.2.5 Soy oil production and export

In Argentina, crushing 1,000 tonnes of soybeans on average yields 180 tonnes of soy oil. Production and export figures for Argentinean soy oil are provided in Table 28. [50]

Table 28 Argentinean soy oil production and export

Soy oil	1995	1998	1999	2000	2001	Growth
Production	1,600	2,693	3,093	3,113	3,388	112%
Export	1,545	2,464	3,016	3,021	3,384	119%
% exported	97%	91%	98%	97%	100%	

Total Argentinean soy oil production more than doubled over the past six years, in line with the increase in domestic crushing (see Table 24). Almost the entire Argentinean soy oil production is being exported.
The most important export markets for Argentinean soy oil are India, Iran and Bangladesh. Almost no Argentinean soy oil is exported to the European Union.

3.3 Paraguay

3.3.1 Soybean production

Soybean acreage in Paraguay is growing rapidly, but production doesn't keep pace. Table 29 does provide an overview of the total harvested acreage and of the total soybean production volume in Paraguay during the last seven years. [51]

Table 29 Soybean acreage and production in Paraguay

Indicator	1995/96	1998/99	1999/00	2000/01	2001/02	Growth
Acreage (1,000 ha)	833	1,166	1,177	1,209	1,330	60%
Production (1,000 MT)	2,395	3,053	2,980	3,585	3,150	32%
Yield (MT/ha)	2.88	2.62	2.53	2.96	2.37	-18%

As Table 29 shows, the harvested soybean acreage in Paraguay increased with 60% in the past six years to a total area of 1.3 million hectares. But total production only increased with 32%, as productivity dropped (-18%).

3.3.2 Soybean trading and export

Paraguayan soybean supply consists of domestic production and a minimal amount of imports. Total Paraguayan soybean supply is split in three main directions. A part is crushed in Paraguayan crushing plants, a part is shipped to other South American markets to be crushed there, and a part is shipped to markets outside South America. Table 30 indicates the relative importance of these three main options.[52]

Table 30 Paraguayan soybean crushing and exports (in 1,000 MT)

Option	1995	1998	1999	2000	2001	Share	Growth
Production	2,212	2,856	3,053	2,980	3,585	100%	62%
Imports	5	19	8	6	1	0%	-80%
Supply	**2,217**	**2,886**	**3,022**	**2,986**	**3,586**	**100%**	**62%**
Crushing	659	646	664	728	916	26%	39%
Exports inside South America	688	661	870	1,076	1,498	42%	118%
Exports outside South America	852	1,450	1,179	1,174	846	24%	-1%

As Table 30 shows, the amount of soybeans crushed domestically expanded slower than domestic production (39% vs. 62%) over the past six years. Only 26% of total supply is crushed within Paraguay. (Domestic crushing will be discussed further in paragraph 3.3.3). The largest part of the Paraguayan soybean production is exported, mainly to Brazil, Argentina and Bolivia. These intra-South American exports accounted for most of the output increase (62%) over the past six years, and now make up 42% of total supply. Exports of Paraguayan soybeans to markets outside South America account for 24% of total supply. These exports initially increased, but decreased again during the past three years.

Soybean trading in Paraguay is dominated by the same large international traders as elsewhere in South America. The American company Archer Daniels Midland (ADM) claims to be the largest soybean exporter from Paraguay.[53]

An overview of the main export markets outside South America for Paraguayan soybeans is provided in Table 31. [54]

Table 31 Export markets for Paraguayan soybeans (in 1,000 MT)								
Export market	**1995**	**1998**	**1999**	**2000**	**2001**	**EU share**	**Total share**	**Growth**
Netherlands	149	797	607	138	360	53%	43%	142%
Spain	56	55	145	219	201	29%	24%	259%
Germany	74	0	43	21	117	17%	14%	58%
Belgium/Luxemburg	131	32	0	0	0	0%	0%	-100%
Portugal	38	0	92	1	0	0%	0%	-100%
France	24	8	10	22	0	0%	0%	-100%
Other EU-countries	4	48	35	16	5	1%	1%	25%
European Union	**476**	**940**	**932**	**417**	**683**	**100%**	**81%**	**43%**
Others and unknown	376	510	247	757	163		19%	-57%
Total exports	**852**	**1,450**	**1,179**	**1,174**	**846**		**100%**	**-1%**
% to EU	56%	65%	79%	36%	81%			

Paraguay's soybean exports outside South America are increasingly directed towards the European Union, which now has a 81% market share. Exports to the EU fluctuated strongly however, possibly because EU-countries do not always record these imports correctly. Within the European Union an increasing focus on three markets (the Netherlands, Spain and Germany) can be observed. These three countries now account for 80% of Paraguayan soybean exports outside South America.

3.3.3 Soybean crushing

As is shown in Table 30, soybean crushing in Paraguay increased with 39% over the past six years. This is lower than the production increase in the same period (62%). Therefore only 26% of total supply is at present crushed within Paraguay.

3.3.4 Soy meal production and export

In Paraguay, crushing 1,000 tonnes of soybeans on average yields 795 tonnes of soy meal. Figures on soy meal production and the exports of Paraguayan soy meal are provided in Table 32. [55]

Table 32 Paraguayan soy meal production and export (in 1,000 MT)						
Soy meal	**1995**	**1998**	**1999**	**2000**	**2001**	**Growth**
Production	523	513	528	578	727	39%
Exports	450	402	367	411	591	31%
% exported	86%	78%	70%	71%	81%	

As is shown in Table 32, Paraguayan soy meal production increased with 39% over the past six years, in line with the increase in crushing (see Table 30). Exports increased with 31% over the same period, which means that a slightly lower percentage of production is being exported (81% at present). Almost all Paraguayan soy meal exports remain within South America.[56]

3.3.5 Soy oil production and export

In Paraguay, crushing 1,000 tonnes of soybeans on average yields 195 tonnes of soy oil. Figures on soy meal production and the exports of Paraguayan soy oil are provided in Table 33. [57]

Table 33 Paraguayan soy oil production and export (in 1,000 MT)						
Soy oil	**1995**	**1998**	**1999**	**2000**	**2001**	**Growth**
Production	125	123	126	138	174	39%
Export	91	102	94	98	133	46%
% exported	73%	84%	76%	71%	76%	

As Table 33 shows, Paraguayan soy oil production increased with 39% over the past six years, in line with the increase in crushing (see Table 30). Exports increased with 46% over the same period, which means that a slightly higher percentage of production is being exported (76% at present). All Paraguayan soy oil exports remain within South America.[58]

3.4 Bolivia

3.4.1 Soybean production

Soybean acreage in Bolivia is growing rapidly, but production doesn't keep pace. Table 34 does provide an overview of the total harvested acreage and of the total soybean production volume in Brazil during the last seven years. [59]

Table 34 Soybean acreage and production in Bolivia

Indicator	1995/96	1998/99	1999/00	2000/01	2001/02	Growth
Acreage (1,000 ha)	428	589	628	617	645	51%
Production (1,000 MT)	887	1,071	974	1,232	1,150	30%
Yield (MT/ha)	2.07	1.82	1.55	2.00	1.78	-14%

As Table 34 shows, the harvested soybean acreage in Bolivia increased with 51% in the past six years to a total area of 0.6 million hectares. But total production only increased with 30%, as the already low productivity dropped further (-14%).

