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# China's Agricultural Imports Boomed During 2003-04

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## Abstract

China's agricultural imports more than doubled between 2002 and 2004 due to surging demand for basic commodities, a more open trade regime, and tighter commodity supplies in the Chinese domestic market. Soyoil, palm oil, and raw soybeans crushed to make cooking oil and animal feed together accounted for nearly half of import growth. Industrial raw materials—cotton, leather, and rubber—accounted for an additional one-third of the dollar value of agricultural import growth. U.S. agricultural exports to China jumped to a record \$5.5 billion in 2004 due to dramatic growth in U.S. exports of soybeans, cotton, and wheat. China was the fourth-largest overseas market for U.S. farmers during 2004, accounting for 9 percent of U.S. agricultural exports. China's agricultural exports continued to climb as well, but at a rate slower than its growth in imports. The outlook for Chinese imports is favorable due to strong economic growth and continued liberalization of the economy.

**Keywords:** China, agricultural trade, imports, exports, vegetable oil, soybeans, cotton, tariffs, tariff rate quotas, World Trade Organization

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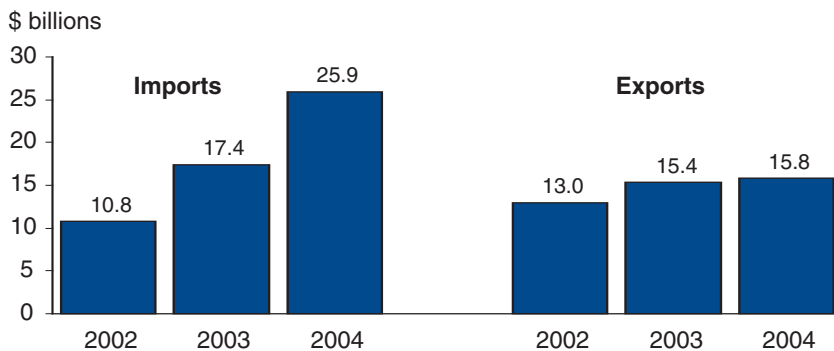
## Introduction

The combination of spectacular economic growth, lower barriers to imports, higher commodity prices, and tightening domestic commodity supplies led to a more-than-doubling of China's agricultural imports between 2002 and 2004. After several years of sluggish growth, the value of agricultural imports jumped from less than \$11 billion in 2002 to \$25.9 billion in 2004 (fig. 1).<sup>1</sup> The increase in value was due to both increasing volume and increasing prices of most imported items. China's agricultural exports also grew, but at a slower pace.

U.S. agricultural exports to China jumped to a new record of \$5.5 billion in 2004, more than double the \$2 billion total for 2002 (fig. 2). China moved ahead of South Korea to become the fourth-largest market for U.S. agricultural exports. The United States was the leading supplier of China's agricultural imports. The United States provided 40-50 percent of China's soybean imports, about half of its cotton imports, and most of its meat imports. China's slower pace of corn exports during 2004 also reduced competition for U.S. exports of corn.

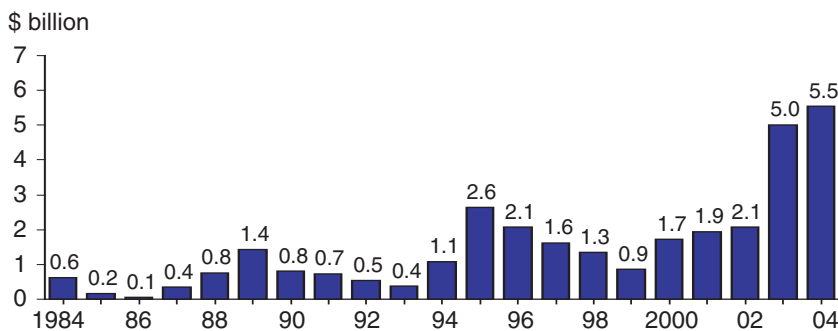
<sup>1</sup>These totals are for calendar years, based on a USDA definition of agricultural trade that excludes fish, seafood, forest products, and textiles. This report's totals are lower than some other estimates. Branson and Butterworth's total agricultural imports for 2004, based on a slightly different USDA definition, was \$27.7 billion, \$1.8 billion higher than this study's total. The total agricultural imports for 2004 reported by Weng was \$28 billion. The World Trade Organization total for 2003 (which includes textiles and forest products) was much higher, at \$30.5 billion, compared with this study's total of \$17.4 billion.

Figure 1  
**China's agricultural trade, 2002-04**



Source: ERS calculations based on China's customs statistics and data from USDA, Foreign Agricultural Service.

Figure 2  
**U.S. agricultural exports to China, 1984-2004**



Note: Data are based on calendar years.

Source: USDA, Foreign Agricultural Service.

## Gains Concentrated in Edible Oils and Industrial Inputs

China's demand for vegetable oils, animal feed, and industrial inputs were the driving forces behind the increase in imports. Agricultural import gains were broad-based, with nearly every major category recording double-digit percentage increases, but the dollar value increase was concentrated in a handful of commodities (fig. 3).

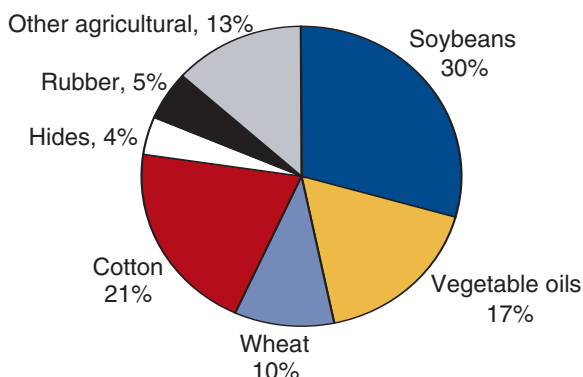
Soybean imports alone jumped from \$2.5 billion to \$7 billion, accounting for 30 percent of the 2002-04 increase in agricultural imports.<sup>2</sup> Soybeans are crushed to make vegetable oil and soybean meal used for high-protein animal and fish feed.<sup>3</sup> The surge of imported beans was not enough to satisfy China's growth in demand for vegetable oils, as imports of vegetable oil (mostly soybean and palm oil) grew \$2.6 billion, accounting for another 17 percent of agricultural import growth. Oils and soybeans combined accounted for nearly half of the increase in China's agricultural imports during 2002-04. Demand for soybean meal—driven by growing production of hogs, poultry, and fish—was also strong, as nearly all of the soybean meal made from imported soybeans was used domestically.<sup>4</sup>

Wheat was the only other major food commodity that figured prominently in China's agricultural import growth. Wheat imports rose from \$100 million in 2002 to \$1.6 billion in 2004, accounting for 10 percent of the increase in imports. Wheat imports had been minimal during 2000 to 2003, as China sought to reduce excess wheat stocks accumulated during the late 1990s. Imports during 2004 were reportedly purchased for China's government reserves.

