


Brazil's Booming Agriculture Faces Obstacles

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- Brazil has emerged as an important player in global food and agricultural markets.
- But the long-term growth of Brazilian agriculture could slow due to supply-side factors.
- And continued growth in domestic food demand and the changing composition of food demand could dampen growth in processed and high-value agro-food exports.



Brazil has emerged as an agricultural superpower in global food and agricultural markets thanks to economic and trade stability and regulatory reforms that encourage investment in agriculture. Brazil is an important producer and the largest exporter of sugar, ethanol, beef, poultry meat, coffee, orange juice, and tobacco.

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Rising global income and Brazil's ready availability of land, water, and labor to increase crop and meat production have driven exports. Brazil exports agricultural and food products, such as soybeans, pork, and poultry, to most countries of the world, including large markets in the European Union (EU) and the United States. But soaring demand in China has been at the root of much of Brazil's export growth. Brazil's agro-food sector accounted for over two-thirds of its total trade surplus in 2005. At US\$27.5 billion, Brazil's agro-food trade surplus is the largest in the world. Brazil's success in world markets has given U.S. farmers a powerful competitor.

Although greater competitiveness in the agro-food sector can be partially attributed to market liberalization up to early 1999, new methods of providing government incentives for Brazilian agriculture also contributed to the agricultural growth. These include preferential credit,

tax exemptions, financing for agricultural research, marketing and infrastructure improvements, as well as an array of Federal, State, and local subsidies.

Continuing trade expansion and diversification of markets and products remain at the core of Brazil's agricultural growth strategy. However, several constraints could hinder further long-term growth of Brazilian agriculture. Supply-side constraints include adverse macroeconomic shocks, ongoing transportation and marketing bottlenecks, financial constraints, and a slowdown on the expansion of agricultural land. On the demand side, rising consumer demand for high-value foods plus the growth of Brazil's bio-fuels industry could reduce the availability of Brazil's exportable surpluses.

Agro-Food Sector Important to the Brazilian Economy

Over the past decade, Brazil—the world's 11th largest economy—has been

consolidating its position as an important agro-food producer and major supplier to international markets. Production agriculture accounted for 10 percent of the country's gross domestic product (GDP) in 2005, but with the associated supply chain, the agro-food sector (production agriculture, processing, and distribution) accounts for nearly 27 percent of total exports and employs 18 million people, equivalent to 37 percent of the labor force. The agro-food sector, which was valued at US\$254 billion in 2005, accounted for 28 percent of the country's GDP.

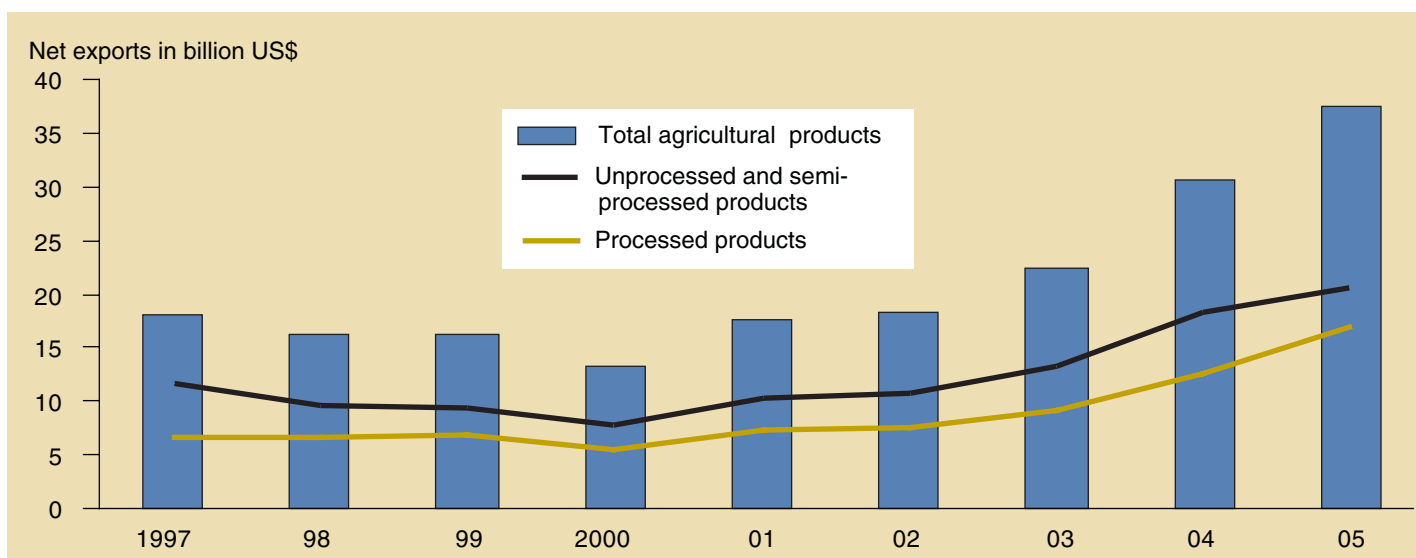
Brazil enjoys a low-cost resource base for agricultural production and has easily raised output by expanding area and increasing productivity. Production expansion has exceeded the rate of increase in consumer demand, leaving surplus production for more exports. Major economic and agricultural policy changes, including those that encourage investment in the sector, have broadened export channels.

