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An overview of the *Brazil-China* soybean trade and its strategic implications for conservation

The Nature Conservancy
Latin America Region

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Foreword

This publication, also available in Portuguese, examines the export trade in soybeans between Brazil and China, giving an overview of how it has evolved, projecting out likely developments over the next decade, and drawing out the implications for conservation. We hope it will be of interest to a range of people and organizations: policymakers and regulators, trade associations and farmers, environmental and campaign groups, private sector companies – in short, anybody with an interest, direct or indirect, in this important topic.

The soy trade, contrary to popular belief, has never been a significant driver of deforestation in the Amazon, and its environmental impacts there have been successfully contained since 2006 and the implementation of the Amazon soy moratorium, a model of collaboration between the private sector and environmental groups. The moratorium shows that it is possible for producers, companies, banks and environmental groups to identify and resolve a problem of mutual concern through effective monitoring and agreements uniting the major players across the market.

Yet the past is not always a reliable guide to the future. This report also shows that demand from China for Brazilian soybeans has expanded, is expanding, and will expand. Much of that demand has been and will be met from the state of Mato Grosso, an agricultural powerhouse that also contains large areas of intact and highly biodiverse forests and grasslands. It is important to ensure, in containing the environmental impacts of soy in the Amazon, that pressure for habitat conversion is not simply displaced to the Cerrado. It is encouraging to see that under all the scenarios projected in this report, expansion in demand from China for soy in Mato Grosso over the next decade can easily be met through converting pasture to cropland.

The Brazil-China soy trade is an example of the sort of problem environmental organizations will face more and more often in a globalizing, multi-polar world – a destination market that, at least at present, is unconcerned about environmental footprints and indifferent to certification. Given the importance of commodity markets as drivers of deforestation, it is imperative to come up with strategies for greening the way they work in situations where the standard environmental strategies for markets – certification and price premiums to producers – will not work. We hope the ideas presented in the final section will be useful not just to those concerned with soybeans, but with all the other commodities – beef, sugar and ethanol, cotton, corn – currently transforming landscapes and livelihoods across the tropical world.

We recognize and are grateful for the support from the United States Agency of International Development that made the production of this report possible.

David Cleary
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The Nature Conservancy

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EXECUTIVE SUMMARY

This report is divided into three sections. The first section provides an overview of the soybean trade between Brazil and China over the past decade, including a summary of the global soybean export market, the trends of the Brazil-China trade relationship, and the volume and value of the soybean trade between the two countries. The second section seeks to project out the Brazil-China soybean trade over the next decade under three scenarios: business as usual, business better than projected and business worse than projected, and then considers the implications for demand for land, with a particular focus on the state of Mato Grosso. The third section examines the strategic implications for conservation, and an appendix lists the main soybean exporters to China from Brazil, together with information on importers in China.

Over the decade to 2010 China has displaced the European Union as the main destination of Brazilian soybean exports, its market share rising from 15% in 2000 to 53% in 2009. This will almost certainly rise to between 70% and 90% of soybean exports by 2020. This will involve an increase of around 5 million hectares in land planted to soy, at least half of which is likely to come from the state of Mato Grosso. However, given that the state currently has around 22 million hectares of land in pasture, all of that demand could be met by the conversion of a relatively modest percentage of its pasture to soybeans.

Chinese demand for soybeans underpins a commodity market where neither certification nor price premiums to producers are promising approaches to minimizing habitat conversion. Other strategies are necessary to green commodity markets of this type, which will increase the scale of their impact as the world's agricultural economy globalizes and hundreds of millions of people enter the middle classes and shift their consumption patterns and diet. These approaches include:

- risk management in multinationals, where deforestation is a reputational issue irrespective of attitudes in domestic markets
- non-price premium incentives to producers (subsidized credit, access to extension services, etc.)
- improving regulatory frameworks through cheap, large-scale land-use monitoring
- intensifying production systems on land already cleared
- framing environmental issues in terms of food security
- mapping land available for agricultural expansion at minimal biodiversity cost, rather than redlining high conservation value areas

PART 1
AN OVERVIEW OF THE BRAZIL-CHINA SOYBEAN TRADE

The Global Soybean Market

Over the past 60 years, global soybean production has risen to an all time high, climbing from 17 million tons in 1950 to an estimated 250 million tons for the 2009/2010 crop year, a 14 fold increase. To understand the magnitude of this increase, global grain production has only quadrupled over the same period. Soybeans are a top commodity and 80 million tons were exported globally in 2009 [1]. They are traded in three forms: the whole soybean and its two derivative products, soybean oil and soybean meal. Soybean oil and soybean meal are the result of pressing and separating soybeans, a process known as crushing. Soybean crushing always results in the production of both soybean meal and soybean oil, about 78.5% soy meal and about 19% oil, with the remaining 2.5% lost in processing. Thus the total supply of each of these derivatives will always remain constant relative to the other. Approximately 85% of the global soybean crop is crushed to produce meal and oil. Unlike other commodities, the derivatives of soybeans are also traded on futures markets. Price and demand for whole soybeans and its two derivatives are usually strongly correlated, as buyers increase the purchase of whole soybeans in order to meet the demand for more of one of the derivatives [2].

Soybean meal is generally used to make animal feed and is currently the largest source of protein feed in the world. As a result, most of the world's soybean harvest is consumed indirectly by humans through products such as dairy, eggs, meat (chicken, pork, and beef), and farmed fish. Two percent of the meal is further processed into soy flours and proteins used in food. Soybeans are also consumed directly in the form of tofu, meat substitutes, soy sauce and other soy products. The oil is primarily used as table oil, although the proportion used for biodiesel production is growing rapidly, as it is an efficient source of energy. For every unit of energy consumed in the production of biodiesel, 3.4 units of energy are produced. The comparable efficiency factor for ethanol is about 1.6 and only .88 for petroleum [3]. Other non-food uses of soy are increasingly common, including paint, ink, wax, and soy-based foam and plastic products.

Main players: producers, exporters, and importers

While the soybean originated in eastern China, the US surpassed China and became the world's leading producer following World War II. By 1970 the US was producing three fourths of the world's soybeans and was the sole exporter. However, in 1975 Brazil exceeded China's production to become the world's second largest producer and a top soybean exporter. Today Brazil is still one of the world's top soybean exporters and continues to be the second largest producer following the US. Argentina has also emerged as the third exporter and producer, nearly doubling its output during the past decade (Figure 1). Paraguay has increased its production and exports significantly in recent years putting it on the map as the world's fourth largest soybean exporter (Figure 2). Together, the US, Brazil, and Argentina produce approximately four fifths of the world's soybean crop and account for 90 percent of global soybean exports.

The top destinations of these exports are demonstrated in Table 1. While Japan and the European Union (EU) were once the top importers of soybeans, China's rising demand for soybeans has brought it to the top of the list of importers, importing over three times the amount of the EU and 12 times that of Japan and Mexico (Figure 3).

Soybean Production

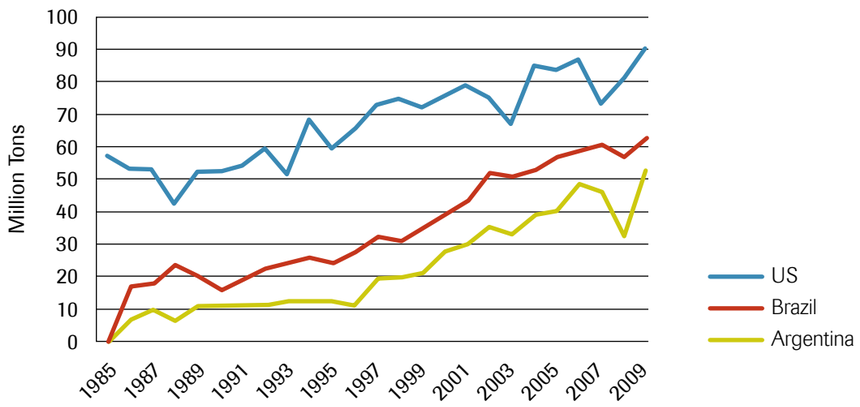


Figure 1: Soybean production volume of the top three soybean producers over a 25 year period
Source: USDA-FAS

Table 1: Top soybean importers 2008/09 market year

Source: USDA-FAS

Country	Million Tons	% of Global Soy Imports
China	41.1	53%
European Union	13.2	17%
Japan	3.4	4%
Mexico	3.3	4%

Top Global Soybean Exporters

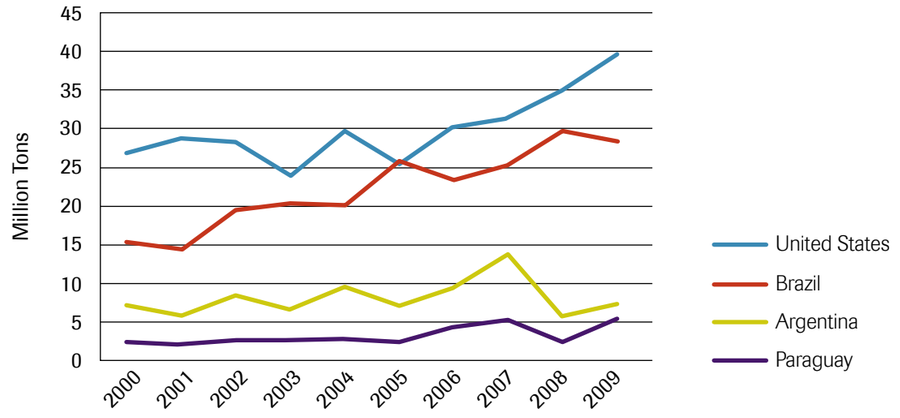


Figure 2: Soybean export volume of the top global soybean exporters over the past decade
Source: USDA FAS

Top Global Soybean Importers

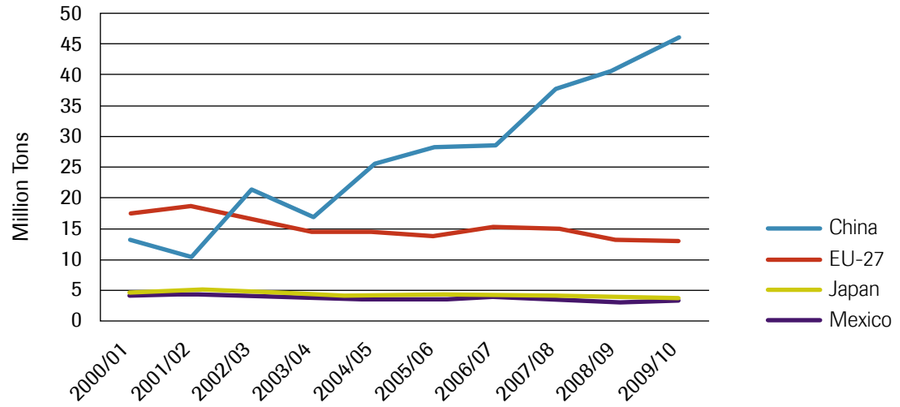


Figure 3: Soybean import volume of the top global soybean importers over the past decade
Source: USDA-FAS

The Brazil-China Soybean Trade
Background

Brazil and China have been maintaining informal trade since 1949. There was a boom in bilateral trade in the 1990s and in early 2000, as Brazil and China formalized an agreement in which China would be supported for a membership position at WTO in exchange for its reduction of some existing tariffs on imports from Brazil [4]. The adoption of a free-floating trade regime by Brazil also promoted an increase in trade.