Commodities used as raw materials for China's booming manufacturing sector also contributed to agricultural import growth. Cotton imports grew tenfold, from \$308 million in 2002 to \$3.4 billion in 2004, accounting for 21 percent of China's agricultural import growth. Cotton imports supported growth in China's textile industry and supplemented tight domestic supply due to a poor domestic cotton harvest in 2003.

Figure 3

### Composition of value increase of China's agricultural imports, 2002-04



Source: ERS calculations based on China's customs statistics reported by Global Trade Information Services, Inc. (GTIS).

<sup>2</sup>These and all other totals in this report are based on calendar years and may differ from marketing year totals.

<sup>3</sup>Trade sources estimate that one-third of China's soybean meal is used by the aquaculture industry.

<sup>4</sup>China exported about 700,000 tons of soybean meal annually during 2003 and 2004.

Animal hides and natural rubber accounted for a combined 9 percent of import growth.

The remaining 13 percent (\$2 billion) of agricultural import growth was spread across dozens of other commodities that posted large percentage gains but were small on a dollar basis. Specific products with big gains included wool, milk, cheese, dairy cattle, pork, oranges, grapes, bananas and other tropical fruit, cocoa beans, frozen potatoes, wine, sesame seeds, miscellaneous food and feed preparations, cassava, and cassava starch. The United States is a significant supplier of only a few of these commodities (pork, oranges, grapes, food preparations, and frozen potatoes). Rice imports increased in 2004, but corn imports remained minimal.

## U.S. Major Beneficiary

As an important producer of some of China's most important agricultural imports, the United States was a major beneficiary of China's growth in agricultural imports. In 2004, China was the destination for 9 percent of U.S. agricultural exports, more than double the 2002 share (table 1). China has quickly emerged over the past decade as the most important market for U.S. soybeans. China was an exporter of soybeans until the early 1990s, but in 2004, it accounted for 34.9 percent of U.S. soybean exports, double its 2002 share of 17.5 percent. China also accounted for a third of U.S. cotton exports, 30 percent of animal hide exports, and 10 percent of U.S. wheat exports during 2004. All of those shares were up sharply from 2002.

The gains in U.S. agricultural exports were concentrated in just a few commodities. Three-fourths of the dollar gains were accounted for by just two commodities: cotton and soybeans (fig. 4). Wheat accounted for another 13 percent and hides 2 percent of the gains. The remaining 9 percent of the increase in export value (\$317 million) was spread over numerous other categories, including miscellaneous food preparations, fruit, pork, dairy products, tobacco, and sugar.

China's soybean oil imports came primarily from Brazil and Argentina and its palm oil imports came from Malaysia and Indonesia. The United States does not benefit directly from China's increased imports of edible oil, but these imports increase world demand for soybeans, providing indirect benefits to U.S. soybean producers.

**Table 1—China's share of U.S. exports, selected commodities, 2002 and 2004**

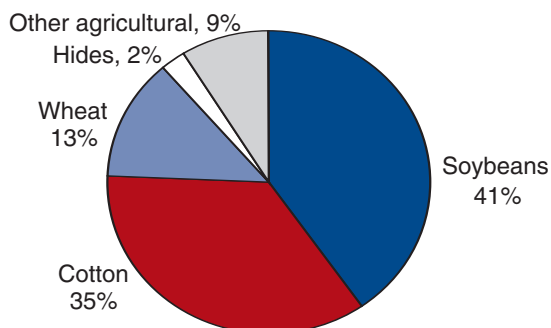
Commodity	2002	2004
	<i>Percent</i>	
All agricultural exports	3.9	9.0
Soybeans	17.5	34.9
Cotton	6.8	33.3
Hides and skins	22.5	30.0
Wheat	.7	9.7

Note: data are based on export values and calendar years.

Source: ERS calculations based on statistics from USDA, Foreign Agricultural Service.

Figure 4

### Composition of value increase of U.S. agricultural exports to China, 2002-04



Note: Chart shows composition of change in agricultural exports between 2002 and 2004.

Source: ERS calculations based on data from USDA, Foreign Agricultural Service.

## China's Exports Grew More Slowly

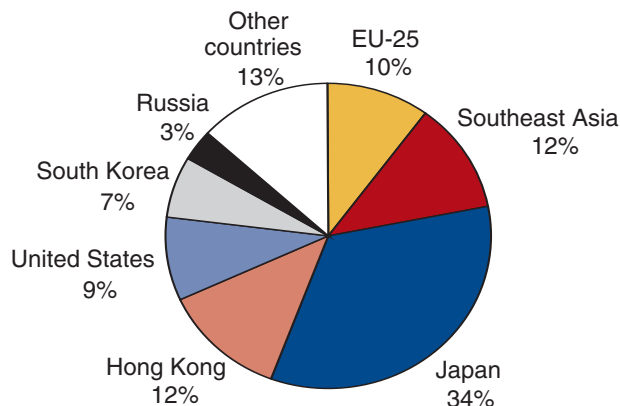
China's agricultural exports also grew by a substantial \$3 billion during 2002-04. China has a diverse array of agricultural exports, the most important of which are processed foods, vegetables, fruits, and corn. Most of China's export gains were in various preserved and processed food categories, vegetables, and fruits. Pork exports rose by \$250 million, but they were offset by a decline in poultry exports. China's corn exports peaked at nearly \$1.8 billion in 2003, but declined to \$324 million in 2004 as the Chinese Government cut corn export quotas.