Brazil's growing dominance in world agriculture, 2005 rankings

Commodity	World rank		Market share of global exports	Total exports	Export growth rates, 2000-05
	Exports	Production			
			Percent	2005 US\$ million	Percent
Sugar	1	1	42	3,919	20
Ethanol	1	1	51	766	79
Coffee	1	1	26	2,533	11
Orange juice	1	1	80	796	4
Tobacco	1	1	29	1,380	15
Beef	1	2	24	2,944	32
Poultry	1	3	35	3,770	31
Soybeans	2	2	35	5,345	22
Soymeal	2	2	25	2,865	13
Corn	4	3	35	121	48
Pork	4	4	13	1,252	40

Note: Harmonized codes: sugar (1701), ethanol (2207), coffee (0901), orange juice (2009), soybeans (1201), beef (0201/0202/160250), poultry meat (0207/160231/160232/160239), pork (0203/160241/160242/160249), soymeal (2304), corn (1005), and tobacco (2401). Source: USDA's Foreign Agricultural Service and Global Trade Information Services data.

Brazil's unprocessed and processed agro-food exports



Source: Calculations by USDA, Economic Research Service using Global Trade Information Services data.

The value of Brazil's 2005 agricultural exports reached US\$30.9 billion, led by soybeans and products, sugar, ethanol, beef, pork, and poultry. Since 2000, the value has grown at an average rate of 20 percent per year. Brazil also imports commodities that it does not produce competitively, including wheat. The value of those imports was US\$3.4 billion in 2005.

Exports of primary bulk, semi-processed, and processed commodities (soybeans, fresh, chilled and processed meats, coffee, flour and oils) have contributed the most to Brazil's total agricultural exports. Primary bulk agro-food products grew 8 percent annually during 1997-2005, compared with 9 percent annually for processed products and 5 percent annually for semi-processed products. Horticultural products, which include fruits, vegetables, flowers, nuts, and spices, have grown at a rate of 10 percent per year since 1997; however, both the volume and growth in horticultural exports are low as sanitary and phytosanitary regulations restrict access to foreign markets.

Since 2000, growth of exports of processed agro-food products accelerated to 20 percent per year. The food manufacturing industry has been stimulated by the desire for higher per unit returns, access to new processing technologies and international capital, and a growing entrepreneurial class. Between 2004 and 2005, the growth in exports of processed products (fresh, frozen, and processed meats, dairy products, breakfast cereals) accelerated, expanding by 33 percent, and now accounts for 44 percent of agro-food exports. In 2005, primary bulk commodities accounted for 25 percent of total Brazilian agro-food trade.

Stability and Reforms Support Farm-Sector Expansion

Rapid expansion of Brazilian agriculture and agro-food restructuring began in the mid-1980s, with the end of a policy regime that had channeled resources away from agriculture into the industrial and services sectors. Economic reforms in 1985 sought to eliminate domestic and export taxes and restrictions on agricultur-

al exports of soybeans, cotton, and meat and to eliminate import licenses for corn. During the early 1990s, the Government also removed much of the state intervention in agricultural markets—privatizing state enterprises and eliminating minimum support prices, government purchases of wheat and milk, and marketing boards (for coffee, sugar, and wheat).