Data on the most important soybean farmers in Bolivia, are presented in Table 35.[60]

Table 35 Main soybean farmers in Bolivia

Company	Acreage (ha)
Ciagro	9,000
Claudio Mansila	10,000
Dennis Barbieri	8,000
DESA	15,000
Hermanos Chavez	12,000
Patrick Din	25,000
Sergio Marchetti	24,000
Unisoya	15,000

3.4.2 Soybean trading and export

Bolivian soybean supply consists of domestic production and a growing amount of imports. Total Bolivian soybean supply is split in three main directions. A part is crushed in Bolivian crushing plants, a part is shipped to other South American markets to be crushed there, and a part is shipped to markets outside South America. Table 36 provides figures on the relative importance of these three directions.[61]

Table 36 Bolivian soybean supply and crushing (in 1,000 MT)

Option	1995	1998	1999	2000	2001	Share	Growth
Production	710	1,038	1,071	974	1,232	83%	74%
Imports	0	32	162	267	255	17%	> 100%
Supply	**880**	**1,070**	**1,233**	**1,241**	**1,487**	**100%**	**67%**
Crushing	449	837	860	1,120	1,381	93%	208%
Exports inside South America	115	149	176	151	9	1%	-92%
Exports outside South America	94	43	4	65	1	0%	-99%

As Table 36 shows, the amount of soybeans crushed domestically has increased threefold over the past six years. Now 93% of total supply is crushed domestically. (Domestic crushing will be discussed further in paragraph 3.4.3).
Because of the strong expansion of domestic crushing, Bolivia has expanded imports of soybeans from other South American countries to feed its crushing plants. Imports now make up 17% of total supply.
Exports of Bolivian soybeans, both inside and outside South America, have almost stopped.[62]

Soybean trading in Bolivia is dominated by the same large international traders as elsewhere in South America. The American company Archer Daniels Midland (ADM) claims to be the largest soybean trader in Bolivia.[63]

3.4.3 Soybean crushing

As is shown in Table 36, the amount of soybeans crushed domestically has increased threefold over the past six years. Bolivia has now become a net importer of soybeans from other South American countries.
Details on the main Bolivian crushing companies are provided in Table 37.[64]

Table 37 Main Bolivian soybean crushing companies

Company	Parent group	Capacity (MT/day)
Alsa		150
ADM	Archer Daniels Midland, USA	1,000
Granos		350
Gravetal		1,500
Industrias de Aceite		1,100
IOL		1,600

3.4.4 Soy meal production and export

In Bolivia, crushing 1,000 tonnes of soybeans on average yields 795 tonnes of soy meal. A large part of this soy meal production is exported, but mainly within South America and not to the European Union. Figures on soy meal production and the export of Bolivian soy meal are provided in Table 38. [65]

Table 38 Bolivian soy meal production and export (in 1,000 MT)

Soy meal	1995	1998	1999	2000	2001	Growth
Production	355	661	679	885	1,091	207%
Exports	198	542	626	820	920	365%
% exported	56%	82%	92%	93%	84%	

As Table 38 shows, Bolivian soy meal production increased threefold during the past six years, in line with the increase in domestic crushing (see Table 36).
Exports increased even stronger (365%), meaning that an increasing part of production is being exported (84% at present). Most export is directed towards countries inside South America. In the last two years Bolivian export statistics report considerable to the European Union as well, but these cannot be traced in EU import statistics.

3.4.5 Soy oil production and export

In Bolivia, crushing 1,000 tonnes of soybeans on average yields 190 tonnes of soy oil. A large part of this soy oil production is exported, but mainly within South America and not to the European Union. Figures on soy oil production and the export outside South America of Bolivian soy oil are provided in Table 39. [66]

Table 39 Bolivian soy oil production and export (in 1,000 MT)

Soy oil	1995	1998	1999	2000	2001	Growth
Production	81	151	155	202	249	207%
Export	51	104	89	154	185	263%
% exported	73%	69%	59%	76%	74%	

As Table 39 shows, Bolivian soy meal production increased threefold during the past six years, in line with the increase in domestic crushing (see Table 36).
Exports increased even slightly stronger (263%), meaning that an increasing part of production is being exported (74% at present). Virtually all export is directed towards countries inside South America and none to the European Union.

Chapter 4 The European soybean market

4.1 Soybean imports and production

The European Union only has a limited production of soybeans, mainly in Italy. The largest part of EU soybean supply is imported. Table 40 provides an overview of the total supply of soybeans to the European Union. [67]

Table 40 Soybean supply to the EU market (in 1,000 MT)

Origin	1995	1998	1999	2000	2001	Import share	Supply share	Growth
Brazil	3,033	6,167	6,537	6,447	9,190	52%	49%	203%
Argentina	1,770	1,083	1,058	452	715	4%	4%	-60%
Paraguay	476	940	932	417	683	4%	4%	43%
Other South America	0	6	18	0	26	0%	0%	
South America	**5,279**	**8,196**	**8,545**	**7,316**	**10,614**	**60%**	**56%**	**101%**
Other imports	10,668	8,354	7,364	7,490	7,157	40%	38%	-33%
Total imports	**15,947**	**16,550**	**15,909**	**14,806**	**17,771**	**100%**	**94%**	**11%**
EU production	1,009	1,463	1,582	1,229	1,149		6%	14%
Total supply	**16,956**	**18,013**	**17,491**	**16,035**	**18,920**		**100%**	**12%**
from South America	*31%*	*46%*	*49%*	*46%*	*56%*			

Domestic soybean production in the European Union increased with 14% over the past six years, but still accounts only for 6% of total supply. Soybean imports, accounting for 94% of total supply, roughly increased in the same pace (11%). As a consequence total supply showed a similar growth (12%).
While imports from other countries decreased strongly (-33%), imports from South America doubled over the past six years and now account for 60% of total imports. This strong growth is mainly attributable to soybean imports from Brazil, which tripled during the past six years. Soybean imports from Brazil now account for 52% of total EU imports and for 49% of total soybean supply on the European market.
Soybean imports from Argentina declined strongly (-60%) and are now at an equally modest level as imports from Paraguay. Both countries account for 4% of EU supply.

4.2 Soybean crushing and export

Figures on the further destinations of the total soybean supply on the European market are presented in Table 41. [68]

Table 41 EU soybean crushing and exports (in 1,000 MT)

Origin	1995	1998	1999	2000	2001	Share	Growth
Supply	16,956	18,013	17,491	16,035	18,920	100%	12%
Crushing	15,090	16,362	15,785	14,870	16,748	89%	11%
Exports	43	73	56	32	47	0%	9%

As Table 41 shows, the amount of soybeans crushed in the European Union increased with 11% in the past six years, in line with the increase in supply (12%). This means that the crushing percentage has stayed stable at 89% of total supply. As exports are minimal, the processing of whole soybeans accounts for the remaining 11%.

The European crushing industry has a total annual crushing capacity of approximately 30 million tonnes per year (or 84,000 tonnes per day). Roughly 15 million tonnes of this soybean crushing, 13 million tonnes is soft seed (sunflowerseed and rapeseed) crushing, and the remainder is suitable for both types of seeds.[69] As crushing reached 16.8 million tonnes in 2001 (see Table 41), capacity utilisation seems very high.
The main European crushing companies are listed in Table 42.[70]

Table 42 Main European soybean crushing companies				
Country	**Company**	**Capacity (MT/day)**	**Parent company**	**Country of origin**
Austria	Kuner Nahrungsmittel		Unilever	Netherlands/ UK
Belgium	Cargill	3,250	Cargill	United States
Denmark	Central Soya		Bunge	United States
Finland	Mildola	450	Unilever a.o.	Netherlands/ UK
	Raisio		Raisio	Finland
France	Cargill		Cargill	United States
	Huilerie Noel		Huilerie Noel	France
	Cereol		Bunge	United States
Germany	Akzo Nobel	1,500	Akzo Nobel	Netherlands
	Cereol	3,000	Bunge	United States
	Oelmühle Hamburg	5,500	Archer Daniels Midland	United States
	Soya Mainz	2,500	Archer Daniels Midland	United States
Greece	Soya Hellas	750	Soya Hellas	Greece
	Soya Mills	540	Hellenic Fine Oils	Greece
Italy	Cereol	7,200	Bunge	United States
	Cargill		Cargill	United States
	Oleificio Medio Piave		Oleificio Medio Piave	Italy
	Casa Olearia Italiana		Casa Olearia Italiana	Italy
Netherlands	Cargill	3,300	Cargill	United States
	Archer Daniels Midland		Archer Daniels Midland	United States
	Cereol	1,800	Bunge	United States
Norway	Denofa	1,000	Orkla	Norway
Portugal	Copaz	900	Copaz	Portugal
	Alcides Branco & Ca.		Alcides Branco & Ca.	Portugal
	Iberol		Iberol	Portugal
	Tagol	2,500	Nutrinveste	Portugal
Spain	Moyresa	3,800	Bunge	United States
	Cargill		Cargill	United States
	Simsa	2,000	Simsa	Spain
Sweden	Karlshamns	250	Karlshamns	Sweden
Switzerland	Florin		Florin	Switzerland
United Kingdom	Cargill	2,400	Cargill	United States
	Hampshire Commodities		Hampshire Commodities	United Kingdom

The three American companies Archer Daniels Midland (ADM), Bunge and Cargill together control almost 80% of the European crushing industry. These three players are in a process of rationalising their crushing capacity, closing down some factories, and increasing the utilisation rate of others.[71]

Information on which crushing companies process what quantities of soybeans from specific South American countries is scarce. The Norwegian crushing company Denofa claims only to use Brazilian soybeans.[72]
Other indications:

- The main European export markets for Brazilian soybeans are the Netherlands, Germany and Spain (see § 3.1.2). Crushing companies in these countries are most likely to crush large quantities of Brazilian soybeans.