Japan is the largest market for China's agricultural exports, accounting for about one-third of the total (fig. 5). Most of China's other major markets are neighboring countries or regions, including Hong Kong and Southeast Asia (each accounted for 12 percent of China's exports), South Korea (7 percent), and Russia (3 percent).<sup>5</sup> The United States is also one of China's largest markets, accounting for 9 percent of Chinese agricultural exports in 2004. The 25 European Union (EU) countries accounted for a combined 10 percent of Chinese agricultural exports.<sup>6</sup>

The United States is also one of China's fastest growing markets, with agricultural exports to the United States growing 43 percent between 2002 and 2004 (fig. 6). China's agricultural exports to several other major markets (EU, Japan, Hong Kong, and Russia) also grew rapidly, at 25-35 percent. Exports to Southeast Asia grew only 5 percent and exports to South Korea fell by 10 percent, reflecting a boom in corn exports to these two regions during 2002-03 that fell off sharply in 2004.

U.S. agricultural imports from China are diverse, including many vegetable, fruit, and animal products (table 2). The fastest growth occurred for apple juice, mushrooms, dried berries, pineapple and mandarin orange preparations, garlic, animal offal, confections, honey, and nuts, each of which grew \$10 million or more between 2002 and 2004. Some of these products are providing stiff competition for U.S. producers.

Figure 5  
China's agricultural exports by destination, 2004

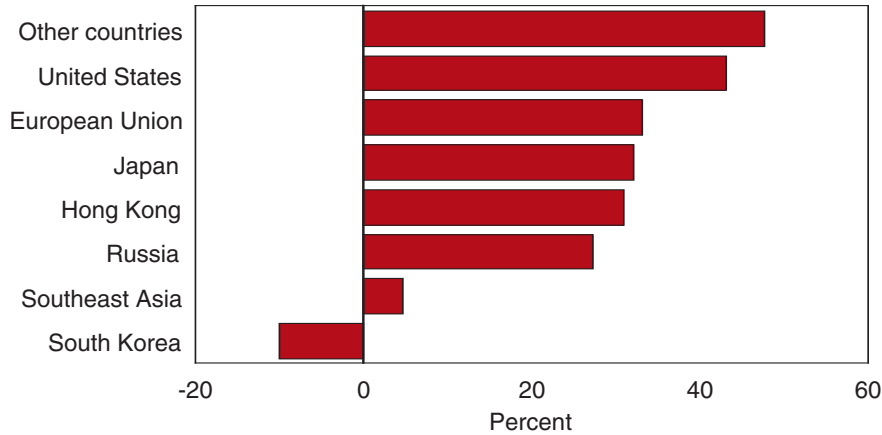


Note: This chart was constructed using Chinese exports for Harmonized System (HS) codes 01-24, except for HS03—fish and seafood. Wood and textile products are not included. Source: ERS calculations are based on China's customs statistics reported by Global Trade Information Services, Inc. (GTIS).

<sup>5</sup>Hong Kong and Macau are administratively part of the People's Republic of China, but they are still considered separate entities in international trade statistics. Taiwan and Macau were included in the Southeast Asia region for this analysis.

<sup>6</sup>Three EU countries accounted for half of China's agricultural exports to the EU: Germany, 23 percent; the Netherlands, 18 percent; and the United Kingdom, 11 percent.

Figure 6

**Growth in China's agricultural exports by destination, 2002-04**

Source: ERS calculations based on China's customs statistics reported by Global Trade Information Services, Inc. (GTIS).

**Table 2—U.S. agricultural imports from China with largest growth, 2002-04**

Category	HS Code	-----\$1,000-----			Growth, 2002-04 Percent
		2002	2003	2004	
Fruit, nut, and soybean preparations	2008	115.5	168.3	189.3	63.9
Apple juice and other fruit and vegetable juices	2009	54.9	101.5	166.4	203.2
Feathers and down	0505	111.5	110.2	145.6	30.5
Sugar confections	1704	45.2	52.4	65.6	45.3
Vegetable saps and extracts	1302	44.7	50.0	60.9	36.2
Guts, bladders, stomachs, and parts of hogs and other animals	0504	44.8	62.2	60.1	34.2
Pignolia, macadamia nuts, and chestnuts	0802	33.3	35.6	52.4	57.4
Animal skin waste and other animal products used as feed	0511	28.8	35.6	50.6	75.6
Plants used for pharmaceuticals or perfumes	1211	37.7	44.6	49.3	30.6
Dried garlic and other dried vegetables	0712	33.2	41.1	49.0	47.5
Mushrooms	2003	16.5	34.7	42.4	157.0
Animal feed preparations	2309	23.9	31.7	40.7	70.4
Onions and garlic	0703	21.0	24.0	39.7	89.3
Dried berries and other fruit	0813	12.0	18.4	38.3	220.2
Tea	0902	23.1	29.6	31.4	36.0
Honey	0409	7.7	33.1	30.3	291.8

Note: HS Code = Harmonized System Code. Table excludes fish, textile, and wood products.

Source: ERS calculations based on data from USDA, Foreign Agricultural Service.

## Factors Driving China's Trade

The rise in the value of imports resulted from both an increased volume of most imports and higher commodity prices and shipping costs that increased the value per unit. The quantity of soybean imports rose 78 percent, from 11.3 million tons in 2002 to 20.2 million tons in 2004, and the average cost per ton of imported soybeans arriving at Chinese ports rose 57 percent (table 3). The cost of cotton imports per ton rose 59 percent, and the per ton cost of rubber imports rose 64 percent. Per ton costs rose 24-34 percent for China's imports of wheat, soybean oil, palm oil, and animal hide imports. Rice was the only one of China's major commodity imports for which the cost per ton did not rise.

The higher per ton cost of imports reflected higher world commodity prices as well as soaring ocean freight rates. Many analysts attribute both of these phenomena to China's greater appetite for raw material imports. China's sharp increase in demand for commodity imports combined with poor worldwide harvests to sharply increase world prices for several crops during 2003. China's surge in imports of raw materials, including petroleum, metals, and many other raw materials, also was a major factor in driving up ocean shipping rates, an important component in the delivered cost of agricultural commodities. Freight rates for grain peaked at over \$70 per ton in April 2004, up from less than \$20 per ton in early 2002 (fig. 7).

High ocean freight rates boosted the dollar value of commodities imported, but also probably kept the quantity of Chinese agricultural imports from rising even further than they did. For example, high potential freight costs put the potential cost of imported U.S. corn above domestic Chinese prices, keeping corn imports at minimal levels. The freight differential also improved the competitiveness of Chinese corn exports vis-à-vis U.S. corn in Asian markets.

