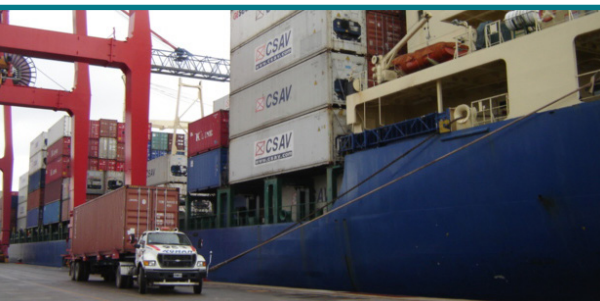
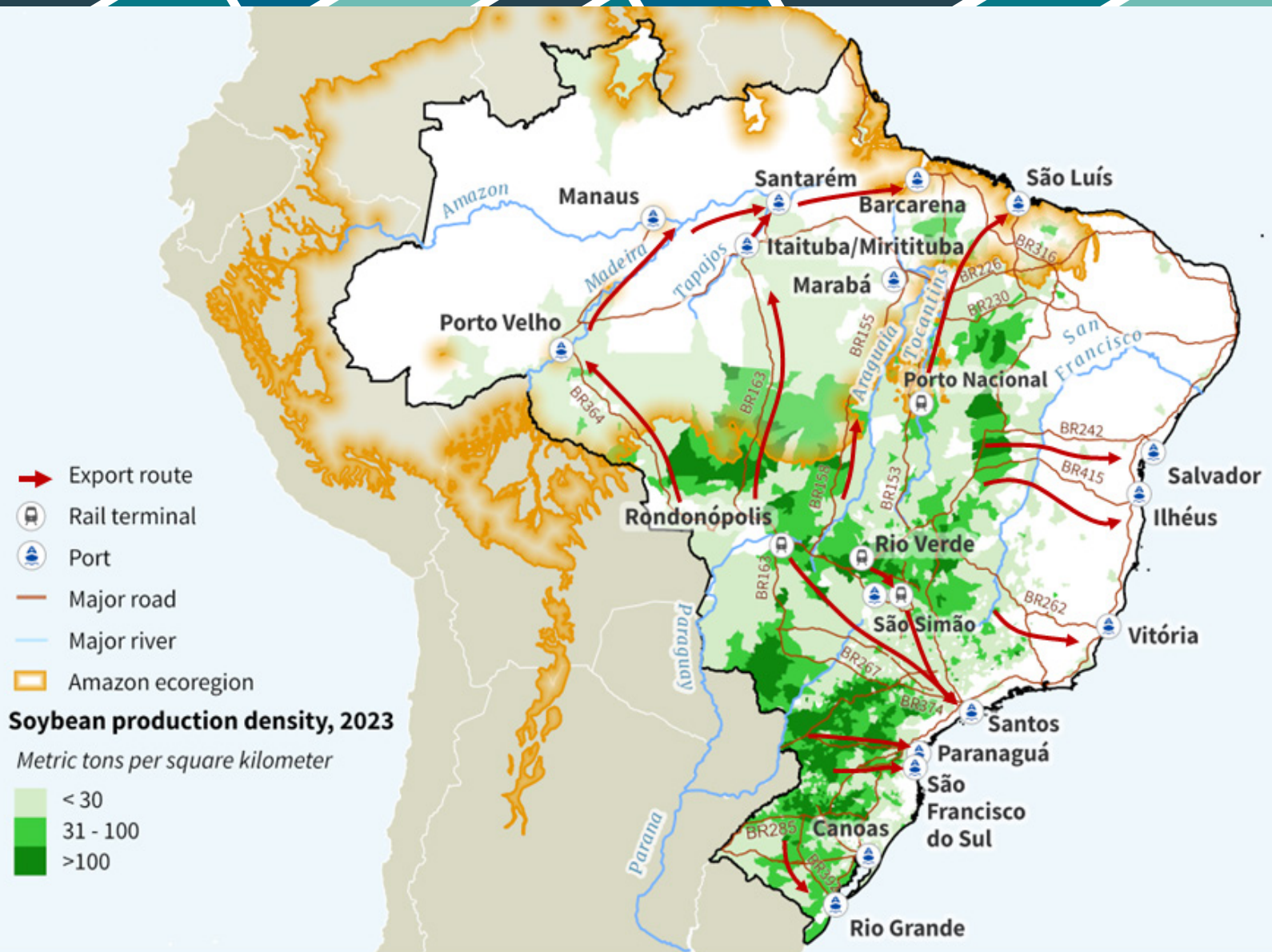