But the most significant economic factor affecting agricultural output in Brazil since the mid-1990s was introduction of the successful Real Economic Stabilization Plan. Before 1994, Brazil had inflation levels generally well above 1,000 percent a year. To halt inflation, a new currency, the real, was introduced, which was initially pegged to the U.S. dollar and later followed a "crawling peg" policy of nominal depreciation of the real against the dollar. The Real Plan stabilized the economy, reducing inflation to around 5 percent per year and setting off a domestic demand boom that lasted for 5 years.

In early 1999, Brazil adopted a floating exchange rate. The real depreciated considerably, making Brazil an attractive

low-cost supplier of food and agricultural products. That stimulus led to the rapid expansion in soybean and meat production (see box, "The Impact of Exchange Rates on Brazil's Agro-Food Sector").

The Real Plan was accompanied by further privatization of state enterprises and elimination of remaining barriers to foreign investment, facilitating the presence of multinational companies in Brazil. Multinationals stimulated investment in agricultural research and development of integrated supply chains that link inputs with commodity production and distribution. In addition, by granting credit to producers to buy inputs (fertilizers, seeds, and chemicals), the large multinational corporations have alleviated the difficulties that Brazilian producers had in seeking credit from commercial banks.

As a result, production of major crops (soybeans, corn, rice, edible beans, and wheat) rose to 54 million tons in 1990, double the level of 1970. During the 1990s, total oilseed area increased 1.0 percent per year, compared with a decrease of 1.9 percent per year for total grain area, while yield increased 5.2 percent per year, compared with 4.3 percent per year for grains.

Crop production in Brazil reached an all-time high of 108 million tons in 2005, a fourfold increase from that of the 1970s. In addition to expanding export markets, a principal factor fueling growth and modernization in the crop sector was expansion of Brazil's hog and poultry industries and the accompanying rise in food demand. While output of edible beans and rice, major food staples, expanded roughly at the rate of population growth, soybean and corn production grew much more rapidly. Corn was once considered a Brazilian subsistence crop, but rising demand for meat and eggs associated with rising incomes has led to an expansion of the mixed feed industry and increased demand for corn by Brazil's fast-growing poultry and hog industries.

The Impact of Exchange Rates on Brazil's Agro-Food Sector

A currency devaluation will impact domestic and foreign prices, production costs, and debt indexed in local and foreign currencies. With the devaluation, prices of commodities in local currency increase whereas all costs measured in foreign currency decrease, leading to higher profit margins and increased revenues. On the other hand, producers and processors with foreign-denominated debt see that debt increase in local currency terms.

Both real and nominal exchange rates have enormous effects on Brazil's competitiveness in international markets. In recent times—1999 and 2001—Brazil has had two major currency devaluations. The accumulated devaluation between 1999 and the peak nominal rate in mid-2002 was 217 percent and through the end of 2005, the accumulated depreciation was 82 percent.

The economic impact of devaluation on the domestic agro-food industries depends on the price structure within the economy and the response of relative commodity prices to the devaluation. For example, the devaluation of the Brazilian currency benefited exporters, while reducing the profitability of imports.

In the case where Brazil's share of the world export market is high, the positive effect from the devaluation can be offset by a decline in world commodity prices. For example, the 1999 devaluation of the real raised expected returns to soybeans, which in turn led to a 20-percent expansion in area planted to soybeans in the 2000/01 crop year. The increase in area planted and higher production translated into 35-percent growth in soybean export volume. Since Brazil is a large player in the international soybean market, this export expansion led to changes in world prices and feedback effects, as well as a 2-percent decline in world soybean prices by 2001.

Since 2004, the real started a new period of appreciation, which makes Brazilian agro-food products more expensive to importers around the world.

Future Growth in Agriculture Could Slow Due to Supply-Side Obstacles...

Agriculture in Brazil still has plenty of room to grow. Brazil is using only one-third of its potential arable land, suggesting that continued growth of agriculture is possible. But a number of factors are likely to slow expansion in production and trade.