China's rapid economic growth is a major factor behind its surge in agricultural imports. China's economy grew 9.5 percent in 2004, but the value of its agricultural output grew only 6.3 percent (table 4). Much of China's growth was concentrated in the manufacturing and construction sectors, which grew 11.1 percent.

**Table 3—Change in quantity and unit value of major Chinese agricultural imports, 2002-04**

Commodity	Quantity imported			Unit value of imports		
	2002	2004	Change	2002	2004	Change
	----1,000 tons----		Percent	Dollars per ton		Percent
Soybeans	11,316	20,178	78	219	345	57
Cotton	171	1,900	1,008	1,049	1,666	59
Wheat	605	7,233	1,097	170	227	34
Soybean oil	870	2,515	189	469	616	31
Palm oil	1,695	2,388	41	394	491	25
Rice	236	762	223	337	332	-2
Natural rubber	956	1,283	34	726	1,187	64
Hides	537	764	43	1,259	1,558	24

Note: Data are based on calendar years. Unit value is the dollar value of imports divided by the quantity. It approximates the average cost, insurance, and freight of the commodity.

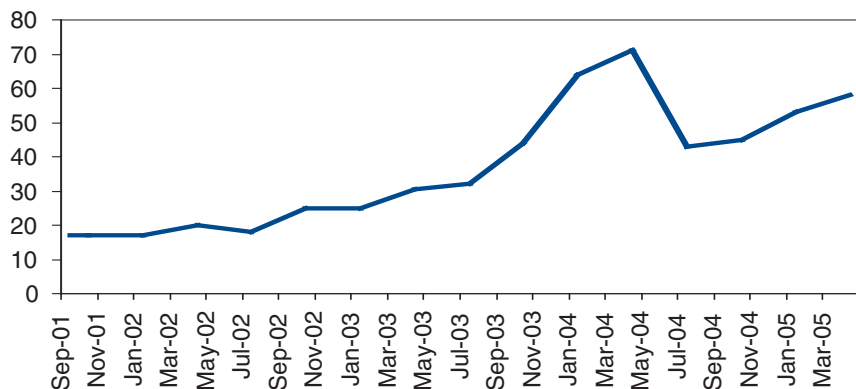
Source: ERS calculations based on China's customs statistics reported by Global Trade Information Services, Inc. (GTIS).



Figure 7

**Average ocean freight rates, U.S. gulf to north Asia, 2001-05**

Dollars per ton



Note: Rates are cost per ton of grain shipped from U.S. Gulf of Mexico to north Asia in a Panamax with capacity of 54,000 tons or greater.

**Table 4—Macroeconomic factors affecting China's agricultural raw materials demand**

Item	Growth, 2004
	<i>Percent</i>
Gross domestic product	9.5
Primary industry (agriculture)	6.3
Manufacturing and construction	11.1
Services	8.3
Production	
Yarn	13.9
Cloth	18.8
Retail sales	13.3
Food, tobacco, beverages	18.0
Apparel, shoes, textiles	18.7
Food service	21.6
Consumer Price Index change:	
Food	9.9
Grain	25.7
Clothing	-1.5

Source: ERS calculations based on data from National Bureau of Statistics (2005).

China's remarkable industrial growth played a large part in driving up agricultural imports. Over 30 percent of the growth in China's agricultural imports came from raw materials used in production of nonfood manufactured products: cotton, animal hides, and rubber, as well as other agricultural-derived products used in industrial production. In particular, growing textile production is generating demand for cotton and wool that is beyond China's production capacity. China's exports of apparel and footwear categories grew in double digits during 2004, and its domestic retail sales of apparel, shoes, and textiles rose 18.7 percent. Chinese yarn production grew 13.9 percent, and cloth production grew 18.8 percent during 2004.

Agricultural imports are partly driven by increased food demand. China's food, beverage, and tobacco sales grew 18 percent, and foodservice industry sales grew 21.6 percent during 2004. After accounting for price increases (food prices rose 9.9 percent), the real increase in food sales was about 8-10

percent. By comparison, agricultural output grew only 6.3 percent, suggesting that food demand is outpacing supply.

The rapid growth in domestic food sales suggests broad-based increase in food demand. Note, however, that the majority of food-related imports (and nearly half the value of agricultural imports) were in a single sector: vegetable oils and soybeans that are crushed to produce vegetable oil and animal feed. About half of soybeans crushed in China are imported. Consumer and food-service industry demands have also translated into sharp increases in other food import items, such as meats, milk, cheese, wines, and fruits, but those represent a relatively small share of China's agricultural imports. Animal feed produced from soybeans has helped China remain mostly self-sufficient in poultry and meat production, but corn—the largest ingredient in animal feed—is produced domestically. Apart from its reliance on vegetable oil imports, China remains overwhelmingly self-sufficient in nearly all major food items. Even China's relatively large wheat imports during 2004 were equal to only 7 percent of its estimated wheat consumption.

While China remained mostly self-sufficient in grain, its tighter grain supply-demand balance influenced its agricultural trade. Chinese grain prices rose particularly fast during 2004 (26 percent), reflecting a tightening balance between domestic supply and demand for grain. China accumulated large grain surpluses during the late 1990s, and its grain imports were unusually low from 1997 to 2003 as it disposed of excess stocks. China was a large exporter of corn, rice, and wheat during this period as authorities disposed of large inventories of grain. Exports of all three commodities were scaled back during 2004 after domestic grain prices rose sharply in late 2003. Wheat imports jumped to 7.2 million metric tons (mmt) during calendar year 2004 (with additional deliveries scheduled for calendar year 2005) as authorities sought to replenish state reserves. This was the first year that wheat imports had exceeded 3 mmt since 1995. Rice imports rose also, but by a more modest 500,000 tons. Corn imports remained negligible, but corn exports fell dramatically, from a record 16.4 mmt during 2003 to 2.4 mmt during 2004, China's smallest export tally since 1995.

Trade impacts from China's accession to the World Trade Organization (WTO) in December 2001 began to materialize in 2003 and 2004.<sup>7</sup> As a WTO member, China cut tariffs, opened tariff rate quotas (TRQs) for imports of grains, vegetable oils, cotton, wool, and sugar at low tariffs, limited the share of import quotas allocated to state trading enterprises, eliminated export subsidies, and pledged to use science-based sanitary and phytosanitary standards for imports. WTO membership also gave China more liberal access to textiles markets in the United States, European Union, and Canada. The 1995 Agreement on Textiles and Clothing (ATC) eliminated import quotas for a number of products in these markets in 2002. In 2005, all textile and apparel quotas inherited from the Multifiber Arrangement were eliminated, allowing China's exports to grow further (MacDonald and Vollrath).