Over the past decade, bilateral trade between Brazil and China has continued to grow considerably (Figure 4). In 2009, China was the destination of US$20.2 billion of Brazilian exports, most of this in the form of non-processed agricultural and mineral products. In 2009, China surpassed the US to become Brazil's largest trading partner. This was a historic change, as the US had been Brazil's top trade partner since the 1930s. Although likely to prove temporary, given the US economy's exceptional weakness that year, it is an indication of the great importance the Chinese market now has for Brazilian commodity exporters.

Overall Brazilian Exports to China v.
Brazilian Soybean Exports to China

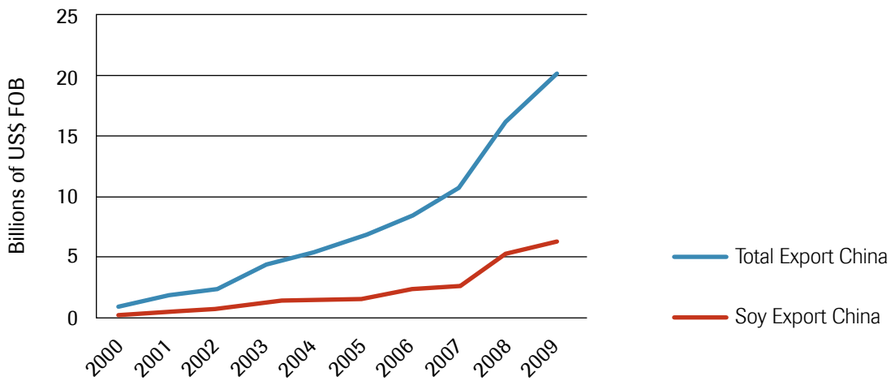


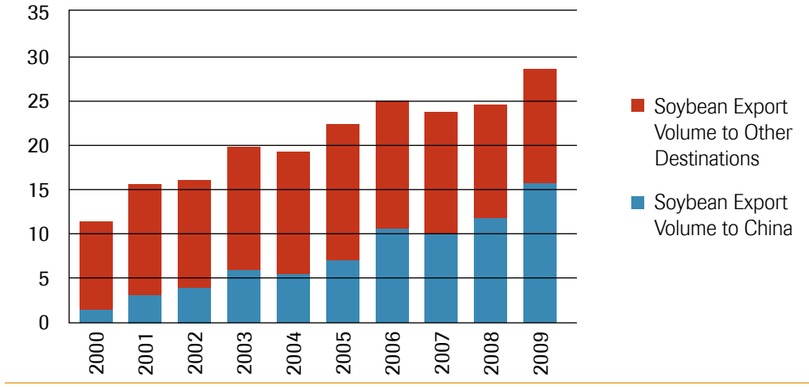
Figure 4: Brazil's total export value to China vs. Brazil's soybean export value to China during the past decade
Source: SECEX

For decades, the main global bilateral trade link has been between the United States, the leading exporter of grain, soybeans and meat, and Japan, the top importer. However, China's growing population and reduction of croplands combined with Brazil's rapidly expanding agricultural production, especially soy, has created a new food trade link that will soon surpass that between the US and Japan.

The Brazil-China soybean trade: evolution and characteristics

China began looking overseas for external food sources in the mid-1990s, when it became clear that the country's production capacity for food, especially meat products, was insufficient to meet its rising demand. When evaluating which commodity to import, soybeans make more economic sense in a country with a significant shortage of agricultural land, since corn has a greater yield per hectare [5]. By 2009, China imported 41 million tons of soybeans, mostly from the US, Brazil and Argentina. In 2009, soy represented 31% of the total Brazilian exports to China (Figure 4). From 2000 through 2009, Brazil's overall soybean exports rose from US$2.2 billion to $11.4 billion. While this five-fold increase in total soybean export value is impressive, China's import of Brazilian soybeans by volume has increased nine times over between 2000 and 2010. In 2000, China was the destination of 16% (1.8 million tons) of Brazil's total soybean export. By 2009, China was importing 56% (15.9 million tons) of Brazil's total soybean exports (see figures 5 and 6) [6]. To understand the soy trade relationship between Brazil and China, it is necessary to understand the evolution of Brazil's soy production and export capacity, as well as the evolution of China's soy demand.

Brazilian Soybean Export Volume
in Millions of Metric Tons



Brazilian Soybean Exports Values
in Billions of US$FOB

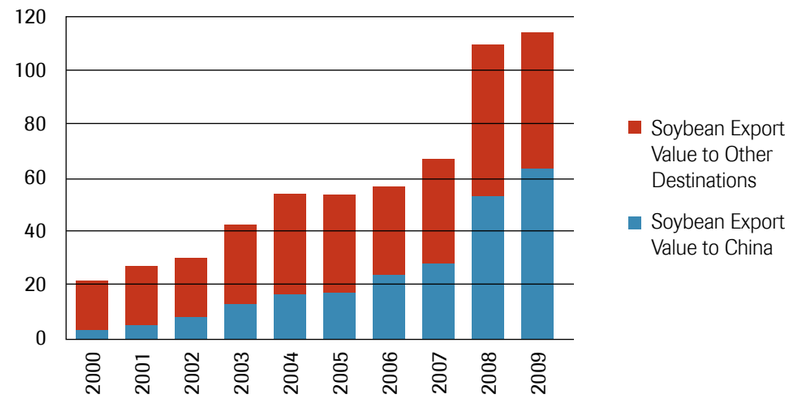


Figure 5 and 6: Brazil's total soybean export volume (5) and value (6) over the past decade compared to its export value to China during the same time frame
Source: SECEX

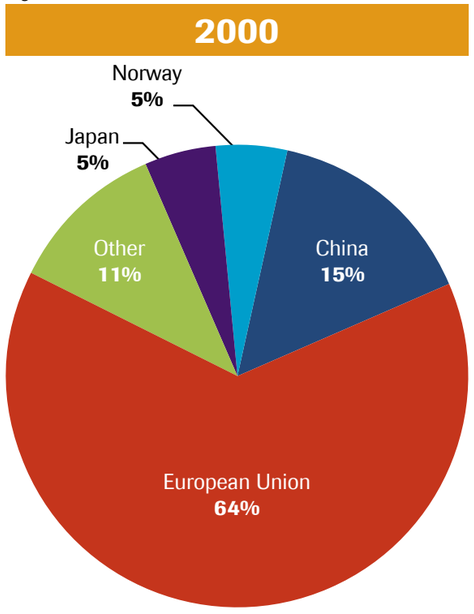
Brazilian soybean production and exports

Brazil's soybean production has expanded rapidly over the past four decades. In 1969 Brazil produced only 1 million tons of soybeans. However by 1975, Brazil produced 11.6 million tons and surpassed China to become the world's second largest soy producer. By 1989 production rose to 20 million tons and in 2009 it reached 63 million tons. Every year soybeans play a larger role in Brazilian exports and is currently the most important commodity in Brazilian agribusiness. It is one of Brazil's main sources of foreign currency, representing about 10% of the country's total exports. The industry presently has over 243,000 producers and generates approximately 1.4 million jobs, promoting the movement of wealth beyond the country's major cities and into the interior [7]. In the 2009 export market, Brazil was the world's second largest exporter of whole soybeans (behind only the US) and of soy meal and soy oil (behind only Argentina).

Various factors contributed to Brazil's rapid advance between 1969 and 1975. The Brazilian government offered significant subsidies and price supports to soybean farmers in order to boost export crops to generate currency to pay for imports such as petroleum. Additionally, Japan provided technical assistance to increase soybean production on marginal frontier land. Further incentive was given by the US soybean export embargo in 1973, which artificially raised world soybean prices until it became profitable for even the most inefficient producer to grow soybeans [8].

Between 2000 and 2010, Brazil's soybean production continued to grow at an annual average of 8% [7]. During this period, increased production has been underpinned by growing demand from China, as well as new soybean varieties that allowed for production to expand into additional areas of the Cerrado and the Amazon. Until the 1980s Brazilian soybean production was concentrated in the traditional farming regions in the south of the country including the states of Rio Grande do Sul, Santa Catarina, Paraná, and São Paulo. This trend resulted from the lack of soybean varieties adapted to dryer and hotter climates and associated soil types. Thanks to Brazil's high investments in developing new soybean varieties, as well as different planting techniques, production expanded into the Cerrado and Amazon basin regions from 1997. This can be seen in Table 2, 3 and 4 which demonstrates the georaphical shift in soybean production states in Brazil.

Figure 7



In 2000, for example, the states of Rio Grande do Sul and Paraná were the top exporters of soy to China. However, by 2009, Mato Grosso was the top producer and exporter of Brazilian soy to China, responsible for 5.5 million tons or 35% of China-bound soy exported that year.

In addition to an expansion in where Brazil's soybeans are produced, there has been a shift in where the majority of Brazil's soybeans are going. Figure 7 and 8 details how China has displaced the European Union as the main importer of Brazilian soy. In 2000, the EU was the principal consumer of Brazil's soy, importing nearly 64% of the country's exports. However, by the end of the decade, the EU's share of soy imports from Brazil deceased to 30% and China's had increased to 56%. This does not represent a decrease in the quantity of soybeans that the EU imported from Brazil, as the EU's soybean imports from Brazil nearly tripled during this decade. China's demand has simply dwarfed that of the EU.

The US cannot bring much new land into agricultural production. This, combined with competition for existing land with other crops such as corn, will likely limit soybean expansion. Brazil faces no such constraints, and will likely out-produce the US in the not too distant future. Brazilian Ministry of Agriculture (http://www.agricultura.gov.br) projections predict an expansion of soy plantations from 21.5 million hectares to 26.5 million hectares by the crop year 2018/2019. These projections indicate an annual increase of 2.43% in production during period, and only a 1.95% annual increase in planted area, primarily in the Cerrado and Amazon. The difference is accounted for by higher yields on land currently planted, and in areas where there is no new land to come into production, the replacement of other crops with soybeans [9]. Further projections are discussed in Part 2 of this report.

Brazil has felt substantial international pressure from conservation NGOs, the media and European buyers who are concerned about deforestation in the Amazon and the responsible sourcing of soy. However, with the shift to China as the leading importer of Brazilian soy (as shown in figures 7 and 8), these environmentally-conscious voices are overpowered by China's demand for soybeans. Chinese consumers have not demonstrated the same concern over deforestation as Brazil's European buyers.