Soybean Transportation Guide

BRAZIL 2024



United States Department of Agriculture
Marketing and Regulatory Programs
Agricultural Marketing Service
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Soybean Transportation Guide: Brazil 2024

Executive Summary

Published annually since 2006, the *Soybean Transportation Guide* is a visual snapshot of Brazilian soybean transportation in 2024. The Guide provides data on the cost of shipping soybeans to Shanghai, China, and Hamburg, Germany. It also includes information about soybean production, exports, railways, ports, and infrastructure developments.

As the foremost U.S. competitor in the world oilseed market, Brazil largely sustains its competitiveness by continually improving its transportation infrastructure to reduce transportation costs. Other elements of the country's competitiveness include low production costs, increases in planted area, high productivity, and weak currency. Because Brazilian and U.S. producers use the same advanced production and technological methods, their soybeans are mostly interchangeable for buyers. Similar to Brazil, U.S. soybean competitiveness worldwide rests (at least, in part) on keeping transportation costs low through continual infrastructure improvements.

Since 2013, Brazil has held enough of a cost advantage to surpass U.S. soybean exports and maintain its position as the top world soybean exporter. Although USDA forecasts Brazil will remain in that position through 2034, the United States retains a significant share of global soybean exports and continues to give Brazil substantial competition. The United States is the world's second-largest soybean exporter, followed by Paraguay, Canada, and Argentina. In 2024, Brazil exported 98.8 million metric tons (mmt) of soybeans—3 percent less than the country's 2023 total of 101.8 mmt. As the largest market for global soybean trade, China accounts for more than half of soybean imports worldwide.

Brazil's revamped transportation system resembles the U.S. system, leveraging all major modes (truck, barge, rail, and ocean vessel). Brazil's infrastructure improvements over the last 18 years have lowered transportation costs and expanded the country's export capacity. While rail and truck compete to haul soybeans to the southern ports, barge shipments are destined to the northern ports. Adding to export capacity, COFCO International has invested in export terminals, rail equipment in cooperation with Rumo at the Port of Santos, as well as in truck services to the Port of Itaquí.¹

Yet, despite these advances, a number of challenges persist: long distances between major production regions and terminals for barge and rail, as well as limited rail and inland waterway infrastructure capacity. Most soybeans for domestic consumption are shipped long-haul distances by truck—an average of 538 miles (865 kilometers (km)) from farms to most destinations. From farms to rail and barge terminals, the average distance by truck is 435 miles (701 km). Railways haul soybeans an average of 722 miles (1,161 km). Barge soybean shipments travel 535 nautical miles.

Infrastructure improvements increase Brazilian soybeans' cost competitiveness. Since 2013, Brazil's total exports have more than doubled. The expansion is the result of a comprehensive infrastructure improvement plan between the Brazilian Government and the private sector that started in 2007. The Center-West's infrastructure transportation investments developed a tight rail and barge competition to ship soybeans between the ports of Barcarena (north) and Santos (south). To facilitate the rising agricultural export demand, the southern ports added efficiencies that lowered transportation costs and increased Brazil's competitive advantage in the world soybean and oilseed market.²

1 COFCO International is a Chinese State-owned food processing holding company and one of the world's largest agribusiness traders.

2 The port of Santos, in collaboration with the rail and agribusiness industries, spearheaded some of these advances.

COFCO International invests in Brazil. In 2014, COFCO International entered Brazil as part of China's longstanding strategic objective to ensure China's food security with stable supplies of agricultural products from abroad. Having expanded since 2014—making significant investments in agricultural and logistic sectors—the company now ranks as the 14th-largest company in Brazil. According to [DatamarNews](#), COFCO's CEO said in a March 6 interview that the company's "primary focus is on [the southern port of] Santos" to export soybeans to China, rather than the recently inaugurated mega port of Chancay, Peru—another potential export route to China.