- Argentinean export of soybeans to the EU is relatively modest. But the main European export markets for Argentinean soybeans are Spain, the Netherlands and Germany (see § 3.2.2). Crushing companies in these countries are most likely to crush some amount of Argentinean soybeans.

- Paraguayan export of soybeans to the EU is relatively modest. But the main export markets for Paraguayan soybeans are the Netherlands, Spain and Germany (see § 3.3.2). Crushing companies in these countries are most likely to crush some amount of Paraguayan soybeans.

4.3 Soy meal import and production

Table 43 provides an overview of the total supply of soy meal to the European Union market, in the form of imports and domestic crushing.[73]

Table 43 Soy meal import and production in the EU (in 1,000 MT)

Origin	1995	1998	1999	2000	2001	Import share	Supply share	Growth
Brazil	8,748	6,924	7,091	7,315	8,569	49%	28%	-2%
Argentina	4,528	5,567	8,456	7,966	8,216	47%	27%	81%
Other South American	6	18	1	13	5	0%	0%	-17%
South America	**13,282**	**12,509**	**15,548**	**15,294**	**16,790**	**95%**	**55%**	**26%**
Other imports	1,128	2,190	1,065	503	803	5%	2%	-29%
Total imports	**14,410**	**14,699**	**16,613**	**15,797**	**17,593**	**100%**	**57%**	**22%**
EU production	12,027	12,929	12,492	11,768	13,255		43%	10%
Total supply	**26,437**	**27,628**	**29,105**	**27,565**	**30,848**		**100%**	**17%**
from South American origin	*17,026*	*18,392*	*21,650*	*20,664*	*24,226*		*79%*	*42%*
% from South American origin	*64%*	*67%*	*74%*	*75%*	*79%*			

Table 43 shows that total soy meal supply to the European Union market increased with 17% over the past six years. This growth was mainly caused by a 22% increase in soy meal imports, while soy meal production by European crushing plants only increased 10%.

Soy meal imports from South America increased with 25% and now account for 95% of total EU soy meal imports and 55% of total EU soy meal supply (imports plus domestic production). This growth in soy meal imports from South America is completely attributable to imports from Argentina, as imports from Brazil stagnated and imports from other South American are virtually absent.

As crushing plants in the European Union are to a large extent (56% at present) supplied by imports of South American soybeans (see Table 40), we can assume that the same percentage of the European soy meal production is from South American origin. Adding this figure to the direct import of soy meal from South America, leads to an estimate of the total soy meal supply on the EU market which is from South American origin. This *South American soy meal supply* increased over the past six years from 64% to 79% of the total soy meal supply on the European market.

Table 44 shows what is happening with this soy meal supply on the European Union market.

Table 44 Soy meal consumption and export in the EU (in 1,000 MT)

Origin	1995	1998	1999	2000	2001	Share	Growth
Supply	26,437	27,628	29,105	27,565	30,848	100%	17%
Export	829	1,388	1,471	1,476	2,040	7%	146%
Consumption	25,614	26,228	27,651	26,067	28,784	93%	12%
% of South American origin	*65%*	*67%*	*74%*	*75%*	*79%*		

As Table 44 shows, the EU soy meal export is growing more strongly (146% than supply (17%) and consumption (12%). Nevertheless, only a limited amount of soy meal is exported from the EU (around 7% of total supply). One can therefore assume that the percentages for *South American soy meal supply* on the EU market (see Table 43), also apply for EU consumption of soy meal. In other words: one can assume that around 79% of all soy meal consumed in the European Union at present is from South American origin.

4.4 Soy meal processing by the animal feed industry

No figures are available on which European companies further process the soy meal supply on the European market, but it is generally assumed that a very large percentage is used by the compound feed industry to produce animal feed. Only a minor part would be used by the food and chemical industries.
The same applies to other oilmeals as well. Table 45 therefore provides information on the consumption in the European Union, mainly by the compound feed industry, of soy meal and other oilmeals.

Table 45 EU consumption of oilmeals (in 1,000 MT)							
Oilmeal type	**1995**	**1998**	**1999**	**2000**	**2001**	**Share**	**Growth**
Soy meal	25,614	26,228	27,651	26,067	28,784	68%	12%
from South American origin	*17,026*	*18,392*	*21,650*	*20,664*	*24,226*	*57%*	*42%*
Rapeseed meal	5,006	5,446	5,659	5,918	5,332	13%	7%
Sunflowermeal	4,550	4,769	4,965	4,623	3,845	9%	-15%
Palmkern meal	1,936	1,988	2,226	2,263	2,249	5%	16%
Cotton meal	754	584	620	601	663	2%	-12%
Copra meal	853	563	325	515	622	1%	-27%
Linseed meal	561	500	499	467	364	1%	-35%
Corngerm meal	1,019	405	403	365	352	1%	-65%
Groundnut meal	219	249	180	188	170	0%	-22%
Sesame meal	6	1	1	2	1	0%	-83%
Total oilmeal consumption	**40,518**	**40,733**	**42,529**	**41,009**	**42,382**	**100%**	**5%**

Table 45 shows that while total oilmeal consumption in the European Union is growing slowly, consumption of most oil meals is declining. Only soy meal, palmkern meal and rapeseed meal show a growing consumption and a growing market share. Soy meal now accounts for 68% of all oil meal consumption in the European Union. Soy meal from South American origin accounts for an estimated 57% of all oil meal consumption in the European Union.

Total compound feed production in the European Union amounted to 124.4 million tonnes in 2000. Oil meals contributed 32.2 million to this production figure. This means that 78% of total oil meal consumption in the EU (41.0 million tons in 2000) is used by the compound feed industry.[74]
These figures make it very probable to assume that almost every compound feed producer in Europe will use large amounts of soy meal from South American origin.

Table 46 provides an overview of the main compound feed producers in Europe, as well as some intermediate producers (which buy or import soy meal and process this further into several types of feed ingredients, before selling it to actual compound feed producers).[75]

Table 46 Main European compound feed producers	
Country	**Company**
Austria	Benedita
Denmark	Danks Landbrugs Grovvareselskab (DLG)
	Bornholms Andels-Fodorstoffoerreting
	Fyens Andels-Foderstofforretening
	Landesføreningen den lokale andel
France	Agralco
	Cana
	Coopagri Bretagne
	Unicopa
	Co-operative de Pau-Euralis
	Vivadour
	CADS
Germany	BayWa
	RHG
	Raiffeisen Waren-Zentrale Rhein-Main
	Raiffeisen Central-Genossenschaft Nordwest
Spain	Agropecuaria de Guissona
	Cooperativa Orensanas
	AN
	Copaga
Sweden	Svenska Lantmännen
The Netherlands	Schouten
	Provimi
	Cebeco Handelsraad
	Nutreco
	Cehave Landbouwbelang
	Koudijs Wouda
United Kingdom	Mole Valley Farmers
	Cherwell Valley Silos

Not much information is available on which compound feed producer is using what quantities of soy meal originating from each of the specific South American countries. The Dutch intermediate company Schouten, which sells soy-based feed ingredients to compound feed producers all over Europe, processes Argentinean soy meal.[76]
Indications regarding other compound feed companies using soy meal from specific South American countries:

- The main European export markets for Brazilian soybeans are the Netherlands, Germany and Spain (see § 3.1.2), and the main export markets for Brazilian soy meal are France, the Netherlands and the United Kingdom (see § 3.1.4). Compound feed producers in these countries are most likely to use large quantities of soy meal from Brazilian origin.

- Argentinean export of soybeans to the EU is relatively modest. But the main European export markets for Argentinean soybeans are Spain, the Netherlands and Germany (see § 3.2.2). More importantly, the main export markets for Argentinean soy meal are Italy, Spain, the Netherlands and Denmark (see § 3.2.4). Compound feed producers in these countries are most likely to use large quantities of soy meal from Argentinean origin.