Figure 8

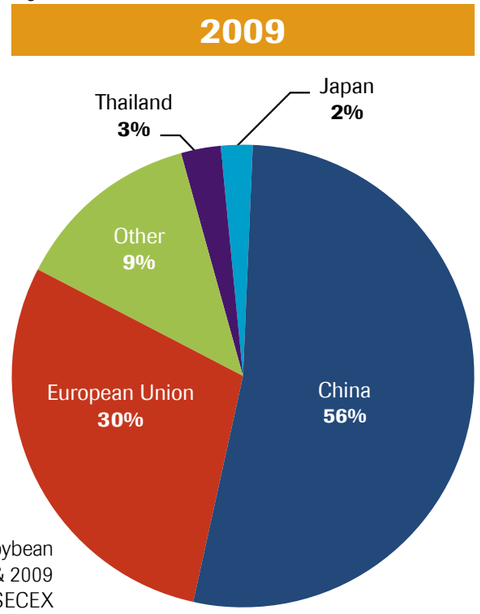


Figure 7 and 8: Brazilian Soybean Destinations 2000 & 2009
Source: SECEX

Table 2, 3 and 4 Origin of Brazilian Soy Exported to China by State

Source: SECEX

2	2009			
	State	US$ FOB	Quantity (metric tons)	% of Total Exported to China
1	Mato Grosso	2,162,464,301	5,495,322	34.5%
2	Rio Grande Do Sul	1,512,174,511	3,809,900	23.9%
3	Parana	1,011,052,535	2,511,734	15.8%
4	Goias	583,001,037	1,432,554	9.0%
5	Mato Grosso Do Sul	219,010,417	545,586	3.4%
6	Minas Gerais	200,853,841	486,526	3.1%
7	Sao Paulo	186,186,347	498,583	3.1%
8	Bahia	150,652,843	358,247	2.2%
9	Maranhao	141,467,439	348,642	2.2%
10	Tocantins	91,931,412	237,922	1.5%
11	Santa Catarina	52,891,275	142,499	0.9%
12	Piaui	21,034,086	49,096	0.3%
13	Distrito Federal	5,126,119	11,736	0.1%
14	Para	4,199,177	9,647	0.1%
	Consumo De Bordo	919,580	1,976	
	2009 Total Export to China	**6,342,964,920**	**15,939,970**	

3	2004			
	State	US$FOB	Quantity (metric tons)	% of Total Exported to China
1	Parana	725,208,121	2,584,140	45.5%
2	Rio Grande Do Sul	343,983,742	1,212,114	21.3%
3	Mato Grosso	261,605,341	893,445	15.7%
4	Sao Paulo	146,150,003	483,424	8.5%
5	Goias	47,577,951	163,664	2.9%
6	Mato Grosso Do Sul	32,602,820	110,045	1.9%
7	Maranhao	20,549,512	70,613	1.2%
	Consumo De Bordo	19,765,875	78,798	1.4%
8	Tocantins	13,912,400	46,000	0.8%
9	Minas Gerais	8,003,427	25,266	0.4%
10	Santa Catarina	2,376,530	10,500	0.2%
	2004 Total Export to China	**1,621,735,722**	**5,678,009**	

4	2000			
	State	US$FOB	Quantity (metric tons)	% of Total Exported to China
1	Rio Grande Do Sul	155,374,794	820,125	46.0%
2	Parana	84,872,776	450,132	25.2%
3	Mato Grosso	39,639,752	203,395	11.4%
4	Maranhao	17,931,688	100,013	5.6%
	Consumo De Bordo	15,374,832	82,918	4.6%
5	Goias	12,408,682	66,759	3.7%
6	Sao Paulo	6,902,334	35,409	2.0%
7	Minas Gerais	4,845,463	24,880	1.4%
	2000 Total Export to China	**337,350,321**	**1,783,631**	

Chinese soy consumption and imports

In 2000, China's soybean consumption was 26.7 million tons. By 2009, China was consuming 55 million tons of soybeans, of which 41 million tons were imported, accounting for 75 percent of its consumption (Figure 9). While China was once the top exporter of soybeans, increased demand for soy combined with decreased production forced China to switch over to become a net importer in 1995 and by the year 2000 China had become the main global soy consumer and importer. In 2009, China imported over 50% of the soy exported globally. There is no end in sight to this trend. According to the hedge fund Passport Capital, China would need to cultivate an additional area the size of Nebraska in order to meet its current soy demands. This scenario is unlikely considering that China's arable lands and water supply in the main soybean production zone are rapidly diminishing.

China Soybean
Import vs. Consumption

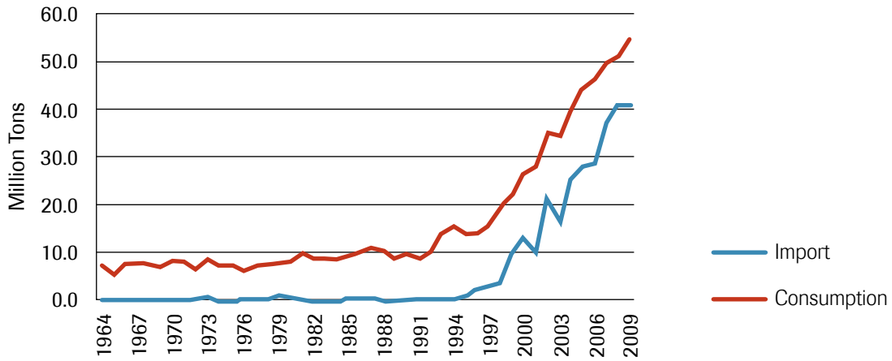
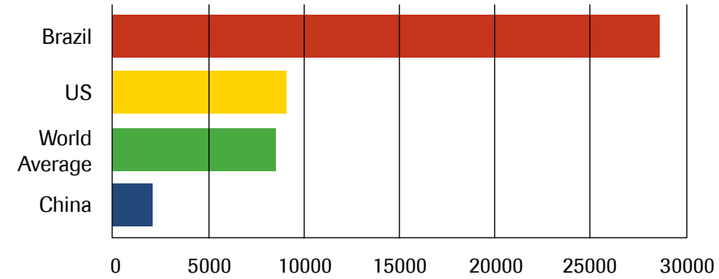


Figure 9: China's growing soybean consumption and import demands over the past 35 years

In northern China, where soybeans have traditionally been grown, water tables are dropping at a rate of 3 to 10 feet a year [10]. As a result of diminishing water in the north and west of the country, deserts are expanding at a rate of 360,000 hectares (1,400 square miles) a year and drifting sands are covering cropland, making agriculture impossible [11]. Considering that it takes 1,500 tons of water to produce 1 ton of soybeans, the water shortage is a highly limiting factor for soybean expansion. By importing soybeans, China is effectively importing 14% of its water needs [12]. Figure 10 shows an interesting comparison between the water supplies of China and the two main countries from which it imports soybeans, Brazil and the US.

Available Water Supplies
In m³/person/year



Source: Potash Corp, FAQ **www.agorafinancial.com**

Figure 10: Demonstrates the difference in available water supplies between China, Brazil and the US

Beyond the land lost to desertification, additional cropland is being converted to nonfarm uses such as industrial and residential construction, as well as roads and parking lots to accommodate the increasing number of cars circulating in the country. To further exacerbate the situation, many farmers are choosing to plant higher value fruits and vegetables that gain higher returns in the export market, rather than planting soybeans.

China's increasing dependence on imported soy is not only a result of its reduced capacity to produce soybeans, but also its increasing demand. China is the most populous country in the world, supporting over 1.3 billion people or 20% of the world's population. With its industrialization, its immense population is climbing up the economic ladder and increasingly has the purchasing power to include more soy oil and other soy products in their diet, as well as additional dairy, eggs, and meat. An increased demand for meat and a developing livestock industry has increased demand for soy meal for animal feed, particularly chicken and pork. China has become the world's largest pork producer and consumer. In addition to increased short-term demand for soy, China has also been stockpiling grains and soybeans for food security reasons, pushing up imports even further.

China's experience is not new to industrializing nations. China is following a similar trajectory to Japan, South Korea, and Taiwan in previous decades. As these densely populated countries industrialized, there was a simultaneous rise in grain consumption and production. However, planted area gradually declined as farmland was converted to non-farm uses, higher value crops displaced grains and the rural labor supply declined with urban migration. All these countries became dependent on external sources of grain as a result [11].

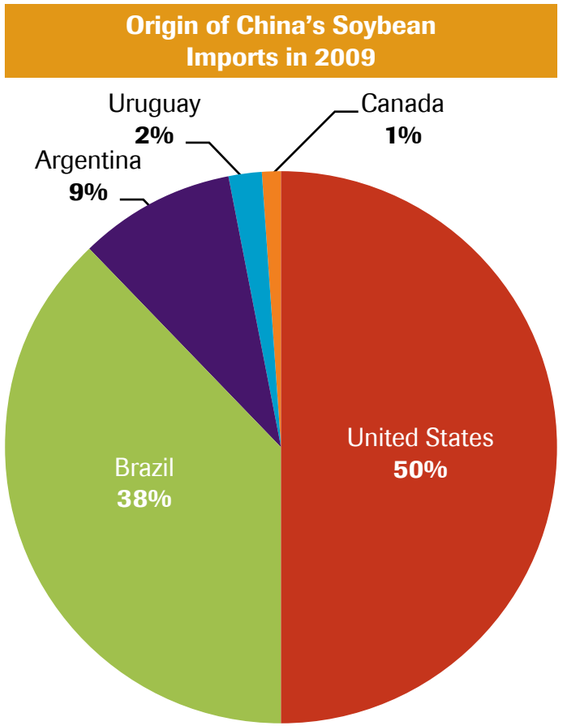
However, China faces additional challenges that these countries did not experience, including a serious water shortage and the loss of farmland to desertification in a major farming region. Additionally, unlike these small nations, China's large population size has resulted in large import demands that have changed the global soy trade over a relatively short period.

The majority of the soy imported by China is in the form of whole soybeans, which are then processed by domestic soy crushers to produce soybean meal, oil and other soy products. China's soybean tariffs encourage this trend and protect the domestic Value Added crushing process by assessing a 3% tariff on whole soybean imports, 9% on soybean oil, 5% on soybean meal, and 9% on soybean flour. Despite the high tariff rate on soybean oil, China's demand for this derivative has not been curbed - even the large increase in whole soybean imports that are being domestically crushed for oil and meal cannot meet the growing demand for oil [13]. Until the recent soy oil ban that China placed on Argentina, the country was meeting much of China's soy oil demand and was the world's top soy oil exporter. In 2009, China imported 77% of its soy oil from Argentina, with only 21% coming from Brazil and a mere 2% from the US [14]. There continues to be less demand for meal beyond that which is produced domestically and no soy meal was imported by China from Brazil during the decade from 2000-2009. In fact, in 2009 China was a net exporter of soy meal.

China and the global soybean market

The global soybean export market has four main players: China, the principal importer (importing over half the world's exported soy) and the US, Brazil, and Argentina as the principal exporters (Figure 11). According to a trade model market power analysis funded by the USDA-CSREES National Research Initiative (NRI), Chinese soybean importers have stronger market power relative to soybean exporters from the US, Brazil and Argentina and thus control the market. China's immense demand for soybeans combined with its strategy to purchase soybeans from more than one country gives it monopsony power. China's importers can strategically use this power to reduce the risk of price increases and maximize soybean import profits. Because China is the most important market for the three exporting nations, they compete with each other for market share. However, the seasonal production differences between the US and the two South American countries allow them to be complementary soybean suppliers for China, with South America's peak production period extending from June through October and the US peak production period extending from November through May [15].