COFCO has invested in a new export terminal at the Port of Santos, eliminating its use of third-party terminals that had kept the company's costs 10-15 percent higher than those of its competitors. COFCO's Port of Santos investment plan includes a new export terminal (which began construction in August 2022) and automation of Santos' logistics, including rail transport—similar to systems used in China and Peru. According to COFCO, the terminal began operating in March and will move 8 million tons of grains, sugar, and soybean meal in 2025. In 2026, once the terminal is fully operational and providing services to third parties, the terminal's handling capacity will expand to move 14-14.5 million tons of grains, sugar, and soybean meal annually ([DatamarNews](#)). In 2024, of Brazil's total soybean exports, 72.5 million tons (or 73 percent) were shipped to China. Of that volume, 32 percent was shipped through the port of Santos.

The rest of Brazil's soybean exports to China will continue to leave from the Arco Norte, through the terminals with Hidrovias do Brasil, which are governed by "take or pay" contracts. In the "take or pay" model, the exporter must pay a monthly fee for using the terminal, even if the entire volume established in the contract is not shipped. Also, the terminal owner always has priority when loading ships ([Globorural](#)). In addition, COFCO is investing in truck shipments from the producing regions of Balsas, Maranhão, to the Port of Itaquí/ São Luís in the same State. In 2024, São Luís and Barcarena accounted for nearly 14 and 8 percent of Brazil's total soybean exports to China, respectively.

On July 7, 2025, Brazil and China signed a memorandum to produce feasibility studies to start the construction of a bi-oceanic railway connecting the port of Ilhéus, Bahia, on Brazil's Atlantic Coast and the port of Chancay on Peru's Pacific Coast. The project will enhance Brazilian trade with China ([gov.br](#)). On July 9, the President of the Council of Ministers of Peru, Eduardo Arana, stated that Peru has not authorized any investments to the railway project ([CNNespañol](#), [Fundación Andrés Bello](#)).

If the bio-oceanic Railway comes to fruition, on the Brazilian side, it will begin in the city of Lucas do Rio Verde, in the state of Mato Grosso, and pass through the border with Bolivia, cross the entire state of Rondônia, and continue through southern Acre, near the Peruvian border. From there, the line would extend to the port of Chancay, built by China and inaugurated a few months ago. The project aims to connect Brazil's West-East Integration (Fiol), Center-West Integration (Fico), and North-South Railway (FNS) ([gov.br](#)).

On long-distance shipments (more than 1,000 miles), the U.S. cost advantage over Brazil shrank. From 2023 to 2024, shipping soybeans from Sorriso, North Mato Grosso, to Shanghai, China, via the southern port of Santos became more cost competitive with the U.S. Gulf routes and the U.S. Pacific Northwest (PNW) routes to Shanghai. However, rail shipments from Sorriso via Santos still cost \$0.97 per mt more than barge shipments from Iowa to the U.S. Gulf.

Brazil's barge costs also became competitive with Iowa's barge costs to the U.S. Gulf. In 2024, from Sorriso, North Mato Grosso, to Barcarena by barge, the cost per metric ton (mt) to ship soybeans to Shanghai, China, was \$6.86 per mt less than from Iowa to the U.S. Gulf. In 2024, especially in the second and third quarters, drought in the "Arco Norte" prompted shippers to select alternatives to barge, and barge rates declined significantly. Overall, Brazil's transportation costs (for rail, barge, and trucking) fell significantly because of a smaller crop, and Iowa's costs increased.

From the Port of Santos, Sorriso is 1,190 miles away by truck or 1,401 miles, using a combination of truck (382 miles from the Rondonópolis rail terminal) and rail (1,019 miles). From the Port of Barcarena, Sorriso is about 1,272 miles away—600 miles by truck to the Itaituba/Miritituba barge terminal and another 600 nautical miles by barge.

On short-distance shipments (less than 700 miles), Brazil's cost advantage over the United States grew.

From 2023 to 2024, Brazil's cost advantage for short-distance shipments to Shanghai increased relative to the United States. Brazil's cost advantage was notable when soybeans were shipped by rail from Rio Verde, South Goiás, via Santos; Balsas, South Maranhão, via São Luís; or Cruz Alta, Northwest Rio Grande do Sul, through Rio Grande. In 2024, soybeans that were shipped by rail from Rio Verde via Santos to Shanghai cost about \$55-56 per metric ton less than U.S. shipments by the PNW routes. To Shanghai, soybean shipments from Cruz Alta via Rio Grande cost \$45.69 per mt less than from Iowa. Rio Verde is 546 miles from Santos, and Cruz Alta is 288 miles from Rio Grande.