Increased exports and strong domestic demand for textiles and clothing greatly expanded China's demand for cotton. The TRQ for imports of cotton was the only quota that was entirely filled, and industry demand was so great that additional licenses for imports beyond the quota amount were issued in

<sup>7</sup>Phased-in tariff rate quotas for selected bulk commodities and tariff cuts for other commodities reached their final levels in 2004.

2003 and 2004. TRQs for palm oil, soybean oil, sugar, wool, and wheat were heavily used during 2004 (table 5). During 2002, China's first year in the WTO, TRQs were mostly unused due to a combination of market conditions and slow implementation of commitments (Gale and Hansen). Imports of most commodities under TRQs picked up during 2004, but only about one-third of the TRQs for rapeseed oil and long-grain rice were used and quotas for corn and short/medium-grain rice were hardly used at all. The low use of these quotas reflects abundant domestic supply of corn, rice, and rapeseed.

A number of other factors influenced China's agricultural imports. Soybean imports were slowed for several months during 2004 when Chinese officials rejected Brazilian cargoes after finding the shipments contained some seeds treated with a prohibited fungicide. Outbreaks of Severe Acute Respiratory Syndrome (SARS) and avian influenza dampened growth in China's poultry production, which in turn weakened the demand for soymeal.

Poultry imports were down by \$300 million in 2004 due to China's ban on imports from the United States following an outbreak of low-pathogen avian influenza in Delaware. The ban was in effect from February through November 2004 and remains in effect for poultry originating in Connecticut and Rhode Island (USTR). China also banned imports of beef and other bovine products from the United States in December 2003 due to the single case of bovine spongiform encephalopathy (BSE) found in the United States during 2003 (Bean and Zhang). In late 2004, the United States and China reached agreements that would allow imports of U.S. bovine semen and embryos to resume (although imports had not resumed when this report was written), but the ban on beef and other bovine products remained in effect in 2005 (USTR).

Another factor affecting China's imports is the decreasing volume of trade through Hong Kong. In past years, many U.S. exports to China passed through Hong Kong, but exports are increasingly shipped directly to China. Lower tariffs and reduced licensing requirements have reduced the advantage of smuggling products over the Hong Kong border, and China now requires a second inspection of meat trans-shipped from Hong Kong to China. Importers are shifting to direct shipments to China to reduce costs and retain more control over product shipments (Bean).

**Table 5—Use of China's tariff rate quotas, 2004**

Commodity	Tariff rate quota	Actual imports	Estimated use of quota
	-----Million metric tons-----		Percent
Cotton	0.894	1.9	>100
Palm oil	2.7	2.4	88
Soybean oil	3.1	2.5	81
Wool	.288	.221	77
Wheat	9.6	7.2	75
Sugar	1.9	1.2	63
Rapeseed oil	1.1	.35	32
Long-grain rice	2.7	.8	30
Medium/short-grain rice	2.7	0	0
Corn	7.2	<.1	0

Source: ERS calculations based on China's customs statistics reported by Global Trade Information Services, Inc. (GTIS).

## Is the Boom Sustainable?

Is China entering a new era of sustained agricultural imports? China has a history of volatility in its agricultural imports. Previous booms in U.S. agricultural exports to China in 1989 and 1995 (in each year, exports doubled compared with the previous year) were followed by a period of 4-5 years of declining exports. This pattern was broken when the doubling of exports to China in 2003 was followed by a further increase in 2004 (see fig. 2). Exports to China remained strong in the early months of 2005. There are reasons to believe that China's current pace of agricultural imports will be sustained into the future. However, the concentration of imports in a few sectors and the continued (though diminishing) importance of government policy leave open the possibility of volatility in China's imports.

## Many Factors Suggest Steady Demand for Imports

China's increasingly market-driven economy, limited domestic production capacity, and a more open foreign trade environment should contribute to stability in its agricultural trade. The government has reduced its control over agricultural production and foreign trade. It has reduced tariffs and given up its monopoly on foreign trade of most commodities.<sup>8</sup> Its commitments as a WTO member have also streamlined marketing channels for imports. China's trade partners still encounter many barriers to imports, but China's trade environment is much more open than in earlier years (USTR).

China's industrial growth shows no signs of abating, and many manufacturers rely on imported raw materials. Chinese production of textile products, shoes, leather goods, and other items are likely to continue growing in coming years, maintaining strong demand for cotton, rubber, and hide imports. Vegetable oil and animal feed production also remains strong (Tuan, Fang, and Cao). Given China's high degree of reliance on soybean and vegetable oil imports and limited capacity to expand domestic oilseed production, a sharp decline in soybean or vegetable oil imports is unlikely.

Meat imports are likely to grow due to steady demand and the end of Chinese bans on U.S. poultry and beef. Shipments of U.S. poultry to China resumed immediately after China removed its avian influenza-induced ban on U.S. poultry imports in December 2004. China's ban on beef imports from the United States is still in place, but its presumed eventual removal will lead to a recovery of beef imports. Demand for imported pork is strong; domestic outbreaks of avian influenza and the ban on U.S. beef imports may have induced consumers to substitute pork for beef and poultry (Bean and Zhang; Buckalew).<sup>9</sup>

China's food retail and restaurant industries are growing at an astounding pace, and these sectors are likely to be important sources of demand for food imports. Supermarkets were nearly nonexistent in China as recently as the early 1990s, but are now becoming a dominant force in Chinese food retailing (Bean; Gale and Reardon). Restaurants and hotels have also expanded rapidly. While supermarkets still sell predominantly domestic food products, they are exposing consumers to a wider variety of premium-priced foods. Hotels catering to foreign tourists and business travelers are an important source of demand for imported foods. Restaurants and hotels are creating niche markets for imported foods among Chinese consumers who tend to eat more exotic fare in restaurants than they do at home. In addition to the effects on demand, supermarket and restaurant chains are also streamlining Chinese food distribution networks, making it easier to import food products. These changes in the food system are laying the groundwork for rising imports of food products in the future.