Figure 11



In this market Brazil has competitive advantages and disadvantages. One of the disadvantages is that the US has a far superior system for transporting soybeans to global markets, particularly in comparison to the Center-West of Brazil, including Mato Grosso, where the greatest percentage of the country's soybeans are currently produced (see table 2). Most of the soybeans produced in the interior of Brazil are transported south by truck along more than a thousand miles of under-maintained highways. Once the soybeans arrive at the ports, offloaded from trucks in queues that can stretch to thirty kilometers, congestion is such that ships can wait at anchor for up to a month before a dock is available to load the soybeans. Under these conditions, transporting soybeans from Mato Grosso to Brazilian ports costs more than four times what American soybean farmers spend to transport their soybeans from the mid-western states to ports in New Orleans and the Pacific Northwest. Cheaper labor and other inputs in Brazil do not offset the higher transportation costs, and Brazilian producers see lower soybean profits compared to their American counterparts. [10] Another competitive disadvantage Brazil faces is that the country's environmental restrictions on soybean growers are greater in Brazil than in Argentina and the US. For example, Brazil's Forest code requires that landowners preserve natural vegetation between 30-50 meters of riparian zone, depending on the region in Brazil, while the US and Argentina do not have these requirements [7].

However, Brazil holds a major strategic advantage in its vast capacity to expand area planted to soybeans. US cropland devoted to soybeans has declined as land use has shifted to corn for ethanol production, with very limited new arable land available for expansion. Another advantage that Brazil holds over the US is the composition of its soybeans. Brazilian soybeans yield about 4.5% more oil and contain 4.5% more protein than US soybeans. Brazilian meal is guaranteed to contain 47-48% protein, while US meal is sold as 44%. While genetically modified soybean strains have been introduced to Brazil, the predominance of non-genetically modified soybeans has made Brazilian exports more attractive to European and Asian consumers. [16]

Despite the competitive challenges Brazil faces in the Chinese market, all projections indicate that the bilateral trade of soybeans will continue to grow in coming years. With Brazil's vast supply of arable land and China's ever-growing soy demands, the two countries are likely to make history with the volume and value of trade in this commodity. Part 2 of this report projects out what this trade will look like to 2020 under various scenarios.

Introduction

The objective of this section is to project out Brazilian soy exports to China from 2011 to 2020 under three scenarios: 'Business as usual' where the pattern of the last decade is simply extended into the next decade, 'business better than usual', and 'business worse than usual'. Projections specific to Brazilian soybean exports destined for China were not found.

There are different ways to make projections. There are relationships between per capita income, protein consumption and soy demand that we could have applied to China in a more complex and sophisticated approach. We chose a much simpler method of simple mathematical manipulation of existing demand, combined with readily available projections from the usual institutional suspects. We are confident, however, that both simple and complex projections lead to the same broad conclusions: China will reinforce its position as Brazil's leading soy export market over the next decade, this will lead to significantly more land planted to soy, especially in Mato Grosso, but all of that demand could easily be met by converting pasture to cropland rather than natural habitat.

The projections described below were calculated using existing soybean trade projections prepared by the United States Department of Agriculture (USDA) [13], the Food and Agricultural Policy Research Institute (FAPRI) [17], the Ministério da Agricultura, Pecuária e Abastecimento (MAPA) [18] and the United Nations' Food and Agricultural Organization (FAO) [19], considering countries with a major influence on the soybean market through the 2019/2020 crop marketing year. The values denoted as average in this report were determined by taking the average of the historic values reported and future values projected by the above mentioned organizations. Differences in reported historical data often occur due to time lags and later updates, data confidentiality, inconsistencies in final destination reporting, and customs tax avoidance, among other reasons. Using an average of reported historical data and future projections provided the best base for estimating results of potential scenarios in the next decade.

To determine the range of the quantity of soybeans Brazil will export to China over the next ten years, we consider the following scenarios:

1. Business as usual, where the pattern of the last decade is extended into the next decade

a. Brazil exports of soybeans to China continue to increase by an average of 30% each year – not a feasible scenario.
b. China's share of projected Brazilian soybean exports continues to increase by an average of 6.8% each year.

2. Business better than projected – optimistic scenarios

a. Chinese total soybean import demand increases: increase of 5% over China's average projected total import demand for soybeans and a corresponding increase of 5% over the quantities of Brazilian soybeans exported to China projected in 1b above.
b. Chinese demand for Brazilian soybeans increases: other countries that export soybeans continue to hold their quantity supplied to China flat. Brazil is the sole supplier of the increase seen each year in China's projected total import demand for soybeans.

3. Business worse than projected – pessimistic scenarios

a. Brazil total soybean export supply decreases: 5% decrease in Brazil's average projected total soybean export supply, and a corresponding decrease of 5% below the quantities of Brazilian soybeans exported to China projected in 1b above.
b. Chinese total soybean import demand decreases: 5% reduction in China's projected total imports. Other soybean exporting countries continue to hold their quantity supplied to China flat. Brazil takes the full brunt of China's reduction in demand, generating a Very Pessimistic scenario.

1. Business As Usual

As outlined in Part 1 of this report, the soy boom of the past decade marked a period of skyrocketing demand for soybeans and Brazil rapidly responded with increased production and exports. From 1998/99 to 2008/09, the average annual growth of Brazilian soybean exports to China was 57.6%, but this figure is skewed by extraordinary growth in the years 1998/99 and 2000/01, with 213% and 188% growth over the previous year respectively. It is sounder to use a shorter timeframe that reflects a less volatile trend, so we use the period for 2005/06 to 2008/09, which has an average annual growth rate of 30% in Brazilian soybean exports to China. Maintaining this growth rate for the next decade is not viable, as exports to China would surpass projected total exports by 2011 and even projected total production by the year 2014 (figure 12).

Brazil soybean production and exports - historical and projection data

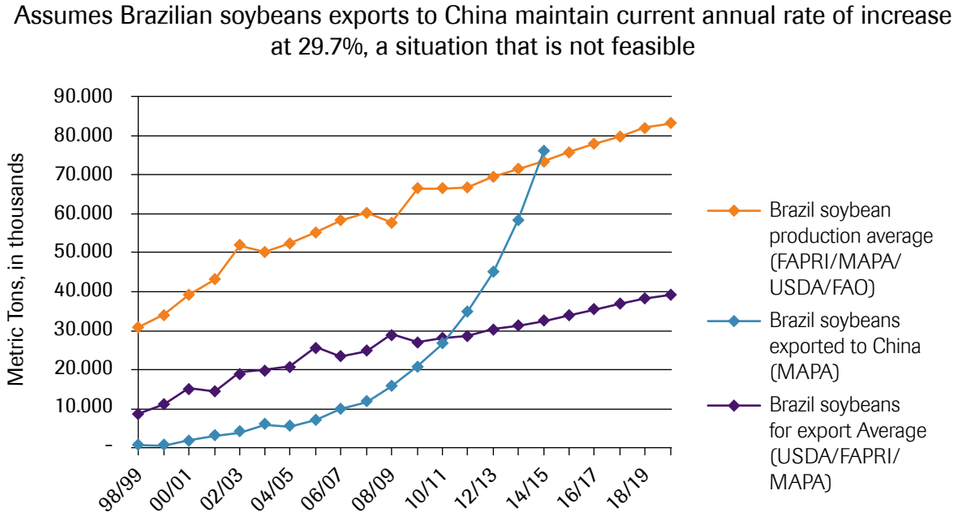


Figure 12: Demonstrates how maintaining the growth rate of Brazil soybean exports to China over the past decade is not feasible, as it would surpass projections for both Brazil's total soybean exports (2011-2012) as well as Brazil's total production (2014-2015).

Over the period 2005/2006 – 2008/2009, China's share of Brazilian soybean exports steadily increased, with an average growth rate of 6.8%. If we continue that trend outward through 2019/2020, China imports 83% (32.9 million tons) of Brazil's projected available export stocks by the end of the projection period (figure 13). This is consistent with world USDA and FAPRI soybean trade projections that reveal China's soybean imports will increase between 41.5 – 43.4% (approximately 18 million tons) over the projection period, while the rest of the world's imports will increase only 3.9 – 7.3%. In other words, China's increased demand will account for over 85% of the nearly 20 million ton increase in soybean trade. To meet this increased demand, we note the emergence of other South American countries, particularly Argentina and Paraguay, as major players in the export market, but Brazil and the US continue their dominance with increased exports[13].

Soybean imports and exports - Chinese and Brazilian historial and projection data

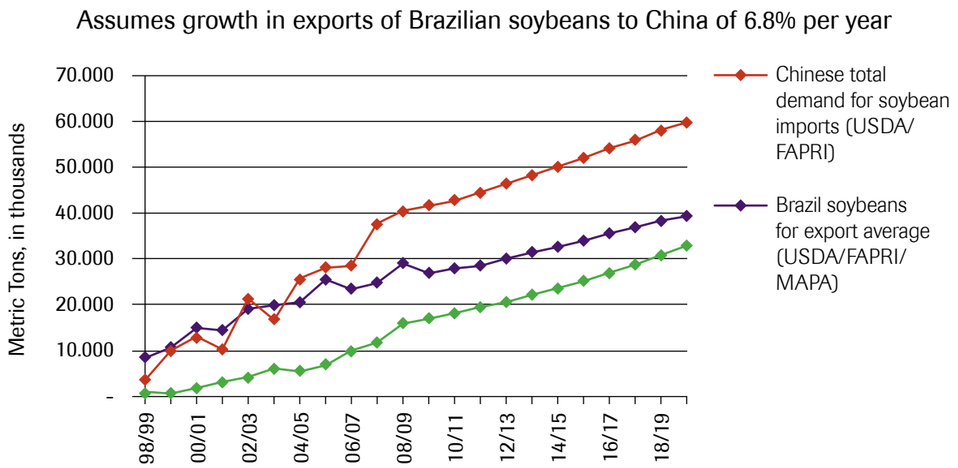


Figure 13: The projections of Brazilian soybean exports to China (green line) will become our Business as Usual baseline for calculating optimistic and pessimistic scenarios over the next decade.

A note on the effects of the Panama Canal Expansion, scheduled for completion in 2015: The above scenario assumes little to no change in current investment levels in Brazilian shipping infrastructure and availability of Panamax and/or Panamax II vessels. Trade between Eastern South America and Asia is currently hampered by the difficulty in filling vessels with imports destined for Brazil, which could then be loaded with goods destined for Asia. Soybeans also compete for shipping vessels with other export commodities such as iron and coal, which drives up shipping costs. While the Panama Canal expansion will ensure that freight capacity will not be a constraint, Brazil's own inadequate shipping logistics and port infrastructure may result in a lost opportunity for export growth that would be attributed to the Canal expansion [20]. For these reasons, the Canal expansion is assumed to have a negligible impact on Brazil's exports in the Business as Usual scenario.