Inland and ocean freight rates declined. From 2023 to 2024, for all selected routes, Brazil's soybean transportation costs fell, because of a drought that affected more than half of the country during the growing season. The drought lowered production and exports, which in turn, lowered shipping demand. In addition, low water levels led to navigation restrictions that resulted in reduced barge export capacity. Soybean shipments were deflected to rail and truck. As a result of these disruptions, Brazil's barge rates declined significantly, and for the first time, soybean transportation costs to China from Mato Grosso via Barcarena undercut costs to China from Iowa via the U.S. Gulf. Similarly, Mato Grosso costs to ship soybeans by rail to Santos have grown increasingly competitive with Iowa barge costs to the U.S. Gulf. The cost of shipping a metric ton (mt) of soybeans 100 miles by truck declined 22 percent—from \$9.50 per mt to \$7.38 per mt. Ocean freight rates fell in 2024 because of an oversupply of vessels for low export volumes of soybeans and corn. For selected Brazilian export routes to Hamburg, Germany, and to Shanghai, China, ocean rates fell an average 1-4 percent. In 2024, 84 percent of Brazilian soybean exports to China were shipped from five ports. Among those ports, that 84-percent share broke down as follows: Santos (32 percent), Paranaguá (17 percent), São Luís (14 percent), Rio Grande (13 percent) and São Francisco do Sul (7.7 percent).

Farm gate prices continued to fall, even as the Brazilian real depreciated. From 2023 to 2024, average Brazilian soybean export prices fell nearly 17 percent, from \$523 per mt to \$435 per mt. From record highs in 2022, Brazil's average farm gate prices for soybeans fell 17 percent in U.S. dollars (to their lowest level since late 2020). Measured in U.S. dollars, soybean farm gate prices declined from \$444.09/mt to \$367.95/mt—and in reais, from R\$2,221.45/mt to R\$1,981.43/mt. The price drop was a blow to farmers' revenue, despite the real's depreciation against the U.S. dollar. The Brazilian real (R\$) depreciated nearly 8 percent against the U.S. dollar—from R\$4.99 per U.S. dollar to R\$5.39 per U.S. dollar in 2024.

Landed costs fall. For selected Brazilian export routes to China, total landed costs decreased as both farm values and transportation costs declined for all routes except Northwest Rio Grande do Sul to Rio Grande. From Sorriso, Mato Grosso, to Shanghai through the port of Santos, 2024 transportation costs were 23-24 percent of the total landed costs. (Mato Grosso is Brazil's top soybean-producing State.) By comparison, transportation costs for the same route were 45 percent of landed costs in 2006 and 34 percent in 2008.

Brazilian port shares of soybean exports to China. In 2024, Brazil's soybean exports to China totaled 72.5 mmt—down nearly 3 percent from 2023's total of 74.5 mmt. In 2024, total exports to China were valued at \$31.5 billion and accounted for 73 percent of Brazil's total soybean exports for the period (98.8 mmt). The next highest shares of Brazil's soybean exports (in declining order) went to Spain, Thailand, Turkey, Iran, and Mexico.

The southern ports of Santos, Rio Grande, Paranaguá, and São Francisco do Sul still dominate the soybean trade to China, collectively accounting for 70 percent of Brazil's soybean exports to China. Also, in 2024, the northeastern ports of São Luís, and Barcarena accounted for 20 percent of soybean exports to China. The eastern ports of Vitória and Salvador accounted for 8 percent of soybean export to China. The Amazon River port of Manaus exported a small amount of soybeans to China. In 2024, between the Shanghai routes from the northeastern port of São Luís (\$38.18/mt) and the port of Santos (\$34.60/mt), the ocean freight spread was \$3.58/mt.