<sup>8</sup>Government entities still retain their dominance in wheat imports and corn exports.

<sup>9</sup>Note that most of China's meat imports are edible offal rather than muscle meats. Much of China's imported beef is purchased by hotels catering to foreign visitors.

## Potential for Volatility Remains

Most indicators point to continued strong import demand, but the structure of China's agricultural imports and the continued (although diminishing) importance of government policy leaves open the possibility of volatility in China's agricultural trade. Chinese agricultural imports—especially those supplied by the United States—are concentrated in just a handful of commodities, so a disruption or policy change in one sector, such as cotton-textiles or oilseeds, could have a major impact on agricultural trade. During 2004, tighter bank lending ordered by the central government to cool the overheating economy temporarily slowed demand for soybean and cotton imports. Other macroeconomic shocks, such as a sharp revaluation of the Chinese currency, could also affect demand for agricultural imports (Shane and Gale).<sup>10</sup> China's demand for cotton could be affected by imposition of restraints on imports of clothing by trading partners. China's agricultural imports could also be affected by its various bilateral trade agreements currently under discussion.<sup>11</sup>

While government policies are declining in importance, they still can cause abrupt changes in China's agricultural trade. The surge of wheat imports during 2004 and 2005 was driven largely by replacement of aging grain in government reserves and an effort to slow the growth in domestic grain prices. Wheat imports may tail off in subsequent years. Corn exports—still determined by quotas set by the central government—boomed during calendar year 2003, reaching a record 16.4 mmt. Then they were abruptly scaled back in 2004 to 2.3 mmt, again due to concerns about tight domestic grain supplies (Gale). Policymakers accelerated the pace of corn exports in early 2005 to prevent domestic corn prices from falling (Gifford and Jiang). The quantities of grain and cotton stocks—key determinants of domestic market conditions—are still a state secret, making it difficult to anticipate swings in trade and changes in domestic policies.

Soybean shipments have been periodically disrupted. In May 2004, Chinese customs officials refused to accept soybean shipments from a number of Brazilian suppliers after finding traces of fungicide-treated seeds in Brazilian shipments. The ban on Brazilian shipments occurred at the same time many Chinese crushers were seeking to default on contracts for high-priced soybeans after a sharp decline in world prices caught them by surprise. During 2002 and 2003, soybean trade was disrupted for brief periods by uncertainty regarding new Chinese regulations governing genetically modified agricultural commodities.

China has traditionally sought to remain self-sufficient in rice, wheat, and corn. A greater emphasis on supporting farm incomes in recent years has given policymakers another reason to slow imports of grain in order to keep domestic prices high. China seems to have accepted its heavy reliance on imports of soybeans, vegetable oil, and barley, but recent policy measures aim at boosting grain production. In 2004, China introduced direct subsidies to grain producers to increase farm incomes and induce farmers to plant more grain in order to remain self-sufficient in grain (Gale, Lohmar, and Tuan). In 2005, China announced plans to release new high-yielding hybrid rice varieties and is considering commercialization of genetically modified

<sup>10</sup>A revaluation of the Chinese currency, currently fixed at 8.28 yuan per dollar, would make U.S. products less expensive in the China market, encouraging imports. However, macroeconomic impacts on the Chinese economy could have an offsetting dampening effect on imports.

<sup>11</sup>China and the Association of Southeast Asian Nations (ASEAN) began implementing an "early harvest" program that reduces tariffs on fruits and vegetables as a prelude to a free trade agreement. Bilateral agreements with Australia, New Zealand, Chile, Pakistan, and Middle Eastern countries are also in various stages of discussion.

rice in order to raise rice yields. In addition, Chinese policy now encourages production of grass-fed livestock in order to avoid dependence on feed grain imports as meat consumption rises.

China will also provide stiff competition as an exporter of many food products. Its exports of a wide range of vegetables, fruits, seafood, poultry, processed foods, and organic food ingredients have grown rapidly despite facing bans in Japanese and European markets due to quality, disease, and chemical residue problems (Cheng; Shi; Weng). Chinese agricultural officials see agricultural exports as a key to rural job creation and income growth (Cheng) and have made plans to double agricultural exports within 10 years by offering technical and financial assistance to Chinese farms and agribusinesses. Improvements in food safety, disease control, and reduced chemical use will help China to penetrate foreign markets (Weng).

China will continue to be an important player in world agricultural markets in coming years. For many U.S. farmers, China will be an important source of demand for an ever-wider array of commodities. For many other farmers, China will be a formidable competitor as it asserts itself in world markets for high-value products that can be produced cheaply with its abundant supply of labor.

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**Appendix table 1—Value of China's agricultural imports and exports, calendar years 2002-04**