We project alternative optimistic and pessimistic scenarios, to take account of uncertainties that could act in either direction. These external forces could include market forces, which shape the needs and behaviors of consumers and suppliers; cost forces, which depend on the economics of the business; and regulatory issues, which are out of the hands of individual organizations but set the rules of the game [21].

2. Better Than Business as Usual

Over the next decade, many scenarios and unknown variables could cause Brazilian soybean exports to China to be better than the Business as Usual projections outlined above. There a number of possible ways this could happen. Products such as foams, paints, and products similar to plastic are already made from soybeans. Technological innovation could result in a popular new product derived from soybeans that is easily produced in China. China could increase its stockpiling efforts to ensure food security and protect against price fluctuations [22]. In the 'Food versus Fuel' debate, food could win out, causing countries to reduce their biofuel mandates and dramatically reduce both Brazil's domestic demand and world demand for soybean oil and biodiesel, thus making more soybeans available for the export market. Another unlikely but potential scenario is that China could repeal the one child law, thereby increasing the country's overall demand for food.

All these "optimistic" scenarios would result in an increase in total Chinese demand for soybeans, and all exporting countries would see an increase in their exports, within their production and shipping capacities. In the case of Brazil we assume that total soybean export capacity remains constant, due to the unavailability of additional shipping vessels and no anticipated transportation infrastructure improvements, as highlighted in the note on the Panama Canal expansion. To illustrate this, we increase both the Chinese import demand projections by 5%, and accordingly increase the corresponding Brazil exports to China by 5% over the Business as Usual projection, as shown in figure 14. The results show Brazil exporting 83% of its available soybeans to China by the end of the projection period.

Optmistic Scenario: Projected Chinese total soybean demand increased 5% and projected Brazil soybean exports to China increased 5%

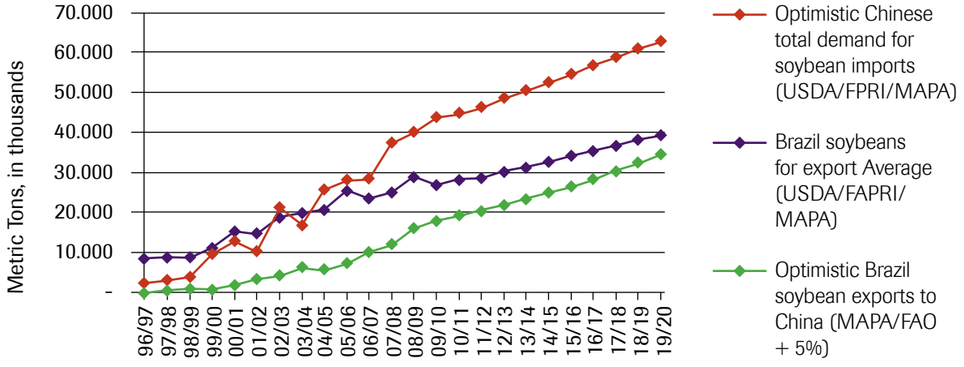


Figure 14

Another optimistic scenario illustrates an increased demand specifically for Brazilian soybeans, and the result demonstrates a similar growth in Brazil exports to China. Such a scenario could occur if, for example, there is a technological innovation in ethanol production that makes corn the most attractive crop in the US, causing many American farmers to switch from soybeans to corn and reducing US net exports. In this case, Chinese demand for soybeans does not increase, but they would depend more on their sources in South America. In such a situation, assuming that Brazil maintains its total soybean export level but supplies all of China's increased demand, Brazilian exports to China grow at an average of 7.6% per year, and China becomes the destination for 90% of Brazil's soybean exports by the end of the projection period (see figure 15).

Optmistic Scenario: 100% of China's projected increased demand for soybean is provided by Brazilian soybean exports

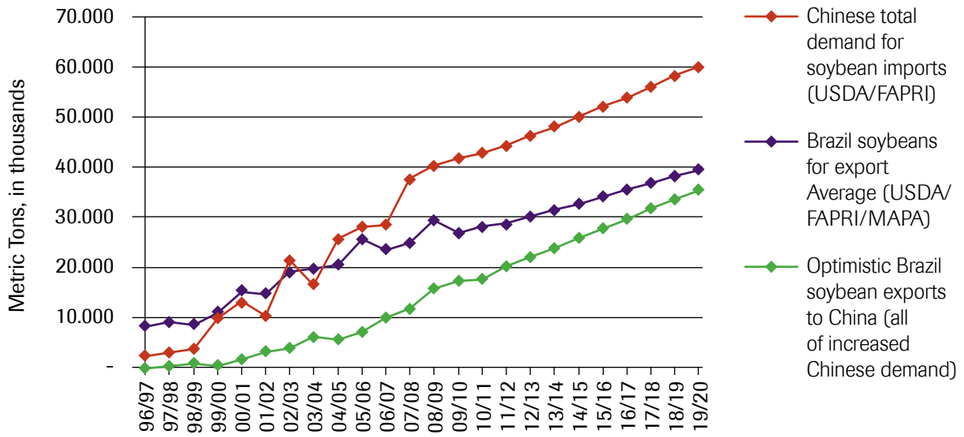


Figure 15

We could expect to see even greater soybean exports from Brazil to China if there were investments in shipping and port infrastructure in Brazil, as well as a greater expansion in production area.

3. Worse than Business as Usual

Similar to the business better than usual scenario, many unknown variables could cause business to worsen over the next decade. If fuel wins in the 'Food versus Fuel' debate, additional countries could implement biofuels mandates. This could cause Brazil to switch cropland to sugar cane production for ethanol, or could shift whole soybeans from the export market to a domestic value added market of soybean oil for biodiesel production. Similarly, government incentives to promote exports and domestic industrial production, such as the incentives provided under the recently revised drawback regime, could result in a change in the export mix, with increased exports of value added goods, including soybean meal and oil, instead of raw soybeans. These developments would all result in a reduced quantity of Brazilian soybeans available for export. To illustrate this, we decrease the available Brazilian soybean export projections by 5%, and accordingly decrease the corresponding Brazil exports to China by 5% below the Business as Usual projection, as shown in figure 16. The results show an average annual growth rate of only 2.4% in Brazil soybean exports to China.

Pessimistic Scenario: Projected total Brazilian soybeans available for export reduced 5% and projected Brazil soybeans exports to China reduced 5%

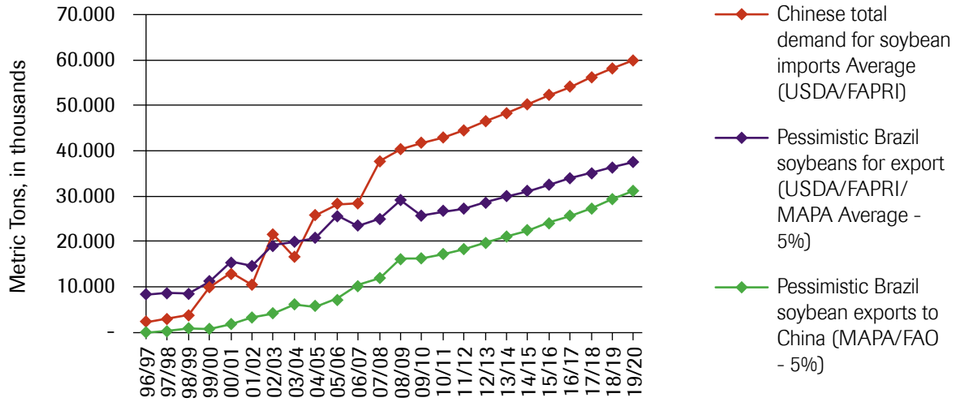


Figure 16

Similarly, market factors could result in a reduced growth rate in Chinese demand for soybeans. This could occur if China were to switch to importing more corn and growing more soybeans, instead of vice versa. Another possibility would be if China opted to import soybean meal and oil instead of capturing the added value of these processes domestically [13]. Such unlikely scenarios would result in a reduced growth rate in Chinese imports of soybeans, and a corresponding reduced rate of growth of Brazilian soybean exports to China. Assuming these scenarios result in a 5% reduction in China's projected total imports and that Brazil takes the full brunt of that reduction, this generates a Very Pessimistic scenario, where by the end of the projection period, Brazil soybean exports to China are only 29,870,045 metric tons (see figure 17), or 9% less than the Business as Usual scenario (32,867,845 metric tons).

Very Pessimistic Scenario: Projected Chinese soybean import demand decreases 5% and 100% of that loss is assumed by reduced Brazilian soybean exports to China

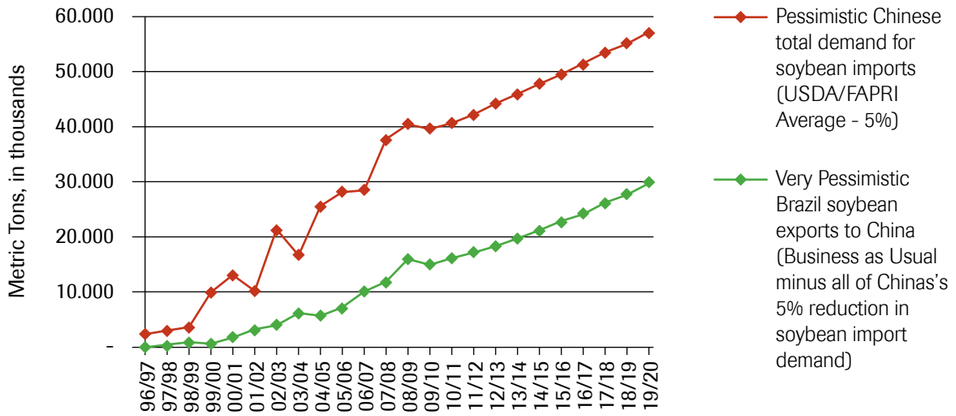


Figure 17

On the positive side, even in the business worse than usual, we still see growth in quantity of Brazilian soybean exports to China, but it is certainly at a lower rate.

1. The expansion in area planted to soy to meet Chinese demand over the next decade will happen mainly in Mato Grosso, but can easily be met by intensifying livestock production and expanding into cleared pasture

Projections from Brazilian Ministry of Agriculture indicate that Brazil's total crop area under cultivation will increase from a little over 60 million hectares in 2010 to 69.7 million hectares by 2020. Of this 9.7 million total hectare increase, Brazil is projected to increase area under soybean production by between 4 to 5 million new hectares over the next decade, from 22.5 million to approximately 27 million hectares [17, 18], with a nearly 2.5 million hectare increase in Mato Grosso alone [18]. While current yield is at 2.83 metric tons per hectare, technological advances should result in progressive increased productivity over the next 10 years, pushing yield to 3.05 metric tons per hectare by 2020 [17].