- Paraguayan export of soybeans to the EU is relatively modest. But the main export markets for Paraguayan soybeans are the Netherlands, Spain and Germany (see § 3.3.2). Compound feed producers in these countries are most likely to use some amount of soy meal from Paraguayan origin.

4.5 Soy oil supply

Table 47 provides an overview of the total supply of soy oil to the European Union market, in the form of imports and domestic crushing. [77]

Table 47 Soy oil supply in the EU (in 1,000 MT)

Origin	1995	1998	1999	2000	2001	Share	Growth
Imports	4	5	6	12	15	0%	275%
EU production	2,719	2,984	2,906	2,750	3,105	100%	14%
Total supply	**2,723**	**2,989**	**2,912**	**2,762**	**3,120**	**100%**	**15%**
Exports	690	1,084	1,113	1,065	1,115	36%	62%
EU consumption	2,029	1,875	1,798	1,717	1,995	64%	-2%

Table 47 shows that the supply of soy oil to the EU market has been growing at an moderate pace (15%) over the past six years, but that the consumption of soy oil within the European Union stayed stable. EU exports of soy oil increased strongly (62%), and now account for 36% of total supply to the EU market.
As soy oil imports don't play any role of importance on the European market, we can estimate the European market share of soy oil from South American origin by using the import percentages of South American soybeans (see Table 40). This means that at present 56% of the European soy oil supply is from South American origin.

4.6 Soy oil refining

From the crushing plant, soy oil goes to a refinery for all kinds of treatments. These processes yield a large variety of refined oils, which can be applied in the food and chemical industries. Refineries can be integrated with, and owned by, crushing companies. They can also be integrated with, and owned by, final processing companies in the food or chemical sector. But there also some independent refineries, buying crude soy oil from crushing plants and supplying processed soy oil to food and chemical companies.
The major European soy oil refineries are listed in Table 48. [78]

Table 48 Major European soy oil refineries				
Country	**Refinery**	**Capacity/ day (MT)**	**Parent Company**	**Country of origin**
Austria	Kuner Nahrungsmittel		Unilever	Netherlands/ UK
Belgium	Cargill	150	Cargill	United States
Denmark	Aarhus Oliefabrik		Aarhus Olie	Denmark
Finland	Mildola	150	Unilever a.o.	Netherlands/ UK
	Raisio		Raisio	Finland
France	Cereol		Bunge	United States
	Société Industrielle des Oléagineux		SIO	France
	Cargill		Cargill	United States
Germany	Oelmühle Hamburg		Archer Daniels Midland	United States
	Noblee & Thörl		Archer Daniels Midland	United States
	Soya Mainz	300	Archer Daniels Midland	United States
	Deutsche Cargill		Cargill	United States
	Union Deutsche Lebensmittelwerke		Unilever	Netherlands/ UK
	Akzo Nobel	200	Akzo Nobel	Netherlands
	Cereol		Bunge	United States
	Hamker Lebensmittelwerke		Hamker	Germany
	Walter Rau	1,000	Walter Rau	Germany
	O. & L. Sels	250	O. & L. Sels	Germany
	C. Thywissen	200	C. Thywissen	Germany
Greece	Soya Hellas		Soya Hellas	Greece
	Soya Mills		Hellenic Fine Oils	Greece
Italy	Eridania	1,200	Bunge	United States
	Cargill		Cargill	United States
	Bonoil		Bonoil	Italy
	Unilever		Unilever	Netherlands/ UK
	Oleificio Medio Piave		Oleificio Medio Piave	Italy
	Malgara Chiari & Forti		Malgara Chiari & Forti	Italy
	Salov		Salov	Italy
	Casa Olearia Italiana		Casa Olearia Italiana	Italy
Netherlands	Archer Daniels Midland		ADM	United States
	Cargill	500	Cargill	United States
	Unimills		Golden Hope	Malaysia

Table 48 Major European soy oil refineries				
Country	**Refinery**	**Capacity/ day (MT)**	**Parent Company**	**Country of origin**
	Romi		Smilde	Netherlands
Norway	Denofa	200	Orkla	Norway
Portugal	Copaz	80	Copaz	Portugal
	Alcides Branco & Ca.		Alcides Branco & Ca.	Portugal
	Iberol		Iberol	Portugal
	Victor Guedes		Victor Guedes	Portugal
	Tagol	150	Nutrinveste	Portugal
Spain	Moyresa	400	Bunge	United States
	Cargill		Cargill	United States
	Acisa		Sos Cuetara	Spain
	Simsa	150	Simsa	Spain
Sweden	Karlshamns	200	Karlshamns	Sweden
	Unilever		Unilever	UK/Netherlands
Switzerland	Florin		Florin	Switzerland
United Kingdom	Rockmor	150	Rockmor	United Kingdom
	Seven Seas		Seven Seas	United Kingdom
	Pura Foods		Pura Foods	United Kingdom
	Hampshire Commodities		Hampshire Commodities	United Kingdom
	Cargill	360	Cargill	United States
	Karlshamns	100	Karlshamns	Sweden

As 56% of the European soy oil supply is from South American origin at present, it is very probable that most of these refineries use large quantities of soy oil from South American origin.

The refined oils produced by soy oil refineries are supplied directly to final processing companies in the food and chemical sectors, or to companies in the intermediate *oleochemical* sector. This sector includes a number of specialized companies which use refined edible oils to produce speciality oils, fats and greases, which are used in several final processing industries (confectionery, cosmetics, and others). One type of speciality fat is Cocoa Butter Equivalent (CBE), which can be used as a cheap replacement for cocoa butter in chocolate products.[79]

A number of important European olecochemical companies is listed in Table 49.[80]

Table 49 Major European oleochemical companies			
Country	**Company**	**Parent company**	**Country of origin**
Denmark	Aarhus Olie	Aarhus Olie	Denmark
Netherlands	Karlshamns	Karlshamns	Sweden
	Loders Croklaan	IOI	Malaysia

4.7 Soy oil and soy meal processing by the food industry

Soy oil refineries and oleochemical companies supply a broad range of soy-based oils and fats to the to the European food, cosmetics, detergents and chemical industries, of which roughly 60% is from South American origin. Also, a limited amount of soy meal is supplied to the European food, cosmetics, detergents and chemical industries, of which roughly 80% is from South American origin.

It should be stressed however that soy-based oils and fats have to compete with oils and fats derived from other edible oils. Often, oils and fats derived from different edible oils and fats are being mixed. And in many production processes, one edible oil can be replaced by another without problem - when availability and price differences stimulate this. Table 50 provides an overview of the market shares and growth rates of the different edible oils used by the EU food, cosmetics, detergents and chemical industries.[81]

Table 50 EU consumption of edible oils (in 1,000 MT)							
Oil type	**1995**	**1998**	**1999**	**2000**	**2001**	**Share**	**Growth**
Rapeseed oil	2,160	2,619	2,988	3,291	3,376	18%	56%
Palm oil	1,689	2,051	2,168	2,368	2,845	15%	68%
Sunflower oil	1,957	2,092	2,134	2,102	2,026	11%	4%
Soy oil	2,029	1,875	1,798	1,717	1,995	11%	-2%
of which from South American origin	*632*	*853*	*878*	*783*	*1,119*	*6%*	*77%*
Olive oil	1,484	1,737	1,811	1,897	1,967	11%	33%
Butter, as fat	1,425	1,505	1,540	1,525	1,540	8%	8%
Lard	1,295	1,397	1,456	1,415	1,386	7%	7%
Tallow & Grease	1,424	1,333	1,254	1,128	1,138	6%	-20%
Coconut oil	637	797	558	762	776	4%	22%
Palm kernel oil	317	385	501	465	430	2%	36%
Fish oil	546	252	305	342	325	2%	-40%
Corn oil	206	250	222	221	197	1%	-4%
Groundnut oil	174	153	149	144	140	1%	-20%
Castor oil	104	117	99	121	140	1%	35%
Linseed oil	99	157	145	147	137	1%	38%
Cotton oil	101	131	116	124	117	1%	16%
Sesame oil	2	1	2	2	1	0%	-50%
Total edible oil consumption	**15,650**	**16,851**	**17,246**	**17,771**	**18,536**	**100%**	**18%**

Most of the edible oils listed in Table 50 are used to manufacture the same products as soy oil is used for. The European market for edible oils should therefore be treated as one, integrated market. The total consumption of edible oils by the European food, cosmetics, detergents and chemical industries increased with 18% over the past six years, while the consumption of soy oil decreased slightly. This means that soy oil is losing market share, which now stands at 11%. The estimated present market share of soy oil from South American origin is only 6%.
This small market share and the fact that different types of oil of different origins get mixed during the trading and refining stages, make it very difficult to identify which food, cosmetics, detergents and chemical companies are actually processing soy oil from South American origin.