A more risky, less stable macroeconomic environment. The economic stability attained with macroeconomic reform during 1994-99 and a managed depreciat-

ing exchange rate signaled lower risk and stimulated investment and growth in the agro-food sector. But judging by the appreciating exchange rate, the current economic environment has dampened growth prospects for Brazil's agro-food sector. The restrictive monetary policy to keep inflation under control has resulted in rising interest rates, which in turn attract dollar-denominated capital inflows. The inflows have increased demand for reals, which have been steadily appreciating since September 2004. The appreciation has

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already affected Brazil's competitive pricing and the profitability of its food and agricultural exports. For example, by July 2006, the real had appreciated 32 percent against the U.S. dollar, potentially making Brazilian export products about one-third more expensive in other countries. With the real expected to continue to appreciate, Brazilian exporters will face a deteriorating competitive position in global food and agricultural markets.

Limited access to financing. Producers are expected to see more limited access to credit for production and marketing of crops and livestock due to two factors: the high current rate of indebtedness of crop and livestock producers and the higher cost of credit available to producers because of higher interest rates. In Brazil, financing for agriculture comes from three sources: government agricultural credit disbursed through the National System of Rural Credit, SNCR (26 percent); agricultural processors (20 percent); and commercial banks or other government agencies (54 percent). About two-thirds of the US\$27 billion credit line announced for the 2006/07 crop year, to be disbursed under the SNCR, will be at the subsidized interest rate of 8.75 percent per year. The gov-

ernment serves as the guarantor for those loans. All other credit will have to be financed at rates close to the prevailing commercial rate—now more than 15 percent. Agricultural industries and the commercial banks perceive credit to agriculture as higher risk due to the already high level of farm indebtedness. The current level of nonperforming loans is estimated at US\$7 billion, around 10 percent of the value of agricultural production. For the immediate future, a much larger share of a producers' working capital and investment will have to be financed at higher rates. The reduced availability and access to low-interest credit will have a dampening effect on the investment boom underway in the Brazilian agro-food sector.

Slower land expansion. The current agricultural area is 62 million hectares, but the potential for expansion is three times this amount, including 69 million hectares in the Cerrados tropical savannah area. The amount of credit required, however, for bringing the additional land into cultivation and further expanding agricultural production is more than double the credit expected to be available in the more risky economic climate. Additionally, continued expansion in the Cerrados and Amazon

forest areas is likely to be constrained by environmental concerns about the rate of land clearing. Even so, the expected rate of expanding area to crop and livestock production in Brazil will be one of the world's highest—4.5 percent per year over the next 10 years, or about 1.8 million hectares per year.

Infrastructure, transportation, and marketing bottlenecks. These undermine the competitive position of Brazil in world markets and translate into higher costs. Development of storage facilities, port facilities, roads, and railways has not kept pace with the breakneck pace of growth in agricultural production and exports. In recent years, higher soybean volumes for export markets have overwhelmed loading docks at Brazilian ports, resulting in long delays (measured in days, not hours) and additional costs. Some farm commodities travel 1,000 miles or more over poor and highly congested roads to reach the port. Less than one-quarter of national roads are officially deemed in good condition in Brazil. Recent studies have shown that the cost for logistics when exporting soybeans from Brazil is, on average, 83 percent higher than in the United States and 94 percent higher than in Argentina.



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Large investments in rehabilitating and expanding transport infrastructure are needed to keep up with expected demand growth and to lower the Custo Brazil (Brazilian cost). Custo Brazil is a term that has come to denote general cost of inefficiency from production and distribution bottlenecks, including the various logistical transactions associated with exports. Transaction export costs (an indicator of the Custo Brazil) represent 15-20 percent of the free-on-board (f.o.b.) price for agricultural commodities. While the Custo Brazil could be reduced through investments in producer-to-market, producer-to-port, and port-to-market distribution systems to reduce delivery times and costs and to maintain product quality, those investments will come too little too late to relieve the transportation bottleneck for the next several years.

...Continuing Sanitary and Phytosanitary Restrictions on Exports...