Using the rate of 3.05 metric tons per hectare, we can calculate the area under soybean production destined for export to China in the five scenarios discussed above:

Brazil soybean production: total area harvested, area harvested destined for export markets, and 5 scenarios for area harvested destined for export to China

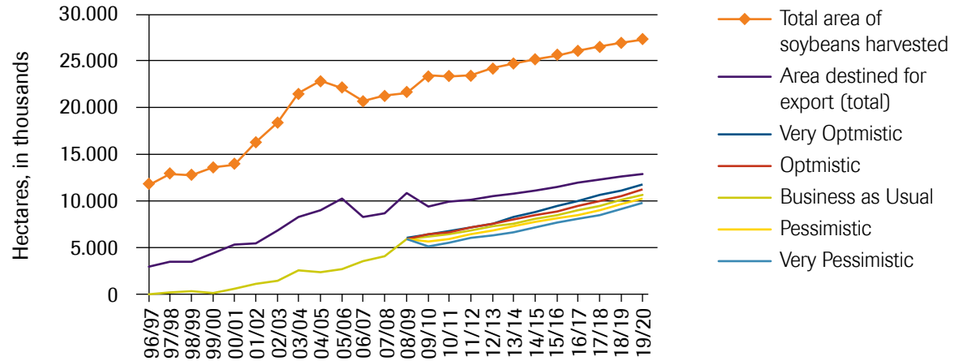


Figure 18: The chart shows that by 2020, of the approximately 27 million hectares of soybeans harvested in Brazil, 36 - 43% (9.8 – 11.7 million hectares) will be destined for China.

All three sources (USDA, FAPRI and MAPA) of production, import and export projections indicate great increases in Brazil's total soybean exports, by approximately 35%, from nearly 30 million metric tons to nearly 40 million metric tons by the 2019/2020 crop marketing year. The same projections indicate large increases in China's soybean imports, by approximately 18 million metric tons. In our most optimistic of scenarios, Brazil's soybean exports to China will reach 35.6 million metric tons (~90% of Brazil's total soybean exports). In our best-guess Business As Usual scenario, Brazil's soybean exports to China will reach 32.9 million metric tons, or 83% of Brazil's total soybean exports, and in the Very Pessimistic scenario, we still expect to see Brazil's exports to China increasing to 29.9 million metric tons, or 76% of Brazil's total soybean exports (see figure 19).

Brazil soybean exports: Total soybeans availble for export, and 5 scenarios for Brazilian soybean exports to China

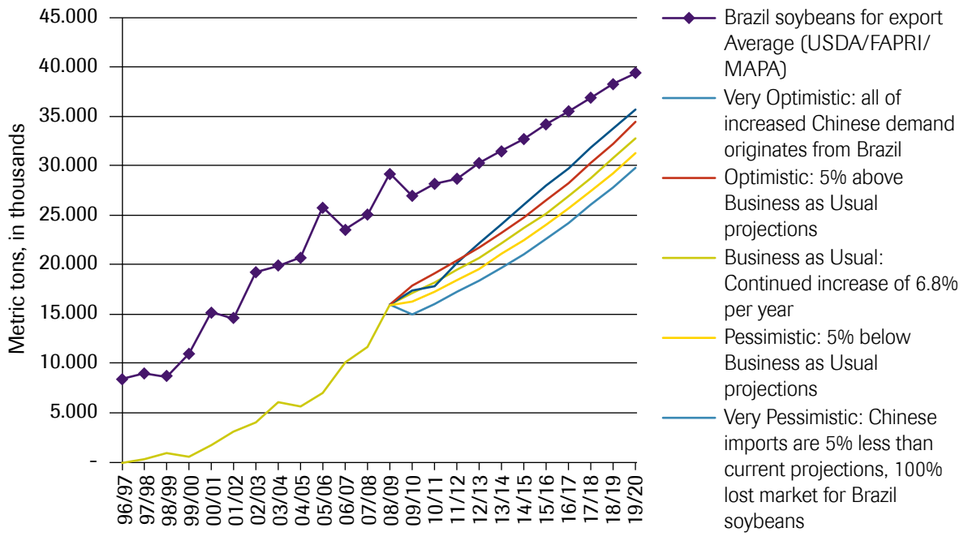


Figure 19

Our projections of production and export levels to China under the business as usual scenario are a little lower than the official projections from other sources cited here, and can thus fairly be classified as conservative. Our projections and the official estimates concur in suggesting a reasonable approximate number for amount of new cropland in Brazil planted to soy to 2020 is five million hectares. At present, Mato Grosso is the most important soy producing state, a position that it will consolidate over the next decade, given the ready availability of land and improvements in quality of infrastructure. We can therefore say, conservatively, that somewhere between 30 and 40% of that new soy cropland will come from Mato Grosso – in other words, an area of between 1.5 and two million hectares. It is likely that the increase in planted area will be larger than this, however, and as much as 3 to 3.5 million hectares of new soy plantations could occur in Mato Grosso by 2020.

On paper, that expansion of planted area could easily be accommodated by converting cropland to pasture. Around 22 million hectares of Mato Grosso has been cleared for pasture, so less than 15% of that area would be enough to meet even expanding Chinese demand for soy over the next decade. Is this feasible?

Stocking density in the Center-West region, of which the Cerrado grassland sections of Mato Grosso are part, are just over 1 head per hectare, compared with 0.75 head per hectare in the South, where stocking densities are highest. If stocking density in the Center West were intensified to those of the South, a previous Conservancy study suggests up to 12 million hectares of land could be freed up for agricultural expansion, more than enough to accommodate Chinese demand for soy over the next decade[23]. While other studies have come up with different numbers for area of land that could be released for agricultural expansion in Mato Grosso and the Cerrado as a whole through intensification of the livestock industry, all fall within a range that suggest any conceivable expansion in planted area because of Chinese demand can easily be accommodated through conversion of pasture without prejudicing levels of beef production.

2. The continued expansion of China as a destination market for Brazilian soy over the European Union limits the extent to which certification as a conservation strategy is likely to be attractive to soy producers and traders in Brazil

As has been shown, the decade from 2000 to 2010 saw China replace the EU as Brazil's main export destination for soy. The numbers are an impressive index of the velocity of China's growth – from 16% to 56% of Brazil's soy exports in a decade. Even the most pessimistic scenario for the soy market to 2020 suggests China will be taking over 70% of Brazil's soy exports in that year, with over 80% more likely. The European Union, having already declined from 64% to 30% of Brazil's soy exports over the past decade, will decline still further. It will effectively become a niche market, targeted by non-GMO Brazilian producers, dwarfed by a far larger flow of soy to China.

Certification, or at least a voluntary code of good practice with some form of market recognition, has historically been the main strategy the environmental movement has developed to counter the negative environmental impacts of a commodity market. The Round Table for Responsible Soy is one of a number of such commodity-based initiatives, and it is and will continue to be strategically useful for the European market. But the European market, as we have seen, is less and less of a factor in the Brazilian soy export trade.

3. Dealing with major commodity markets demands a more innovative conservation approach

The Brazil-China soy trade exemplifies the challenge conservation faces over the next decade: how to respond to dynamic, large-scale commodity markets where the destination market is price-sensitive and indifferent to environmental footprints, where worries about climate change have no impact on consumer behavior or on import regulation, and where volume and stability of supply is the over-riding strategic concern of the importing country. This is not only the situation in China in relation to soy, it is typical of many of the markets driving habitat change across the world as hundreds of millions of people in Asia and Latin America move into the middle classes and change their consumption and dietary habits accordingly. There are, however, promising strategic approaches for these commodity markets, and some alternatives are laid out below.

A focus on multinational trading companies and retailers, for whom risk considerations apply irrespective of attitudes in key destination markets

Being associated with deforestation is already a major reputational risk issue for traders and retailers, as the success of the Amazon soy moratorium and the efforts to attack deforestation within the supply chains of the Brazilian beef industry demonstrate. Forward-thinking corporate strategists understand this as part of a broader active positioning of companies in relation to climate change and as part of a shift towards a low-carbon future, something that goes well beyond traditional notions of corporate social responsibility. In the medium term, all major multinationals in supply chains linked to the soy industry will need to track land-use change on farms they source from, either directly or through accessing public systems, in order to manage the risks association with habitat conversion involves, irrespective of attitudes in destination markets.

A focus on practical incentives to producers, without price premiums

Price premiums to producers are not practical in globalised, price sensitive commodity markets with multiple sources of supply. But there are several ways to nudge producers towards environmental responsibility that do not involve price premiums. Credit lines can have differentiated rates of interest that reward responsible producers, and amortize compliance costs over long periods. Active management of supply chains for environmental responsibility implies the funneling of technical support, extension services and production inputs preferentially towards responsible producers, and the creation of a more stable market relationship between those producers, traders and processing industries. It also implies protection from structural corruption in regulatory enforcement and reduction in the costs of non-compliance. If markets for environmental services develop, environmentally responsible producers will be well positioned for them, and support from environmental groups will be critical in helping producers participate in them. There are also political advantages to farmers in early movement on these issues, and it is striking that those farmers leading grass-roots responsible production initiatives are often the most influential in their communities. The most forward-looking producers tend to be the first movers.

A focus on regulatory frameworks and easy, cheap and transparent land-use monitoring

Efficient enforcement of sound regulatory frameworks in producer countries is an obvious way to circumvent indifference to environmental footprints in destination countries. While it is important that producers are enticed by an array of incentives, carrots in isolation will find few takers unless there is a regulatory stick in the background. Most environmental organizations have instinctive sympathies for a top-down, command and control approach, currently unfashionable but actually rather effective when applied with political will and imagination in frontier contexts where governance is a serious problem. Beyond those areas, however, regulation is ineffective without at least grudging acceptance by a critical mass of producers. Environmental organizations should focus on creating that grudging acceptance if they want to help producers to move towards compliance, through helping regulation and enforcement to operate in a cheap, transparent and flexible manner. Actions by producers should be tracked by systems that do not simply operate on a binomial compliant/non-compliant basis, but are sufficiently subtle to accompany movement along a spectrum leading towards compliance. They should focus on helping to develop decentralized and transparent property licensing systems that operate efficiently at municipal and state level, as close as possible to the farm. There are now powerful factors at work facilitating actions of this kind

- the increasing scale and sophistication of georeferencing and remote sensing technologies allied to their decreasing cost
- the compatibility between national climate action plans and more active monitoring of land-use change on farms
- an increasing acceptance by credit providers, many of them public rather than private sector, of the case for environmental conditionalities on lending
- the growing acceptance by national governments of the use of agricultural credit lines and disbursement procedures as an instrument of public policy to achieve environmental as well as economic objectives

A focus on intensification of production systems

If sound regulatory frameworks are in place, intensifying production on land already cleared is an obvious way of relieving pressure on expansion into native habitat at the same time as satisfying demand. Many major producer countries are already in, or about to embark upon, a similar agricultural transition to that already experienced by the United States, where increases in production are accounted for more by rising yields and productivity than by bringing new land into production. The quicker this transition can be accelerated by effective research and development, technical extension services and credit lines designed to encourage producers to move towards intensification, the more intact habitat is likely to be saved. At the same time, there is potential for intensification through synergies between different cropping and ranching production systems. Various crop by-products can be reused as cattle feed or to improve pasture quality, for example.