Some large European producers of margarine, mayonnaise, cooking oil, frying fat, chips, confectionery, snacks, dairy, baby food, biscuits and coffee-whitener, which probably use soybean-derived ingredients in their products, are listed in Table 51.[82]

Table 51 European food companies		
Company	**Country of origin**	**Products**
Cadbury	United Kingdom	Confectionery
Campina Melkunie	The Netherlands	Dairy
Danone	France	Margarine, biscuits, dairy
Eulip	Italy	Margarine
Friesland Coberco	The Netherlands	Dairy, baby food
Hamker	Germany	Margarine, dressings
Heinz	United States	Confectionery, pastry, dressings
Kinder	Italy	Confectionery
Mars	United States	Confectionery, ice cream
Matthews	United Kingdom	Margarine
Milka	Germany	Confectionery
Nestlé	Switzerland	Confectionery, ice cream, baby food
Numico	The Netherlands	Baby food, dairy
Oetker	Germany	Pastry
Perfetti	Italy	Confectionery
PepsiCo	United States	Snacks
Smilde	The Netherlands	Margarine, frying fat
Star	Italy	Cooking oil
Unigrá	Italy	Margarine
Unilever	UK/Netherlands	Margarine, cooking oil, spreads, snacks, ice cream
Van Dijk	The Netherlands	Margarine, frying fat, cooking oil
Vandemoortele	Belgium	Cooking oil, margarine

Some large European cosmetics & detergents producers which possibly use soybean-derived ingredients in their products, are listed in Table 52.

Table 52 European cosmetics & detergents producers		
Company	**Country of origin**	**Products**
Beiersdorf	Germany	Cosmetics
Henkel	Germany	Detergents
L'Oreal	France	Cosmetics
Unilever	UK/Netherlands	Cosmetics, detergents

No information is available on which European food, cosmetics, detergents and chemical companies are using what quantities of soy meal originating from each of the specific South American countries. But some indications are available:

- The main European export markets for Brazilian soybeans are the Netherlands, Germany and Spain (see § 3.1.2). Food, cosmetics, detergents and chemical companies in these countries are most likely to use some amount of soy oil and soy meal from Brazilian origin.

- Argentinean export of soybeans to the EU is relatively modest. But the main European export markets for Argentinean soybeans are Spain, the Netherlands and Germany (see § 3.2.2). More importantly, the main export markets for Argentinean soy meal are Italy, Spain, the Netherlands and Denmark (see § 3.2.4). Food, cosmetics, detergents and chemical companies in these countries are most likely to use some amount of soy oil and soy meal from Argentinean origin.

- Paraguayan export of soybeans to the EU is relatively modest. But the main export markets for Paraguayan soybeans are the Netherlands, Spain and Germany (see § 3.3.2). Food, cosmetics, detergents and chemical companies in these countries are most likely to use some amount of soy oil and soy meal from Paraguayan origin..

To assess the extent of the involvement in the South American soybean production chain of the EU final processing companies listed in Table 51 and Table 52, more research is needed.

4.8 Retail chains

Food products, cosmetics & detergents containing soy-ingredients from South American origin, will ultimately reach the consumer through the retail sector. Most of these products will be sold in supermarkets. The largest supermarket chains in Europe are listed in Table 53.[83]

Table 53 Major European supermarket chains

Company	Country of origin
Ahold	The Netherlands
Aldi	Germany
Carrefour	France
Casino	France
Delhaize	Belgium
J. Sainsbury	United Kingdom
Laurus	The Netherlands
Lidl	Germany
Metro	Germany
Migros	Switzerland
Safeway	United Kingdom
Tegut	Germany
Tesco	United Kingdom

Chapter 5 Financing of large soybean traders

5.1 Introduction

As became apparent in chapter 3, a small number of large international traders dominate the soybean crushing and trading sector in South America. Three of them - the American companies Archer Daniels Midland (ADM), Bunge and Cargill - also dominate the European soybean crushing and refining industry, as became apparent in chapter 4.
Although these trading companies usually don't invest in soybean growing as such, their influence on the expansion of the sector is very large. Soybean farmers are often very dependent on these trading companies for seed, credit, other inputs and off take. Through their control of the main export market, the European Union, they also provide the production section the opportunities for expansion.

For this reason it is interesting to analyse the financial stakeholders of these large trading companies. Financial institutions providing capital to these traders and crushers, will have an indirect, but fairly strong, influence on the (environmental) policies of the soybean farmers. For this reason we will focus in this paragraph on the role played by financial institutions in financing the main players involved in the South American and European soybean trading, crushing and refining sectors.

5.2 Archer Daniels Midland - United States

5.2.1 General description

The publicly-owned American company Archer Daniels Midland (ADM) is one of the largest global agricultural commodity trading and processing companies in the world. ADM is one of the world's largest processors of soybeans, corn, wheat and cocoa and a global leader in the production of soy meal and oil, ethanol, high fructose corn syrup (HFCS) and flour. In addition, ADM is building a position in such value-added products as specialty food ingredients, bioproducts and nutraceuticals (such as Vitamin E and sterols). Headquartered in Decatur, Illinois, ADM has over 24,000 employees, more than 260 processing plants and net sales for the fiscal year ended June 30, 2002 of US$ 23.5 billion.[84]

5.2.2 Involvement in the South American soybean production chain

- ADM is the largest soybean exporter from Brazil, Paraguay, and Bolivia.[85]

- Archer Daniels Midland (ADM) operates eight soybean crushing plants and six refineries in Brazil, and belongs to the top three oilseed processors in Brazil with a combined market share of 6% (see Table 20).[86]

- ADM owns one of the most important soybean crushing companies in Bolivia (see Table 37).

- ADM has a 20% market share on the soybean crushing market of the European Union, with crushing plants in the Netherlands and Germany (see Table 42).[87]

- ADM is an important player in the European soy oil refining sector, owning refineries in the Netherlands and Germany (see Table 48)

5.2.3 Financial stakeholders

The following information is found regarding the financial stakeholders of Archer Daniels Midland (ADM):

- **Loans**

  - In March 1999 Archer Daniels Midland secured a US$ 1,750 million revolving credit facility, split into a US$ 1,166.7 million one-year tranche and a US$ 583.3 million five-months tranche. The one-year tranche mature in March 2002, the five-months tranche matured in August 1999.
    The facility was arranged by Chase Manhattan, which is now part of **J.P. Morgan Chase & Co.** (United States), **Bank of America** (United States), First Chicago National Bank of Detroit, which is now part of **Bank One** (United States) and Smith Barney, which is now part of **Citigroup** (United States). Banks participating in the lending syndicate were: [88]

    - **ABN AMRO Bank** — The Netherlands
    - Banca Commerciale Italiana, which is now part of **IntesaBci** — Italy
    - **Bank of America** — United States
    - **Bank of New York** — United States
    - Banque Nationale de Paris, which is now part of **BNP Paribas** — France
    - Chase Manhattan, which is now part of **J.P. Morgan Chase & Co.** — United States

- **CoBank** United States
- **Commerzbank** Germany
- **Crédit Agricole** France
- **Crédit Suisse** Switzerland
- Dai-Ichi Kangyo Bank, which is now part of **Mizuho Bank** Japan
- **Deutsche Bank** Germany
- DG Bank, which is now part of **DZ Bank** Germany
- First Chicago National Bank of Detroit, which is now part of **Bank One** United States
- **HSBC Bank** United Kingdom
- Harris Trust & Savings Bank, which is part of **BMO Financial** Canada
- **KBC Bank** Belgium
- **Mellon Bank** United States
- Morgan Guaranty Trust, which is now part of **J.P. Morgan Chase & Co.** United States
- **Northern Trust** United States
- **Rabobank** The Netherlands
- Smith Barney, which is now part of **Citigroup** United States
- **Standard Chartered Bank** United Kingdom
- **SunTrust Bank** United States
- **Union Planters Bank** United States