HS Code	Description	Imports			Exports		
		2002	2003	2004	2002	2003	2004
		<i>\$ billions</i>					
	All imports and exports	295.3	413.1	560.8	325.6	438.5	593.6
	Total agricultural	10.8	17.4	25.9	13.0	15.4	15.8
		<i>\$ millions</i>					
01	Live animals	53.4	117.3	220.3	343.7	326.6	330.1
0102	Cattle	22.0	71.8	190.7	33.1	30.7	35.2
0103	Swine	2.0	2.0	2.8	214.9	216.3	240.8
0105	Poultry	12.5	15.1	13.2	82.1	67.4	33.3
02	Meat	626.0	757.5	475.1	665.8	646.1	705.3
0203	Pork	81.4	90.6	54.5	209.5	269.3	458.1
0207	Poultry meat and offal	425.7	461.8	153.4	401.1	319.5	144.9
04	Dairy, eggs, honey	272.0	350.1	447.8	194.3	221.4	233.9
05	Other animal products	187.6	218.7	249.0	649.6	741.6	975.3
06	Live trees and plants	32.9	45.3	51.3	43.1	49.3	64.3
07 <sup>1</sup>	Vegetables	51.1	46.1	60.6	1,821.6	2,119.7	2,459.0
08	Edible fruit and nuts	377.6	494.7	619.3	555.1	751.6	916.9
09	Tea, coffee, spices	23.2	27.8	32.4	551.6	624.1	864.3
0902	Tea	2.7	4.5	6.0	331.9	367.4	436.9
10	Grains	481.8	444.4	2,218.5	1,651.2	2,589.7	740.5
1001	Wheat	102.7	76.6	1,640.4	70.1	266.4	112.1
1003	Barley	291.0	268.3	320.7	.1	.7	.5
1005	Corn	1.6	.4	.8	1,166.8	1,766.6	324.3
1006	Rice	79.7	96.6	252.8	381.7	494.7	232.6
11	Milling products, malt, starch	95.0	135.7	188.9	118.3	141.7	169.9
12 <sup>1</sup>	Miscellaneous seeds, grains, fruits	2,761.7	5,640.8	7,323.9	891.9	1,071.7	1,145.7
1201	Soybeans	2,482.8	5,417.5	6,956.7	76.7	87.0	144.9
1202	Peanuts	.3	.1	.8	263.7	317.9	298.8
1205	Rapeseed	146.6	46.7	134.4	.7	.9	.1
13	LAC, vegetable saps, extract	36.4	50.8	58.4	77.1	73.3	72.0
14	Vegetable plaiting materials	44.3	72.6	87.7	43.8	45.9	43.5
15 <sup>1</sup>	Fats and oils	1,574.5	2,919.7	4,183.7	106.9	126.4	156.7
1507	Soybean oil	408.0	1,016.2	1,548.8	21.6	6.5	13.3
1511	Palm oil	848.7	1,445.8	1,866.1	3.2	0	.2
16 <sup>1</sup>	Prepared meat	9.6	8.0	3.2	698.2	757.1	896.1
17	Sugars	279.9	216.2	336.3	227.1	196.4	252.4
18	Cocoa	79.9	116.2	135.7	36.0	54.7	69.8
19	Baking related	143.6	148.2	194.7	455.1	526.9	652.9
20	Preserved food	113.7	134.5	142.0	1,761.1	2,168.8	2,578.3
21	Miscellaneous food	179.5	310.9	474.6	460.3	544.9	612.4
221	Beverages	83.6	87.9	99.1	465.0	439.6	589.4
231	Food waste, animal feed	136.9	139.6	182.5	404.4	377.0	498.0
2304	Soybean oilcake, residue	.2	.6	14.6	193.4	170.2	208.4
2401	Tobacco leaf	215.6	262.8	232.6	205.8	229.8	264.1
35 <sup>2</sup>	Modified starches, glue, perfume, acid	293.1	364.7	433.7	134.2	165.7	243.9
4001	Natural rubber	693.9	1,154.8	1,522.6	.9	1.6	1.1
41 <sup>3</sup>	Hides, skins and furs	774.0	993.1	1,386.4	12.4	9.2	.0
50 <sup>4</sup>	Raw silk	3.1	3.8	2.7	244.6	212.5	214.6
51 <sup>5</sup>	Wool	819.7	775.4	1,102.6	13.5	25.4	44.8
5201	Cotton	179.7	1162.8	3165.3	169.6	132.6	15.7
53 <sup>6</sup>	Flax, jute, other vegetable fibers	120.0	193.3	245.6	9.3	8.2	8.2

Note: HS Code = Harmonized System Code.

<sup>1</sup>HS 07 excludes cassava. HS 12 excludes seaweed. HS 15 excludes oil from fish and marine mammals. HS 16 excludes fish, caviar, crustaceans, and mollusks. HS 22 excludes ethyl alcohol. HS 23 excludes flour and meals from fish. <sup>2</sup>Includes HS 35, 3301, 33021010, 33021090.

<sup>3</sup>Includes HS 4101, 4102, 4103, 4300. <sup>4</sup>Includes HS 5001, 5002. <sup>5</sup>Includes HS 5101, 5102. <sup>6</sup>Includes HS 5301, 5303, 5305.

Source: ERS calculations based on China's customs statistics reported by World Trade Atlas.

**Appendix table 2—Value of U.S. agricultural trade with China, calendar year 2002-04**

HS Code	Description	U.S. exports to China			U.S. imports from China		
		2002	2003	2004	2002	2003	2004
		<i>\$ billions</i>					
	All imports and exports	22.1	28.4	34.7	125.2	152.4	196.7
		<i>\$ millions</i>					
	Agricultural	2067.4	5,016.2	5,541.8	1,001.7	1,287.6	1,621.5
	Forest products	221.7	252.7	374.1	1,061.5	1,278.1	1,833.7
	Seafood	135.2	176.2	259.3	865.0	1,144.4	1,239.3
01	Live animals	13.9	17.2	2.8	11.5	8.8	13.6
0102	Cattle	1.4	4.5	0	0	0	0
0103	Swine	1.8	.5	1.2	0	0	0
0105	Poultry	8.5	10.7	.4	0	0	0
02	Meat, edible offal	81.0	139.6	64.2	8.3	6.2	8.0
0203	Pork	7.6	10.8	20.2	0	0	0
0207	Poultry	45.3	99.3	15.3	0	0	0
04	Dairy products	24.7	28.2	38.3	13.8	39.2	35.4
05	Other animal products	33.6	37.6	43.9	197.8	221.7	269.5
06	Live trees, plants	1.5	.6	1.3	12.6	15.0	14.9
071	Vegetables	5.9	9.5	9.6	89.5	98.6	136.3
08	Fruit and nuts	40.3	50.5	71.2	51.1	62.4	100.4
09	Tea, coffee, spices	.5	.7	.9	55.3	68.7	86.5
0902	Tea	.2	0	.4	23.1	29.6	31.4
10	Cereals	29.0	36.0	496.2	.7	23.4	20.7
1001	Wheat	25.9	35.3	495.1	0	0	0
1003	Barley	0	.0	.0	.1	0	0
1005	Corn	2.2	.7	1.0	.3	0	0
1006	Rice	.8	.1	.1	.3	22.9	20.0
11	Milling products, starches	2.6	3.7	4.4	3.2	8.3	12.9
12	Oilseeds	1024.3	2,934.5	2,370.4	68.5	90.0	110.9
1201	Soybeans	995.8	2,888.8	2,328.8	0	1.8	14.5
13	LAC, gums, resins	13.9	19.7	13.5	48.3	54.8	64.2
14	Vegetable plaiting	3.0	4.2	10.0	8.7	10.1	10.1
15 <sup>1</sup>	Fats and oils	28.5	102.8	34.5	6.2	8.7	11.4
16 <sup>1</sup>	Meat preparations	27.2	12.4	12.4	185.5	248.1	283.5
17	Sugars	12.8	25.3	39.7	46.5	54.5	68.8
18	Cocoa	8.5	12.7	7.9	10.0	12.5	22.3
19	Baking related	9.4	10.4	12.3	37.7	44.9	52.0
20	Preserved food	42.1	49.4	54.8	224.2	344.3	441.9
21	Miscellaneous food	44.8	145.8	177.8	42.3	50.3	61.3
22 <sup>1</sup>	Beverages	6.1	5.3	9.1	29.2	23.9	27.8
23 <sup>1</sup>	Food waste, animal feed	80.4	82.0	65.0	29.8	34.9	42.4
2401	Tobacco leaf	.5	4.4	22.8	4.9	5.7	8.4
35 <sup>2</sup>	Modified starches, glues, perfumes, resins	46.0	17.2	2.8	44.2	31.5	52.1
4001	Natural rubber	3.6	19.7	.5	0	.3	.1
41 <sup>3</sup>	Hides and skins	429.3	439.3	511.8	.2	37.5	54.3
5001 <sup>4</sup>	Raw silk	0	0	0	0	.3	.1
51 <sup>5</sup>	Wool	2.4	3.1	9.2	1.9	5.5	5.9
5201	Cotton	138.0	759.6	1,406.7	0	0	0
53 <sup>6</sup>	Flax, jute, vegetable fibers	.2	0	0	.1	.2	.3