General Information

BRAZIL



State and Abbreviation

Acre (AC)	Pará (PA)
Alagoas (AL)	Paraíba (PB)
Amapá (AP)	Paraná (PR)
Amazonas (AM)	Pernambuco (PE)
Bahia (BA)	Piauí (PI)
Ceará (CE)	Rio de Janeiro (RJ)
Distrito Federal (DF)	Rio Grande do Sul (RS)
Espírito Santo (ES)	Rondônia (RO)
Goiás (GO)	Roraima (RR)
Maranhão (MA)	Santa Catarina (SC)
Mato Grosso (MT)	São Paulo (SP)
Mato Grosso do Sul (MS)	Sergipe (SE)
Minas Gerais (MG)	Tocantins (TO)

Information about Brazil

Population:	212.584 million (Instituto Brasileiro de Geografia e Estatística (IBGE))
Gross Domestic Product per Capita, 2024:	\$10,296 (International Monetary Fund)
Inflation, 2023:	4.8 percent (IBGE)
Unemployment, 4th Quarter 2024:	6.2 percent (IBGE)
Area:	8,515,770 square kilometers
Languages:	Portuguese (official), Spanish, English, and French

2024 Summary

Figure 1. Routes and regions considered in the Brazilian soybean export transportation indicator

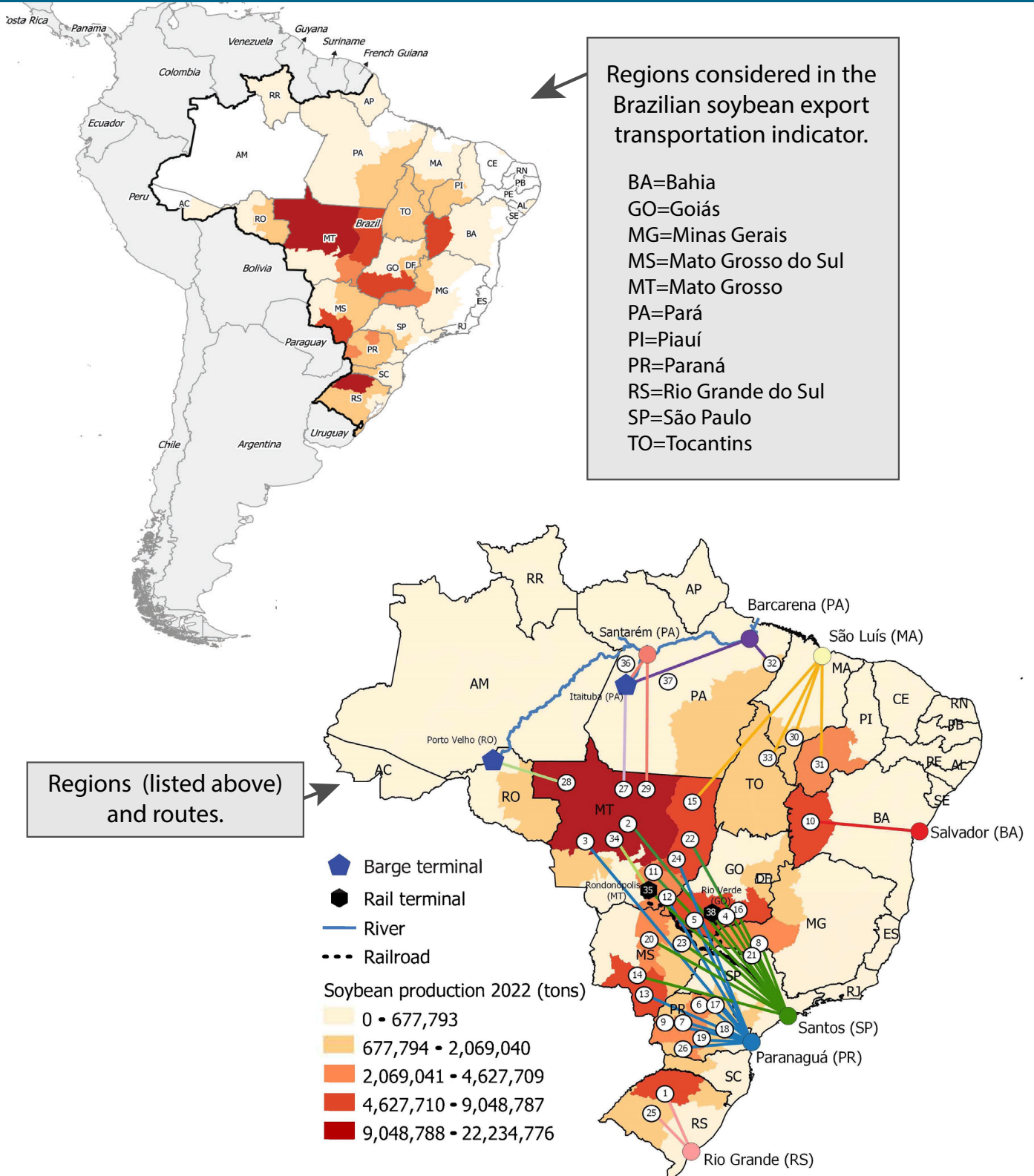
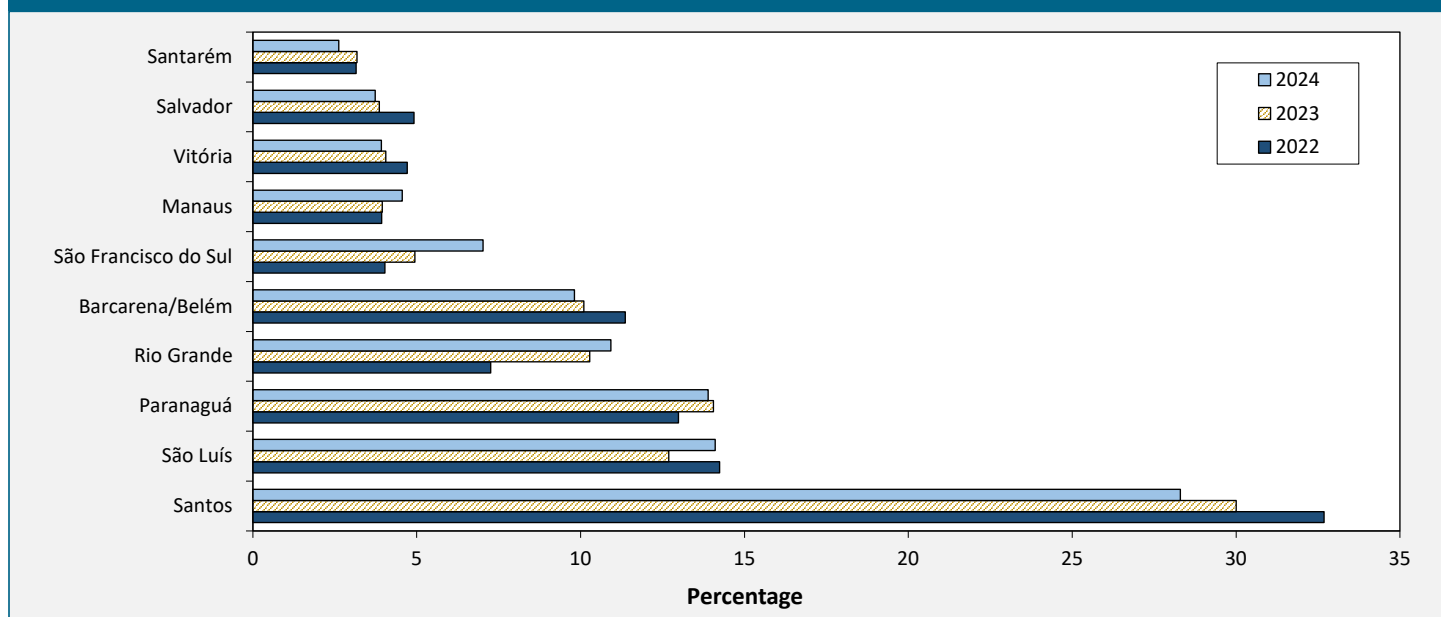


Table defining routes by number is shown on page 40. Regions comprised about 78 percent of Brazilian soybean production in 2022 (Brazilian Institute of Geography and Statistics—Produção Agrícola Municipal).
Source: University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz” (ESALQ/ USP), Brazil, and USDA, Agricultural Marketing Service.

Brazil is the world's top exporter of soybeans, followed by the United States, Paraguay, Argentina, and Canada. In 2024, Santos was Brazil's top soybean export port, followed by São Luís, Paranaguá, Rio Grande, Barcarena/Belém, and São Francisco do Sul. Together, these six ports accounted for 84 percent of Brazil's total soybean exports. The southern ports of Santos, Rio Grande, Paranaguá, and São Francisco do Sul still dominate Brazil's soybean exports to China, accounting for nearly 70 percent of this trade in 2024. Also, in 2024, the northeastern ports of São Luís and Barcarena and the eastern ports of Vitória and Salvador accounted for 20 and 8 percent of soybean exports to China, respectively. The Amazon River port of Manaus exported a small amount of soybeans to China.