- In March 2000 Archer Daniels Midland secured a one-year US$ 1,250 million revolving credit facility. The credit matured in March 2001.
  The facility was arranged by Chase Manhattan, which is now part of **J.P. Morgan Chase & Co.** (United States), **Bank of America** (United States), **Bank One** (United States) and Citibank, which is part of **Citigroup** (United States). Banks participating in the lending syndicate were: [89]

  - **Bank of America** United States
  - **Bank One** United States
  - Chase Manhattan, which is now part of **J.P. Morgan Chase & Co.** United States
  - Citibank, which is now part of **Citigroup** United States
  - **CoBank** United States
  - **Commerzbank** Germany
  - **Crédit Agricole** France
  - Crestar Bank, which is now part of **SunTrust Bank** United States
  - DG Bank, which is now part of **DZ Bank** Germany
  - **Rabobank** The Netherlands

- In March 2001 Archer Daniels Midland secured a one-year US$ 1,150 million revolving credit facility. The credit matured in March 2002.
  The facility was arranged by **J.P. Morgan Chase & Co.** (United States), **Bank of America** (United States), **Commerzbank** (Germany), **HSBC Bank** (United Kingdom) and **Citigroup** (United States). Banks participating in the lending syndicate were: [90]

  - **ABN AMRO Bank** The Netherlands
  - Banca Commerciale Italiana, which is now part of **IntesaBci** Italy
  - **Bank of America** United States
  - **Bank of New York** United States
  - **BNP Paribas** France
  - **Citigroup** United States

- **CoBank** United States
- **Commerzbank** Germany
- **Crédit Agricole** France
- Crédit Suisse First Boston, which is part of **Crédit Suisse** Switzerland
- Dai-Ichi Kangyo Bank, which is now part of **Mizuho Bank** Japan
- **Deutsche Bank** Germany
- Fuji Bank, which is now part of **Mizuho Bank** Japan
- Harris Trust & Savings Bank, which is part of **BMO Financial** Canada
- **HSBC Bank** United Kingdom
- ING Barings, which is part of **ING Bank** The Netherlands
- **J.P. Morgan Chase & Co.** United States
- **Northern Trust** United States
- **Rabobank** The Netherlands
- **SunTrust Bank** United States
- **Union Planters Bank** United States

- In March 2002 Archer Daniels Midland secured a one-year US$ 900 million revolving credit facility. The facility will mature in March 2003.
  The facility was arranged by **J.P. Morgan Chase & Co.** (United States), **Bank of America** (United States), **HSBC Bank** (United Kingdom) and **Citigroup** (United States). Banks participating in the lending syndicate were: [91]

  - **ABN AMRO Bank** The Netherlands
  - **Bank of America** United States
  - Bank of Montreal, which is now part of **BMO Financial** Canada
  - **Bank of New York** United States
  - Bank of Tokyo-Mitsubishi, which is part of **Mitsubishi Tokyo Financial** Japan
  - **Citigroup** United States
  - **Cooperative Bank** United Kingdom
  - **Deutsche Bank** Germany
  - Crédit Suisse First Boston, which is part of **Crédit Suisse** Switzerland
  - **HSBC Bank** United Kingdom
  - **ING Bank** The Netherlands
  - **IntesaBci** Italy
  - **J.P. Morgan Chase & Co.** United States
  - **Mizuho Bank** Japan
  - **Northern Trust** United States
  - **Rabobank** The Netherlands
  - **Société Générale** France
  - **SunTrust Bank** United States
  - **Union Planters Bank** United States

5.3 Bunge - United States

5.3.1 General description

Bunge is an American publicly-owned agricultural commodity trader and processor, which started in the Netherlands in the early 19th century. At the end of that century the company moved to Argentina, and only four years ago it moved its headquarters to the United States. In 2001, the company was listed on the New York Stock Exchange.
By moving to the United States and making an IPO, the company strongly increased the amount of capital it could use for investment purposes. In September 2002 this resulted in the acquisition of Cereol from the Italian Edison group, which gave Bunge for the first time a strong presence in Europe, largely expanded its North-American activities and made Bunge into the largest soybean trader and crusher in the world.
Headquartered in White Plains, New York, Bunge has over 18,000 employees and operations in 21 countries. In 2001, before the Cereol acquisition, Bunge realised net sales of US$ 11.5 billion. Cereol realised net sales of € 5.2 billion in the same year.[92]

5.3.2 Involvement in the South American soybean production chain

- Bunge is one of the most important soybean traders in Brazil. Since 1997 Bunge owns Ceval Alimentos, the largest soybean crusher in Brazil, as well as some other crushing companies. The combined market share of Bunge's crushing companies is 25% (see Table 20).

- Ceval Alimentos and another Bunge-subsidiary, Santista Alimentos, are the marketleaders for margarine, bottled oil and soy meal on the Brazilian market.[93]

- Bunge is one of the most important soybean traders in Argentina, owning one of the largest soybean crushers in Argentina with a 7% market share (see Table 26).

- Bunge has a 30% market share on the soybean crushing market of the European Union, owning crushing plants in Denmark, France, Germany, Italy, the Netherlands, and Spain. (see Table 42).

- Bunge is an important player on the European soy oil refining market, owning soy oil refineries in France, Germany, Italy, and Spain (see Table 48).

5.3.3 Financial stakeholders

The following information is found regarding the financial stakeholders of Bunge:

- **Loans**

  - In April 1994 Ceval Alimentos secured a US$ 50 million syndicated loan connected with its commercial paper programme. Banks participating in the lending syndicate were: [94]

    - **Bank of America** — United States
    - Citibank, which is now part of **Citigroup** — United States
    - **ING Bank** — The Netherlands

  - In December 1996, Bunge secured a one-year US$ 75 million syndicated loan, which was arranged by **UBS** (Switzerland). The loan matured in December 1997. Banks participating in the lending syndicate were: [95]

- **ABN AMRO Bank** The Netherlands
- Banque Nationale de Paris, which is now part of **BNP Paribas** France
- Chase Manhattan, which is now part of **J.P. Morgan Chase & Co.** United States
- Citibank, which is now part of **Citigroup** United States
- **Crédit Lyonnais** France
- **Crédit Suisse** Switzerland
- **Deutsche Bank** Germany
- **Rabobank** The Netherlands
- Swiss Banking Corporation, which is now part of **UBS** Switzerland
- **UBS** Switzerland

- In June 1997 Ceval Alimentos secured a US$ 100 million trade note facility. Banks participating in the lending syndicate were: [96]

  - **Bank of America** United States

- In July 1997, Eridania Béghin-Say (which was the food holding company of the Edison Group and included Cereol) secured a seven-year FF 3,000 million (US$ 514.8 million) syndicated revolving credit, arranged by Banque Nationale de Paris, which is now part of **BNP Paribas** (France). The credit will mature in July 2004. Banks participating in the lending syndicate were: [97]

  - Banca Commerciale Italiana, which is now part of **IntesaBci** Italy
  - Banque Nationale de Paris, which is now part of **BNP Paribas** France
  - Banque Paribas, which is now part of **BNP Paribas** France
  - Citibank, which is now part of **Citigroup** United States
  - **Crédit Agricole** France
  - Crédit Commercial de France, which is now part of **HSBC Bank** United Kingdom
  - **Société Générale** France

- In November 1997 Ceval Alimentos secured a US$ 126 million credit facility. Banks participating in the lending syndicate were: [98]

  - Citibank, which is now part of **Citigroup** United States

- In November 1997 Bunge secured a US$ 200 million syndicated loan, arranged by **Crédit Suisse** (Switzerland). Banks participating in the lending syndicate were: [99]

  - Chase Manhattan, which is now part of **J.P. Morgan Chase & Co.** United States
  - **Crédit Suisse** Switzerland

- In August 1998 Ceval Alimentos secured a US$ 500 million syndicated trade finance facility, which was arranged by **Crédit Suisse** (Switzerland). Banks participating in the lending syndicate were:[100]