Brazil is still blocked from important markets in the North American Free Trade Agreement (NAFTA) and East Asia, due to sanitary and phytosanitary (SPS) restrictions. For example, Brazil has been unable to gain access to important markets for fresh, chilled, and frozen beef and pork products among NAFTA members—the United States, Canada, and Mexico—or Japan, South Korea, and Taiwan because of sanitary concerns, mainly Brazil's foot-and-mouth disease status. Brazil's poultry meat exports are accepted by some premium markets, such as Japan and Korea, but the U.S. and Canada still bar imports of Brazil's fresh, chilled, and frozen poultry meat because of disease concerns, particularly Exotic Newcastle Disease (END). END re-appeared in July 2006 after 5 years without outbreaks. Oilseeds have also faced sanitary restrictions from time to time. In

2005, for example, some shipments of Brazilian soybeans to China were barred from entry because of fungicide contamination. These constraints can be eliminated only by negotiations with trade partners and may require changes in domestic SPS policies and procedures, which could be very expensive.

...and Shifts in Domestic Demand

Industrial use versus food use. Changes in the composition of industrial use versus food use of agricultural production will affect the availability of agro-food commodities for the domestic and export markets. For example, the rapid expansion of Brazil's biofuel industry could profoundly affect the availability of grains and oilseeds for export and other domestic uses. Brazil's sugarcane and associated sugar and ethanol industries have grown rapidly in the last 5 years. Ethanol now accounts for 37 percent (in volume) of fuel

used by passenger cars. In further efforts to reduce Brazil's dependency on fossil fuels, Brazilian researchers are also investigating new biodiesel technologies (using castor, soybean, sunflower, cottonseed, and palm oils). Diesel consumption in Brazil is about 59 percent of total fuel use. Demand for soybeans as a raw material for biodiesel will likely increase use of Brazil's excess crushing capacity but dampen the recent boom in soybean exports.

Food demand. Future changes in the composition of food demand and the need to meet rising domestic demand will also dampen agricultural export growth. Improved economic performance, growth in per capita income, a more balanced income distribution, continued population growth, and retail marketing are expected to strengthen demand for the quantity and quality of food products in Brazil. For wealthier consumers, growing urbanization and rising incomes may shift greater food consumption toward higher value and processed food products (meats, fats and oils, dairy products, and ready-to-eat foods). For lower income consumers, the need to meet necessary caloric requirements may be the primary driver of food consumption patterns.

Brazil is a large, growing market—population of 183 million—with a large middle class and a large youth market. Brazil is categorized by the World Bank as a lower middle-income country with per capita gross income of US\$3,300 in 2006. However, disparities in income distribution have restricted food demand. Better income distribution, rising incomes, and the new Zero Hunger social program, which seeks to provide food access to 46 million people in 9.5 million households, could change domestic food consumption patterns as a large share of additional disposable income may be

used to raise animal protein consumption (meat and eggs). Per capita meat consumption has grown annually by 2 percent on average since 1995.

Higher income is expected to lead to greater consumption of higher quality meats and other processed and high-value food products. Continued growth in domestic food demand and, more importantly, the changing composition of food demand will dampen growth in processed and high-value agro-food exports.

Despite great strides for Brazilian agriculture in world markets, the competitiveness and efficiency of Brazil are under pres-

sure from a number of sources. On the supply side, adverse changes in the macro economic environment could slow down new investment. Output expansion could be limited by lack of financial resources for agricultural production, environmental regulations restricting the land expansion rate, lack of investment in infrastructure, and diseases, such as soybean rust. On the demand side, Brazilian products are blocked from a number of foreign markets because of SPS concerns, and growing demand for raw materials for biofuels and increases in domestic food consumption could reduce exportable surpluses. **W**

This article is drawn from . . .

"Foot and Mouth Disease in Brazil," by Constanza Valdes, in *Livestock, Dairy, and Poultry Outlook*, LDP-M-137, USDA, Economic Research Service, November 17, 2005, available at: www.ers.usda.gov/publications/ldp/nov05/ldp137t.pdf

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You may also be interested in . . .

The ERS Briefing Room on Brazil, www.ers.usda.gov/briefing/brazil/

"China's Growing Affluence: How Food Markets Are Responding," by H. Frederick Gale, in *Amber Waves*, Vol. 1, Issue 3, USDA, Economic Research Service, June 2003, available at: www.ers.usda.gov/amberwaves/june03/features/chinasgrowingaffluence.htm

"The Elephant is Jogging: New Pressures for Agricultural Reform in India," by Maurice Landes, in *Amber Waves*, Vol. 2, Issue 1, USDA, Economic Research Service, February 2004, available at: www.ers.usda.gov/amberwaves/february04/features/elephantjogs.htm