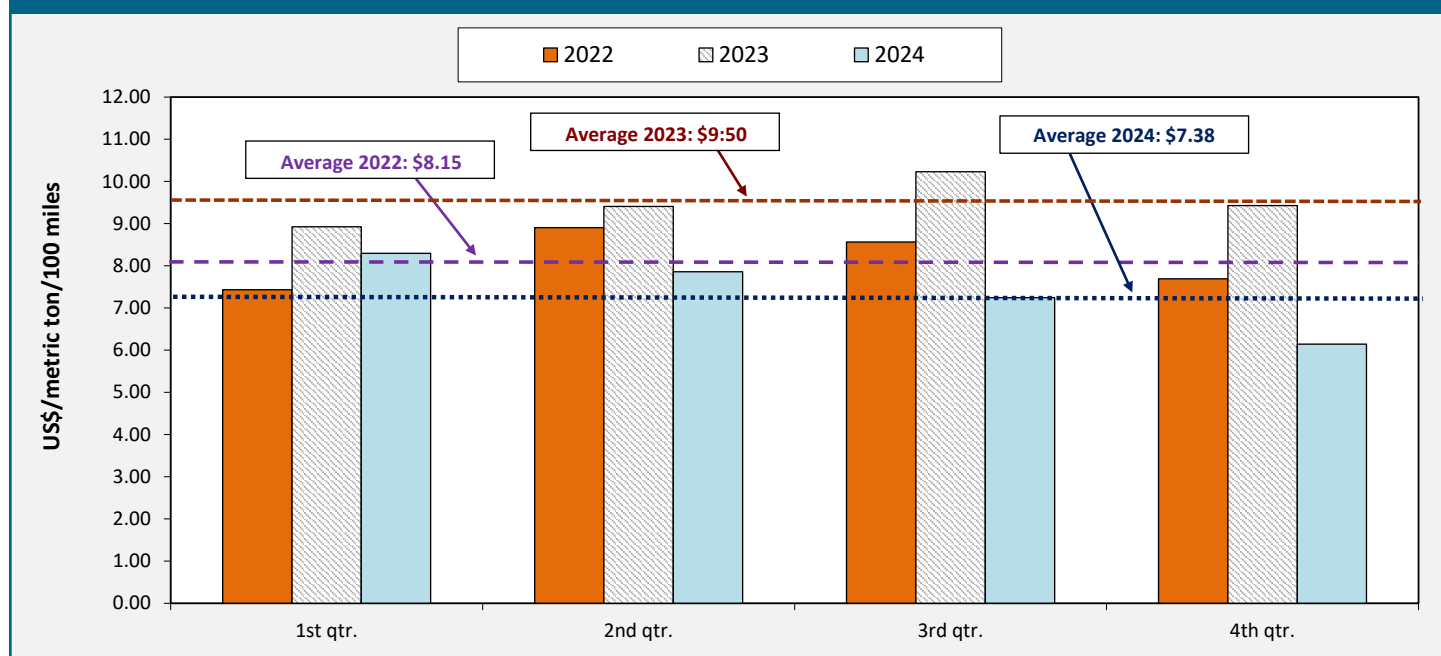
Figure 2. Brazilian soybean exports by port, 2022-24



Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

From 2023 to 2024, the average cost in Brazil of shipping a metric ton (mt) of soybeans 100 miles by truck decreased from \$9.50 per mt to \$7.38 per mt.

Figure 3. Brazilian soybean export truck cost index, 2022-24



Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

From 2023 to 2024, total landed costs decreased as both farm prices and transportation costs declined for all selected routes to China, except the one from Northwest Rio Grande do Sul to Rio Grande—for which landed costs rose. Brazil's soybean transportation costs fell, reflecting a significant drop in inland transportation costs (truck, barge, and rail). Brazilian transportation demand also declined because of a smaller soybean crop than in 2023 and lower corn flows in July and August. From Sorriso, Mato Grosso, to Shanghai through the port of Santos, 2024 transportation costs were 23-24 percent of the total landed costs. (Mato Grosso is Brazil's top soybean-producing state.) For comparison, transportation costs for the same route were 45 percent of landed costs in 2006.