  - Chase Manhattan, which is now part of **J.P. Morgan Chase & Co.** United States
  - Citibank, which is now part of **Citigroup** United States
  - **Commerzbank** Germany

- **Crédit Lyonnais** France
- **Crédit Suisse** Switzerland
- **Deutsche Bank** Germany
- Dresdner Bank, which is part of **Allianz** Germany
- **ING Bank** The Netherlands

- In February 1999 Ceval Alimentos secured a US$ 300 million syndicated trade finance facility, which was arranged by **UBS** (Switzerland).[101]

- In June 1999 Ceval Alimentos secured a US$ 150 million syndicated trade finance facility. Banks participating in the lending syndicate were: [102]

  - Chase Manhattan, which is now part of **J.P. Morgan Chase & Co.** United States
  - **Commerzbank** Germany
  - **Crédit Lyonnais** France
  - **Deutsche Bank** Germany
  - Dresdner Bank, which is now part of **Allianz** Germany
  - **ING Bank** The Netherlands
  - **Société Générale** France

- In August 1999 Bunge secured a one-year US$ 250 million revolving credit from an international banking syndicate arranged by Citibank, which is part of **Citigroup** (United States). The credit matured in August 2000.
  Banks participating in the lending syndicate were: [103]

  - Banque Nationale de Paris, which is now part of **BNP Paribas** France
  - Chase Manhattan, which is now part of **J.P. Morgan Chase & Co.** United States
  - Citibank, which is now part of **Citigroup** United States
  - **Crédit Lyonnais** France
  - **Crédit Suisse** Switzerland
  - **Deutsche Bank** Germany
  - Dresdner Bank, which is now part of **Allianz** Germany
  - **Rabobank** The Netherlands
  - **Société Générale** France
  - **UBS** Switzerland

- In April 2000 Bunge secured a two-year US$ 150 million loan from an international banking syndicate arranged by Citibank, which is part of **Citigroup** (United States) and Chase Manhattan, which is now part of **J.P. Morgan Chase & Co.** (United States). The loan matured in April 2002.
  Banks participating in the lending syndicate were: [104]

  - Chase Manhattan, which is now part of **J.P. Morgan Chase & Co.** United States
  - Citibank, which is now part of **Citigroup** United States
  - **Deutsche Bank** Germany

- In February 2001 Eridania Béghin-Say, which was the holding company of the food interests of the Edison Group and included Cereol, secured a € 400 million (US$ 362.1 million) revolving credit facility from a banking syndicate arranged by **Deutsche Bank** (Germany) and Banca Commerciale Italiana, which is now part of **IntesaBci** (Italy). The facility was split in a one-year € 150 million (US$ 135.8 million) tranche which matured in February 2002 and a five-year € 250 million (US$ 226.3 million) tranche which will mature in February 2006.
  Banks participating in the lending syndicate were: [105]

  - Banca Commerciale Italiana which is now part of **IntesaBci** — Italy — € 47.5 million
  - Banca di Roma, which is now part of **Capitalia** — Italy — € 40.0 million
  - **Banco Santander Central Hispano** — Spain — € 30.0 million
  - **Banco Bilbao Vizcaya Argentaria** — Spain — € 15.0 million
  - Bank Brussels Lambert, which is now part of **ING Bank** — The Netherlands — € 40.0 million
  - **Bank One** — United States — € 15.0 million
  - **Barclays Bank** — United Kingdom — € 30.0 million
  - **Deutsche Bank** — Germany — € 47.5 million
  - **Dexia** — France/Belgium — € 40.0 million
  - **Rabobank** — The Netherlands — € 40.0 million
  - Raiffeisen Zentralbank Österreich, which is part of **Raiffeisen Bankengruppe** — Austria — € 15.0 million
  - **Sanpaolo IMI** — Italy — € 25.0 million
  - **UniCredito Italiano** — Italy — € 15.0 million

- In June 2001 Eridania Béghin-Say, which was the holding company of the food interests of the Edison Group and included Cereol, secured a € 1,000 million (US$ 861.2 million) credit facility from a banking syndicate arranged by **BNP Paribas** (France), **Société Générale** (France), **Mediobanca** (Italy) and **UniCredito Italiano** (Italy). The facility matured in September 2001.
  Banks participating in the lending syndicate were: [106]

  - **BNP Paribas** — France
  - **Mediobanca** — Italy
  - **Société Générale** — France
  - **UniCredito Italiano** — Italy

- In July 2001 Bunge secured a one-year US$ 750 million revolving credit facility from an international banking syndicate arranged by **Citigroup** (United States), **J.P. Morgan Chase & Co.** (United States), **Crédit Lyonnais** (France) and **Deutsche Bank** (Germany). The facility matured in July 2002.
  Banks participating in the lending syndicate were: [107]

  - **ABN AMRO Bank** — The Netherlands
  - **Banco Bilbao Vizcaya Argentaria** — Spain
  - **Bank of New York** — United States
  - Bank of Nova Scotia, which is now **Scotiabank** — Canada
  - **BNP Paribas** — France
  - **Citigroup** — United States
  - **Crédit Lyonnais** — France
  - Crédit Suisse First Boston, which is part of **Crédit Suisse** — Switzerland
  - **Deutsche Bank** — Germany

- Dresdner Bank, which is now part of **Allianz** — Germany
- Fleet National bank, which is now part of **FleetBoston Financial** — United States
- **Fortis Bank** — Belgium/The Netherlands
- **HypoVereinsbank** — Germany
- ING Barings, which is part of **ING Bank** — The Netherlands
- **J.P. Morgan Chase & Co.** — United States
- **KBC Bank** — Belgium
- **Natexis Banques Populaires** — France
- **Rabobank** — The Netherlands
- Raiffeisen Zentralbank Österreich, which is part of **Raiffeisen Bankengruppe** — Austria
- **Société Générale** — France
- **Westdeutsche Landesbank (WestLb)** — Germany

- In September 2001 Cereol secured a three-year € 800 million (US$ 687.3 million) revolving credit facility from an international banking syndicate arranged by **BNP Paribas** (France), **Société Générale** (France), **Mediobanca** (Italy) and **UniCredito Italiano** (Italy). The facility matures in June 2004 and is intended to refinance Cereol's debt at the de-merger of Eridania Béghin-Say.
  Banks participating in the lending syndicate were: [108]

  - Banca di Roma, which is now part of **Capitalia** — Italy
  - **Banca Nazionale del Lavoro** — Italy
  - **Banco Español de Credito (Banesto)** — Spain
  - Banque CCF, which is now part of **HSBC Bank** — United Kingdom
  - **BNP Paribas** — France
  - Centrobanca, which is now part of **Banca Popolare di Bergamo-Credito Varesino** — Italy
  - **Crédit Agricole** — France
  - **Crédit Lyonnais** — France
  - **Deutsche Bank** — Germany
  - Industrial Bank of Japan, which is now part of **Mizuho Bank** — Japan
  - **ING Bank** — The Netherlands
  - Interbanca, which is part of **Banca Antonveneta** — Italy
  - **IntesaBci** — Italy
  - **Mediobanca** — Italy
  - **Natexis Banques Populaires** — France
  - **Rabobank** — The Netherlands
  - **Royal Bank of Scotland** — United Kingdom
  - **Sanpaolo IMI** — Italy
  - Sanwa Bank, which is now part of **UFJ Bank** — Japan
  - **Société Générale** — France
  - **UniCredito Italiano** — Italy
  - **Westdeutsche Landesbank (WestLb)** — Germany

- In February 2002 Bunge Asset Funding secured a one-year US$ 180 million revolving credit facility from an international banking syndicate arranged by **Citigroup** (United States) and **J.P. Morgan Chase & Co.** (United States). The facility will mature in February 2003.
  Banks participating in the lending syndicate were: [109]

  - **Banco Bilbao Vizcaya Argentaria** — Spain

- **BNP Paribas** France
- **Citigroup** United States
- Crédit Suisse First Boston, which is part of **Crédit Suisse** Switzerland
- **Deutsche Bank** Germany
- **Fortis Bank** Belgium/The Netherlands
- **ING Bank** The Netherlands
- **J.P. Morgan Chase & Co.** United States
- **Société Générale** France
- **Westdeutsche Landesbank (WestLb)** Germany