A focus on framing environmental issues in agricultural commodity markets in terms of stability of supply and food security

The main preoccupation of commodity markets where demand is dominated by emerging market countries is volume and stability of supply. This implies efficient production systems in producer countries, with yields increasing year on year, effective agronomic research and extension services, and a full range of the environmental services necessary for agriculture, such as soil and water quality and nutrient retention. None of these qualities has historically characterized the production systems operated by farmers and ranchers on many tropical frontiers, where the easy availability of land, combined with lack of governance, has led to the preponderance of geographically extensive but very low-yield production systems, geared mainly to local markets where profit margins are low. In this set of circumstances, everybody loses: agriculture is economically and socially inefficient, providing neither lasting development nor environmental sustainability. Strategically, it is in the interests of countries like China to encourage the growth of intensive production systems, which are more likely to supply the volume that they require. These more intensive and effective production systems will not usually flourish on tropical frontiers, but in landscapes where significant areas have long since been cleared, with reasonable physical and intellectual infrastructure. In these contexts, land available for expansion of cropland is more likely to be pasture or cropland that has gone out of production, for whatever reason. The environmental benefits of stimulating the growth of intensive rather than extensive agricultural systems in these areas are obvious, but making the environmental case for such a transition is not the most resonant argument. An intensification strategy should instead be framed in terms of food security and economic and social development. There is potential to mobilize active support for intensification from key destination markets like China that is currently almost completely unexplored.

A focus on mapping land available for agricultural expansion, rather than redlining high conservation value areas

Environmental organizations are easily caricatured as the groups that like to say “no”. Few conservation strategies are as widely resented by farmers and companies as the various attempts to define high conservation value areas and then impose restrictions on agriculture within them. It would be more sensible to focus less on where development should not take place and more on where it can. Environmental organizations have the expertise necessary to identify where agricultural expansion would have the least impact on biodiversity and ecosystem integrity. It would be more productive for environmental organizations to deploy expertise of this kind to map areas available for agricultural expansion at relatively little environmental cost: cleared pasture where soil profiles were suitable for agriculture, unoccupied marginal and/or degraded lands that could be reclaimed for agriculture under certain conditions, patches of native habitat already so fragmented that long-term survival is compromised, and so forth. Such initiatives should focus on producing maps that can function as tools for policymakers as much as for market actors.

APPENDIX
EXPORTERS OF BRAZILIAN SOY AND IMPORTERS IN CHINA

Overview

There are numerous companies and state owned agencies involved in the Brazil-China soybean trade. However much of this trade is dominated by large, multinational traders who have offices and infrastructure in both Brazil and China and therefore control both the export and import ends of the trade, as well as the crushing process. Since 1995 large multinational commodity companies such as Archer Daniels Midland, Bunge, Cargill, and Louis Dreyfus have been the main players in China’s soybean market and are responsible for as much as 80% of China’s soybean crushing capacity [24]. These same companies also direct between 60%-80% of grain exports from Brazil. While these few multinational traders control a disproportionate amount of the Brazilian soybean export market to China, there are many other large and small national traders involved in exporting soybeans to China, as Table 3 demonstrates.

Two of the large nationally owned players in China’s soybean import and crushing process are Sinograin and China National Cereals, Oils, and Foodstuffs Import and Export Corporation (COFCO). Sinograin (China Grain Reserves Corporation), a state-owned enterprise, is one of China’s top soy importers and oilseed crushing firms. The company also plays a pivotal role in the country’s grain reserves program which seeks to stockpile the equivalent of 40% of China’s soybean demand [25]. Currently, of the top ten soy crushing companies in China, four are foreign owned and six are domestic. Of the six domestic operations, three are state owned and three are privately owned. Together these ten companies are responsible for 57.9% of the country’s crushing capacity, despite the large number of domestic crushers. Six of these companies have the capacity to crush more than 10,000 tons daily: Wilmar International Limited, Jiusan Group, Zhongfang Group, COFCO, Cargill, and Noble Group. However, China is seeking to reduce the dominance of foreign-owned crushing plants in China and promote domestic crushers. As of December 2007, foreign investors were prohibited from building new crushing plants or even acquiring existing ones [26].

Table 5: Exporters of Brazilian Soy

This list of 144 companies that export soybeans to China was taken from the Vitrine do Exportador webpage on September 21, 2010 found at (https://www.exportadoresbrasileiros.gov.br). The search criteria used was HS code 120100 - Soya beans, whether or not broken exported to China. The companies are presented in decreasing order of value of their soybean exports to China. While all of the information presented here was solely provided by the Vitrine do Exportador site, there appears to be inconsistencies between the rankings and the export value categories assigned. Further questions regarding these data or the companies listed can be accessed at the site or by contacting the site manager by email at gerenteportal@desenvolvimento.gov.br.

RANKING	EXPORT VALUE CATEGORY	COMPANY
1	Above U$ 50.000.000,00	BUNGE ALIMENTOS S/A
2	Above U$ 50.000.000,00	ADM DO BRASIL LTDA
3	Above U$ 50.000.000,00	LOUIS DREYFUS COMMODITIES BRASIL S.A.
4	Above U$ 50.000.000,00	CARGILL AGRICOLA S A
5	Above U$ 50.000.000,00	NIDERA SEMENTES LTDA.
6	Above U$ 50.000.000,00	MULTIGRAIN S.A.
7	Above U$ 50.000.000,00	CHS DO BRASIL - GRAOS E FERTILIZANTES LTDA.
8	Above U$ 50.000.000,00	AMAGGI EXPORTACAO E IMPORTACAO LTDA
9	Above U$ 50.000.000,00	NOBLE BRASIL S.A.
10	Above U$ 50.000.000,00	CARAMURU ALIMENTOS S/A.
11	Above U$ 50.000.000,00	BIANCHINI SA INDUSTRIA COMERCIO E AGRICULTURA
12	Above U$ 50.000.000,00	COAMO AGROINDUSTRIAL COOPERATIVA
13	Above U$ 50.000.000,00	AWB BRASIL TRADING S.A.
14	Above U$ 50.000.000,00	SENDAS DISTRIBUIDORA S/A
15	Above U$ 50.000.000,00	CEAGRO AGRONEGOCIOS S.A.
16	Above U$ 50.000.000,00	MOINHO IGUACU AGROINDUSTRIAL LTDA.
17	Above U$ 50.000.000,00	SEARA-IND. E COMERCIO DE PRODUTOS AGRO-PECUARIOS LTDA
18	Above U$ 50.000.000,00	C.VALE - COOPERATIVA AGROINDUSTRIAL
19	Above U$ 50.000.000,00	ABC-INDUSTRIA E COMERCIO S/A-ABC-INCO
20	Above U$ 50.000.000,00	FIAGRIL LTDA
21	U$ 10.000.000,00 to U$ 50.000.000,00	LOS GROBO BRASIL CENTRAL NEGOCIOS DE ORIGINACAO AGRICOLA SA
22	U$ 10.000.000,00 to U$ 50.000.000,00	COASUL COOPERATIVA AGROINDUSTRIAL
23	Above U$ 50.000.000,00	AGRICOLA E PECUARIA MORRO AZUL LTDA
24	Above U$ 50.000.000,00	SIPAL INDUSTRIA E COMERCIO LTDA
25	U$ 10.000.000,00 to U$ 50.000.000,00	COOPERATIVA DOS AGRICULTORES DE PLANTIO DIRETO LTDA
26	U$ 10.000.000,00 to U$ 50.000.000,00	BELAGRICOLA COM E REP DE PRODUTOS AGRICOLAS LTDA
27	Above U$ 50.000.000,00	CAMERA AGROALIMENTOS SA
28	U$ 10.000.000,00 to U$ 50.000.000,00	COOPERATIVA AGRICOLA MISTA GENERAL OSORIO LTDA
29	U$ 10.000.000,00 to U$ 50.000.000,00	MMX CORUMBA MINERACAO S/A
30	U$ 10.000.000,00 to U$ 50.000.000,00	COOPERATIVA TRITICOLA REGIONAL SANTO ANGELO LTDA
31	Above U$ 50.000.000,00	AGRICOLA XINGU S/A
32	U$ 1.000.000,00 to U$ 10.000.000,00	FERTILIZANTES FOSFATADOS SA FOSFERTIL
33	U$ 10.000.000,00 to U$ 50.000.000,00	I RIEDI CIA LTDA
34	Above U$ 50.000.000,00	MAEDA S.A. AGROINDUSTRIAL
35	U$ 1.000.000,00 to U$ 10.000.000,00	MARUBENI BRASIL SA
36	U$ 1.000.000,00 to U$ 10.000.000,00	CENTRAL DE COOPERATIVAS AGROPECUARIAS DO NORDESTE DO RIO GRANDE DO SUL LIMITADA
37	U$ 10.000.000,00 to U$ 50.000.000,00	COOPERATIVA AGROPECUARIA E INDUSTRIAL CELEIRO DO NORTE - COACEN
38	U$ 10.000.000,00 to U$ 50.000.000,00	AGRICOLA CANTELLI LTDA
39	U$ 10.000.000,00 to U$ 50.000.000,00	OLEOPLAN S.A. OLEOS VEGETAIS PLANALTO
40	Above U$ 50.000.000,00	USINA MANDU S/A
41	U$ 10.000.000,00 to U$ 50.000.000,00	COTRIJUC - COOPERATIVA AGROPECUARIA JULIO DE CASTILHOS
42	U$ 1.000.000,00 to U$ 10.000.000,00	ATMAN COMERCIO DE PRODUTOS AGROPECUARIOS LTDA-EPP
43	Above U$ 50.000.000,00	OLFAR INDUSTRIA E COMERCIO DE OLEOS VEGETAIS LTDA
44	U$ 10.000.000,00 to U$ 50.000.000,00	CONACENTRO COOPERATIVA DOS PRODUTORES DO CENTRO OESTE
45	U$ 10.000.000,00 to U$ 50.000.000,00	COOPERATIVA DOS AGRICULTORES DA REGIAO DE ORLANDIA
46	U$ 10.000.000,00 to U$ 50.000.000,00	FERTIMOURAO AGRICOLA LTDA
47	U$ 10.000.000,00 to U$ 50.000.000,00	GLENCORE IMPORTADORA E EXPORTADORA S/A
48	Above U$ 50.000.000,00	INTEGRADA COOPERATIVA AGROINDUSTRIAL
49	Above U$ 50.000.000,00	LDC-SEV BIOENERGIA S.A.
50	U$ 1.000.000,00 to U$ 10.000.000,00	BIG SAFRA LTDA
51	U$ 1.000.000,00 to U$ 10.000.000,00	COOPERATIVA AGRICOLA TUPANCIRETA LTDA
52	U$ 10.000.000,00 to U$ 50.000.000,00	GIOVELLI CIA LTDA
53	U$ 10.000.000,00 to U$ 50.000.000,00	TRES TENTOS AGROINDUSTRIAL LTDA
54	U$ 1.000.000,00 to U$ 10.000.000,00	VDL SIDERURGIA LTDA
55	U$ 10.000.000,00 to U$ 50.000.000,00	COCARI - COOPERATIVA AGROPECUARIA E INDUSTRIAL
56	U$ 1.000.000,00 to U$ 10.000.000,00	SIDERURGIA SANTO ANTONIO LTDA
57	U$ 1.000.000,00 to U$ 10.000.000,00	COTRIJAL COOPERATIVA AGROPECUARIA E INDUSTRIAL
58	U$ 10.000.000,00 to U$ 50.000.000,00	COOPERATIVA DOS COTONICULTORES DE CAMPO VERDE
59	U$ 1.000.000,00 to U$ 10.000.000,00	INGA VEICULOS LTDA
60	U$ 1.000.000,00 to U$ 10.000.000,00	FERGUMINAS SIDERURGIA
61	U$ 10.000.000,00 to U$ 50.000.000,00	LAVOURA INDUSTRIA COMERCIO OESTE SA
62	U$ 10.000.000,00 to U$ 50.000.000,00	BOM JESUS AGROPECUARIA LTDA
63	U$ 10.000.000,00 to U$ 50.000.000,00	MANGELS INDUSTRIA E COMERCIO LTDA
64	U$ 10.000.000,00 to U$ 50.000.000,00	CARBOCLORO S.A. INDUSTRIAS QUIMICAS
65	U$ 10.000.000,00 to U$ 50.000.000,00	FERTILIZANTES CENTRO OESTE LTDA
66	U$ 10.000.000,00 to U$ 50.000.000,00	APOLO TUBOS E EQUIPAMENTOS SA
67	Above U$ 50.000.000,00	NARDINI AGROINDUSTRIAL LTDA