Note: HS Code = Harmonized System Code.

<sup>1</sup>HS 07 excludes cassava. HS 12 excludes seaweed. HS 15 excludes oil from fish and marine mammals. HS 16 excludes fish, caviar, crustaceans, and mollusks. HS 22 excludes ethyl alcohol. HS 23 excludes flour and meals from fish. <sup>2</sup>Includes HS 35, 3301, 33021010, 33021090. <sup>3</sup>Includes HS 4101, 4102, 4103, 4300. <sup>4</sup>Includes HS 5001, 5002. <sup>5</sup>Includes HS 5101, 5102. <sup>6</sup>Includes HS 5301, 5303, 5305.

Source: USDA, Foreign Agricultural Service.

**Appendix table 3—China's major agricultural imports, by volume, 2002-04**

HS Code	Description	All imports <sup>1</sup>			From United States <sup>2</sup>		
		2002	2003	2004	2002	2003	2004
<i>1,000 tons</i>							
02	Meat	880	1,048	538	115	207	67
0203	Pork	145	149	71	7	14	23
0206	Edible animal offal	114	213	245	10	12	14
0207	Poultry meat, offal	574	644	185	91	179	23
1201	Soybeans	11,316	20,743	20,178	4,861	11,112	9,403
1205	Rape seed	618	167	424	0	0	0
10	Grains	2,818	2,052	9,720	0	237	2,942
1001	Wheat	605	424	7,233	169	236	2,940
1003	Barley	1,907	1,363	1,707	0	0	0
1005	Corn	6	0	2	20	1	2
1006	Rice	236	257	762	4	0	0
15	Fats and oils	3,915	6,169	7,656	0	198	74
1507	Soybean oil	870	1,885	2,515	0	94	0
1511	Palm oil	2,221	3,326	3,851	0	0	0
08	Fruit and nuts	1,017	1,079	1,140	48	66	68
0801-0802	Nuts	126	137	163	5	2	4
0803	Bananas and plaintains	348	421	381	0	0	0
0805	Citrus	58	77	67	26	40	32
0806	Grapes	60	61	70		10	21
080810	Apples	56	42	37		5	7
080820	Pears	1	1	1	14	0	0
1701	Sugar	1,184	776	1,215	0	0	0
2304	Soybean oilcakes	1	2	55	0	0	0
4001	Natural rubber	956	1,203	1,283	3	20	0
5201	Raw cotton	171	870	1,900	151	567	905
5101	Wool	192	165	221	1	2	2

Note: HS Code = Harmonized System Code.

<sup>1</sup>Derived from Chinese import statistics.

<sup>2</sup>Derived from U.S. export statistics.

Source: ERS calculations based on China's customs statistics reported by World Trade Atlas and data from USDA, Foreign Agricultural Service.

**Appendix table 4—China's major agricultural exports by volume, 2002-04**

HS Code	Description	All exports <sup>1</sup>			To United States <sup>2</sup>		
		2002	2003	2004	2002	2003	2004
					<i>1,000 head</i>		
0103	Live swine	1,889	1,887	1,973	0	0	0
0105	Live poultry	42,804	39,083	19,257	0	0	0
					<i>1,000 tons</i>		
02	Meat	524	522	465	2	2	3
0203	Pork	162	214	290	0	0	0
0207	Poultry meat, offal	328	276	119	0	0	0
07	Vegetables	3,915	4,848	4,955	106	118	151
0703	Garlic, onions	1,337	1,646	1,602	20	26	41
0701-0709, ex.0703	Other fresh, chilled vegetables	955	1,195	1,399	5	5	5
0710	Frozen vegetables	342	359	490	18	23	38
0711-0713	Preserved, dried vegetables	1,282	1,520	1,306	59	59	61
08	Fruit and nuts	1,235	1,630	1,918	16	23	33
0801, 0802	Nuts	58	59	72	5	5	8
0805	Citrus fruit	217	292	361	0	0	0
080810	Apples	439	609	774	<1	0	0
080820	Pears	243	297	318	6	7	<1
0902	Tea	252	260	280	16	18	18
0904-0910	Spices	352	391	348	28	39	39
10	Grain	14,520	21,651	4,408	1	84	72
1001	Wheat	688	2,250	784	0	0	0
1005	Corn	11,674	16,390	2,318	<1	0	0
1006	Rice	1,979	2,601	896	<1	83	71
1201	Soybeans	276	267	335	2	2	25
1202	Peanuts	521	490	403	0	0	0
1701	Sugar	326	103	85	<1	1	1
1704	Confections	73	80	103	16	18	23
5201	Cotton	150	112	9	0	0	0
2304	Soybean oilcakes	1,013	765	657	0	0	0

Note: HS Code = Harmonized System Code.

<sup>1</sup>Derived from China's customs statistics.

<sup>2</sup>Derived from U.S. import statistics.

<1 = Less than 1,000 tons.

Source: ERS calculations based on China's customs statistics reported by World Trade Atlas and data from USDA, Foreign Agricultural Service.