- In March 2002 Bunge secured a three-year US$ 420 million revolving credit facility from an international banking syndicate arranged by **J.P. Morgan Chase & Co.** (United States), **Crédit Lyonnais** (France) and **Rabobank** (The Netherlands). The facility will mature in March 2005.
  Banks participating in the lending syndicate were: [110]

  - **ABN AMRO Bank** The Netherlands US$ 10 million
  - **BNP Paribas** France US$ 40 million
  - **Citigroup** United States US$ 40 million
  - **Crédit Lyonnais** France US$ 60 million
  - Crédit Suisse First Boston, which is part of **Crédit Suisse** Switzerland US$ 40 million
  - **Deutsche Bank** Germany US$ 15 million
  - Dresdner Bank, which is now part of **Allianz** Germany US$ 20 million
  - **Fortis Bank** Belgium/The Netherlands US$ 10 million
  - **ING Bank** The Netherlands US$ 30 million
  - **J.P. Morgan Chase & Co.** United States US$ 60 million
  - **Rabobank** The Netherlands US$ 60 million
  - **Westdeutsche Landesbank (WestLb)** Germany US$ 35 million

- In July 2002 Bunge secured a US$ 600 million revolving credit facility from an international banking syndicate arranged by **J.P. Morgan Chase & Co.** (United States), **Crédit Lyonnais** (France), **Citigroup** (United States) and **BNP Paribas** (France). The facility is split into a one-year US$ 360 million tranche, which will mature in July 2003, and a three-year US$ 240 million tranche, which will mature in July 2005. Banks participating in the lending syndicate were: [111]

  - **ABN AMRO Bank** The Netherlands
  - **Banco Bilbao Vizcaya Argentaria** Spain
  - Bank of Nova Scotia, which is now **Scotiabank** Canada
  - **BNP Paribas** France
  - **Citigroup** United States
  - **Crédit Lyonnais** France
  - Dresdner Bank, which is now part of **Allianz** Germany
  - **Fortis Bank** Belgium/The Netherlands
  - **HSBC Bank** United Kingdom
  - **ING Bank** The Netherlands
  - **J.P. Morgan Chase & Co.** United States
  - **KBC Bank** Belgium
  - **Natexis Banques Populaires** France
  - **Rabobank** The Netherlands
  - **Société Générale** France

- **Standard Chartered Bank** United Kingdom
- **Westdeutsche Landesbank (WestLb)** Germany

- **Bonds**

  - In June 1992 Ceval Alimentos issued a US$ 80 million Eurobond. The banking syndicate managing the issuance included: [112]

    - Citibank, which is part of **Citigroup** United States

  - In March 1996 Ceval Alimentos issued US$ 150 million of notes. The banking syndicate managing the issuance included: [113]

    - Citibank, which is part of **Citigroup** United States

  - In February 1997 Ceval Alimentos issued a US$ 100 million Eurobond. The banking syndicate managing the issuance included: [114]

    - Chase Manhattan, which is now part of **J.P. Morgan Chase & Co.** United States
    - Citibank, which is part of **Citigroup** United States
    - **Deutsche Bank** Germany

5.4 Cargill - United States

5.4.1 General description

The privately-owned American company Cargill is the largest commodity trader in the world. Cargill is an international marketer, processor and distributor of agricultural, food, financial and industrial products and services. Cargill is headquartered in Minneapolis, Minnesota, and employs more than 90,000 people in 57 countries. In the fiscal year 2001/2002, Cargill realised net sales of US$ 50.8 billion.[115]

5.4.2 Involvement in the South American soybean production chain

- Cargill is one of the most important soybean traders in Brazil, owning two of the most important crushing companies in Brazil with a combined market share of 6% (see Table 20).

- Cargill is one of the most important soybean traders in Argentina, owning one of the largest soybean crushers in Argentina with a market share of 5% (see Table 26).

- Cargill has a 30% market share on the soybean crushing market of the European Union, owning crushing plants in Belgium, France, Italy, the Netherlands, Spain and the United Kingdom (see Table 42).

- Cargill is an important player on the European soy oil refining market, owning soy oil refineries in Belgium, France, Germany, Italy, the Netherlands, Spain and the United Kingdom (see Table 48).

5.4.3 Financial stakeholders

The following information is found regarding the financial stakeholders of Cargill:

- **Loans**

  - In May 2000 Cargill Financial Services secured a five-year US$ 152.1 million loan from an international banking syndicate arranged by **FleetBoston Financial** (United States). The loan will mature in May 2005.
    Banks participating in the syndicate were: [116]

    - Baden-Württembergischen Bank, which is part of **Landesbank Baden-Württemberg** — Germany
    - **FleetBoston Financial** — United States
    - **HypoVereinsbank** — Germany
    - **Landesbank Schleswig-Holstein** — Germany

  - In May 2001 Cargill secured a five-year US$ 30 million lease facility from an international banking syndicate arranged by **Bank of America** (United States) and **Commerzbank** (Germany). The lease facility will mature in May 2006.
    Banks participating in the syndicate were: [117]

    - **Bank of America** — United States
    - **Commerzbank** — Germany

5.5 Louis Dreyfus - France

5.5.1 General description

The French privately-owned company Louis Dreyfus is one of the largest commodity traders in the world. Principal activities of the Louis Dreyfus Group consist of worldwide processing, trading and merchandising of various agricultural and energy commodities. Louis Dreyfus is also significantly involved in the ownership and management of ocean vessels; in forestry management and particleboard manufacturing; in the development and operation of telecommunications infrastructures; and in real estate development, management and ownership. Louis Dreyfus companies are present in over 53 countries, with major offices in Buenos Aires, London, Paris, São Paulo, Wilton (Connecticut) and Memphis (Tennessee). Aggregate average annual gross sales in recent years have exceeded US$ 20 billion.[118]

5.5.2 Involvement in the South American soybean production chain

- Louis Dreyfus is an important international trader of Brazilian soybeans and soybean products, owning two of the most important crushing companies in Brazil with a combined market share of 7% (see Table 20).

- Louis Dreyfus is one of the most important soybean traders in Argentina, owning the largest soybean crusher in Argentina with a 14% market share (see Table 26).

5.5.3 Financial stakeholders

The following information is found regarding the financial stakeholders of Louis Dreyfus:

- **Loans**

  - In June 1997 Louis Dreyfus secured a one-year US$ 175 million credit facility from an international banking syndicate, arranged by **ABN AMRO Bank** (the Netherlands). The loan matured in June 1998. Banks participating in the lending syndicate were: [119]

    - **ABN AMRO Bank** — The Netherlands
    - Bank of Montreal, which is now part of **BMO Financial** — Canada
    - Barclays de Zoete Wedd, which is now **Barclays Bank** — United Kingdom
    - Dresdner Bank, which is now part of **Allianz** — Germany

  - In February 2001 Louis Dreyfus secured a US$ 140 million credit facility from an international banking syndicate, arranged by **Crédit Agricole** (France) and **Standard Chartered Bank** (United Kingdom). The facility is split into a one-year US$ 42 million tranche, which matured in February 2002, and a two-year US$ 98 million tranche, which will mature in February 2003. Banks participating in the lending syndicate were:[120]

    - **Arab Banking Corporation** — Bahrain — US$ 15 million
    - **CoBank** — United States — US$ 10 million
    - **Crédit Agricole** — France — US$ 40 million
    - Debis Financial Services, which is part of **DaimlerChrysler Services** — Germany — US$ 15 million
    - **Landesbank Rheinland-Pfalz** — Germany — US$ 10 million
    - **National Australia Bank** — Australia — US$ 10 million
    - **Standard Chartered Bank** — United Kingdom — US$ 40 million

- In November 2001 Louis Dreyfus secured a one-year US$ 130 million credit facility from an international banking syndicate, arranged by **Barclays Bank** (United Kingdom). The facility matured in November 2002. banks participating in the lending syndicate were: [121]

  - **Barclays Bank** — United Kingdom
  - **Comerica Bank** — United States
  - Fleet Bank, now part of **FleetBoston Financial** — United States
  - **HypoVereinsbank** — Germany
  - **Natexis Banques Populaires** — France
  - Raiffeisen Zentralbank Österreich, which is part of **Raiffeisen Bankengruppe** — Austria
  - **Royal Bank of Scotland** — United Kingdom

Annex 1 Index of companies

Canada

Denmark

United States

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