RANKING	EXPORT VALUE CATEGORY	COMPANY
68	U$ 1.000.000,00 to U$ 10.000.000,00	PRATA COMERCIO DE CEREAIS LTDA
69	U$ 10.000.000,00 to U$ 50.000.000,00	PRODUQUIMICA INDUSTRIA E COMERCIO S/A
70	U$ 1.000.000,00 to U$ 10.000.000,00	IRMAOS TREVISAN SA INDUSTRIA COMERCIO E AGRICULTURA
71	U$ 1.000.000,00 to U$ 10.000.000,00	COOPERATIVA AGRICOLA MISTA IBIRAIARAS LTDA
72	U$ 10.000.000,00 to U$ 50.000.000,00	USINAS ITAMARATI S/A
73	U$ 10.000.000,00 to U$ 50.000.000,00	HERBIOESTE HERBICIDAS LTDA
74	Above U$ 50.000.000,00	AB COMERCIO DE INSUMOS LTDA
75	U$ 1.000.000,00 to U$ 10.000.000,00	DALFERTIL COMERCIO E REPRESENTACOES DE INS AGRIC LTDA
76	U$ 1.000.000,00 to U$ 10.000.000,00	COOPERATIVA MISTA AGROPECUARIA DO BRASIL - COOPERMIBRA
77	U$ 1.000.000,00 to U$ 10.000.000,00	MARASCA COMERCIO DE CEREAIS LTDA
78	U$ 1.000.000,00 to U$ 10.000.000,00	IRMAOS BOCCHI & CIA LTDA
79	U$ 1.000.000,00 to U$ 10.000.000,00	COAGRU COOPERATIVA AGROINDUSTRIAL UNIAO
80	Above U$ 50.000.000,00	FERTIPAR FERTILIZANTES DO PARANA LIMITADA
81	Above U$ 50.000.000,00	COOPAVEL COOPERATIVA AGROINDUSTRIAL
82	U$ 1.000.000,00 to U$ 10.000.000,00	CISAM SIDERURGIA LTDA
83	U$ 10.000.000,00 to U$ 50.000.000,00	PENINSULA INTERNATIONAL S/A
84	U$ 1.000.000,00 to U$ 10.000.000,00	DISAM DISTRIBUIDORA DE INSUMOS AGRIC SUL AMERICA LTDA
85	U$ 10.000.000,00 to U$ 50.000.000,00	CELULOSE IRANI SOCIEDADE ANONIMA
86	U$ 10.000.000,00 to U$ 50.000.000,00	FRIMESA COOPERATIVA CENTRAL
87	U$ 1.000.000,00 to U$ 10.000.000,00	COCEVVIL COMERCIO DE CEREAIS LTDA
88	U$ 1.000.000,00 to U$ 10.000.000,00	BOTICA COMERCIAL FARMACEUTICA S.A.
89	U$ 1.000.000,00 to U$ 10.000.000,00	CASAGRANDE REVESTIMENTOS CERAMICOS S/A
90	U$ 1.000.000,00 to U$ 10.000.000,00	COOPERATIVA AGRICOLA SOLEDADE LTDA
91	U$ 10.000.000,00 to U$ 50.000.000,00	AGRICOLA ALVORADA LTDA
92	U$ 10.000.000,00 to U$ 50.000.000,00	RUETTE SPICES LTDA.
93	U$ 10.000.000,00 to U$ 50.000.000,00	IBEMA COMPANHIA BRASILEIRA DE PAPEL
94	U$ 1.000.000,00 to U$ 10.000.000,00	AGRO SOJA COMERCIO E EXPORTACAO DE CEREAIS LTDA
95	U$ 1.000.000,00 to U$ 10.000.000,00	BRASPERON COMERCIO DE CEREAIS LTDA
96	U$ 10.000.000,00 to U$ 50.000.000,00	ASPERBRAS TECNOLOGIA INDUSTRIAL E AGRONEGOCIOS LTDA
97	U$ 10.000.000,00 to U$ 50.000.000,00	ALUBAR CABOS S. A.
98	U$ 10.000.000,00 to U$ 50.000.000,00	AGROPECUARIA MAGGI LTDA
99	U$ 1.000.000,00 to U$ 10.000.000,00	UGGERI SA
100	U$ 1.000.000,00 to U$ 10.000.000,00	INDUCALCA LTDA
101	U$ 1.000.000,00 to U$ 10.000.000,00	HERTER CEREAIS LTDA.
102	U$ 10.000.000,00 to U$ 50.000.000,00	COTRIJUI - COOPERATIVA AGROPECUARIA & INDUSTRIAL
103	U$ 1.000.000,00 to U$ 10.000.000,00	JOSE DINON & CIA LTDA
104	U$ 1.000.000,00 to U$ 10.000.000,00	SIGMA AGROPECUARIA LTDA
105	U$ 10.000.000,00 to U$ 50.000.000,00	NPK TRANS OPERADORA LOGISTICA LTDA

RANKING	EXPORT VALUE CATEGORY	COMPANY
106	U$ 1.000.000,00 to U$ 10.000.000,00	BOCCHI IND COM TRANSP E BENEFICIAMENTO DE CEREAIS LTDA
107	U$ 10.000.000,00 to U$ 50.000.000,00	VILELA VILELA & CIA LTDA
108	U$ 1.000.000,00 to U$ 10.000.000,00	PARAISO BIOENERGIA LTDA
109	U$ 10.000.000,00 to U$ 50.000.000,00	AGRO-SAM AGRICULTURA E PECUARIA S/A
110	U$ 10.000.000,00 to U$ 50.000.000,00	AGRO INDUSTRIAL VISTA ALEGRE LTDA
111	U$ 1.000.000,00 to U$ 10.000.000,00	COABRA COOPERATIVA AGRO INDUSTRIAL DO CENTRO OESTE DO BRASIL
112	U$ 1.000.000,00 to U$ 10.000.000,00	COMERCIO DE CEREAIS FUZINATTO LTDA
113	U$ 1.000.000,00 to U$ 10.000.000,00	SOMA R.C. IMPORTACAO EXPORTACAO LTDA.
114	Below U$ 1.000.000,00	BERTOL SA IND COM E EXP
115	U$ 1.000.000,00 to U$ 10.000.000,00	RICARDO L. CASTRO & FILHO LTDA
116	Above U$ 50.000.000,00	U.S.A. - USINA SANTO ANGELO LTDA
117	U$ 10.000.000,00 to U$ 50.000.000,00	COSTA & VIEIRA LTDA
118	U$ 1.000.000,00 to U$ 10.000.000,00	MITSUBISHI CORPORATION DO BRASIL S/A
119	U$ 1.000.000,00 to U$ 10.000.000,00	AGROPECUARIA SANTA MARIA DO CERNE LTDA
120	Below U$ 1.000.000,00	GERBO ENGENHARIA E MANUFATURA
121	Below U$ 1.000.000,00	COOPERATIVA MISTA TUCUNDUVA LTDA
122	U$ 1.000.000,00 to U$ 10.000.000,00	COOPERATIVA AGRO PECUARIA ALTO URUGUAI LTDA
123	U$ 10.000.000,00 to U$ 50.000.000,00	COROL COOPERATIVA AGROINDUSTRIAL
124	Below U$ 1.000.000,00	AGROPECUARIA IPE LTDA
125	Below U$ 1.000.000,00	COOPERATIVA AGRICOLA MISTA NOVA PALMA LTDA
126	U$ 1.000.000,00 to U$ 10.000.000,00	OUROFERTIL FERTILIZANTES LTDA
127	Below U$ 1.000.000,00	MACROFERTIL - INDUSTRIA E COMERCIO DE FERTILIZANTES LTDA
128	U$ 10.000.000,00 to U$ 50.000.000,00	MILENIA AGROCIENCIAS S.A.
129	Below U$ 1.000.000,00	C.VACCARO & CIA LTDA
130	U$ 1.000.000,00 to U$ 10.000.000,00	ALMACOM TRADING COMPANY LTDA
131	Below U$ 1.000.000,00	SEMENTES SOJAMIL LTDA
132	U$ 1.000.000,00 to U$ 10.000.000,00	NUTRI 100 AGRO LTDA
133	U$ 10.000.000,00 to U$ 50.000.000,00	GRANULE EXPORTADORA E IMPORTADORA LTDA
134	U$ 1.000.000,00 to U$ 10.000.000,00	ATLAS AGROINDUSTRIAL LTDA
135	Below U$ 1.000.000,00	PERON FERRARI S/A
136	Above U$ 50.000.000,00	SEMENTES SELECTA SA
137	U$ 10.000.000,00 to U$ 50.000.000,00	ADAMI SA MADEIRAS
138	U$ 10.000.000,00 to U$ 50.000.000,00	CAFENORTE S/A IMPORTADORA E EXPORTADORA
139	U$ 1.000.000,00 to U$ 10.000.000,00	FERTIMIG FERTILIZANTES LTDA
140	U$ 1.000.000,00 to U$ 10.000.000,00	BIAGIO DELL'AGLI & CIA LTDA
141	Below U$ 1.000.000,00	CALCADOS PINA LTDA
142	U$ 1.000.000,00 to U$ 10.000.000,00	MASCARELLO - CARROCERIAS E ONIBUS LTDA
143	U$ 10.000.000,00 to U$ 50.000.000,00	PIMEX ACUCAR E ALCOOL LTDA
144	Below U$ 1.000.000,00	DALLEGRAVE MADEIRAS S/A

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