Table 1. Costs of transporting Brazilian soybeans from the southern ports to Shanghai, China, 2019-24

Item	North MT - Santos by truck —US\$/mt—							Northwest RS - Rio Grande —US\$/mt—						
	2019	2020	2021	2022	2023	2024	% Change 2023-24	2019	2020	2021	2022	2023	2024	% Change 2023-24
Truck	79.28	60.65	59.30	93.98	103.31	83.99	-18.7	25.06	19.24	18.85	29.45	34.44	28.00	-18.7
Ocean	33.65	31.40	53.40	56.04	35.18	34.60	-1.6	33.94	32.90	53.94	56.99	35.93	35.05	-2.4
Total transportation	112.92	92.04	112.70	150.02	138.48	118.59	-14.4	58.99	52.13	72.78	86.43	70.37	63.05	-10.4
Farm gate price	285.35	357.23	482.47	536.97	415.95	367.34	-11.7	305.56	354.57	489.39	579.79	472.57	370.42	-21.6
Landed cost	398.28	449.27	595.16	686.98	554.44	485.93	-12.4	364.56	406.70	562.17	666.23	542.93	433.46	-20.2
Transport % of landed cost	28.4	21.2	18.9	21.8	25.1	24.4	-2.6	16.2	13.1	12.9	12.9	13.0	14.5	11.8
Item	North MT - Santos by rail —US\$/mt—							South GO - Santos by truck —US\$/mt—						
	2019	2020	2021	2022	2023	2024	% Change 2023-24	2019	2020	2021	2022	2023	2024	% Change 2023-24
Truck	27.62	21.47	20.64	31.47	36.92	28.78	-22.0	37.34	28.48	27.18	43.02	49.44	39.88	-19.3
Rail	39.98	32.13	29.69	44.31	54.79	46.32	-15.5	-	-	-	-	-	-	-
Ocean	33.65	31.40	53.40	56.04	35.18	34.60	-1.6	33.65	31.40	53.40	56.04	35.18	34.60	-1.6
Total transportation	101.25	85.00	103.73	131.82	126.88	109.70	-13.5	70.98	59.88	80.58	99.06	84.81	74.48	-12.2
Farm gate price	285.35	357.23	482.47	536.97	415.95	367.34	-11.7	291.46	331.01	479.82	536.05	420.54	361.35	-14.1
Landed cost	386.60	442.22	586.19	668.79	542.83	477.04	-12.1	362.45	390.88	560.39	635.11	505.35	435.82	-13.8
Transport % of landed cost	26.2	19.9	17.7	19.7	23.5	23.0	-1.9	19.6	15.8	14.4	15.6	16.9	17.1	1.3
Item	South GO - Santos by rail —US\$/mt—													
	2019	2020	2021	2022	2023	2024	% Change 2023-24							
Rail	-	-	-	31.71	36.91	30.53	-17.3							
Ocean	-	-	-	56.04	35.18	34.60	-1.6							
Total transportation	-	-	-	87.74	72.09	56.59	-21.5							
Farm gate price	-	-	-	536.05	420.54	361.35	-14.1							
Landed cost	-	-	-	623.79	492.63	417.94	-15.2							
Transport % of landed cost	-	-	-	14.0	14.7	13.4	-8.8							

Producing regions: MT=Mato Grosso, RS=Rio Grande Do Sul, and GO=Goiás. Export ports: Santos and Rio Grande. Farm gate prices are from the Brazilian Government, Companhia Nacional de Abastecimento (CONAB). In Brazil, there are no published rail tariff rates. Rail rates can be approximately 30 percent lower than truck rates, depending on volumes hauled and the terms of contracts signed between the railroad company and shippers. Note: mt=metric ton. A hyphen in an otherwise empty cell denotes that the data are not available.

Source: University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz,” Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

Table 2. Costs of transporting Brazilian soybeans from the southern ports to Hamburg, Germany, 2019-24

Item	North MT - Santos by truck —US\$/mt—							Northwest RS - Rio Grande —US\$/mt—						
	2019	2020	2021	2022	2023	2024	% Change 2023-24	2019	2020	2021	2022	2023	2024	% Change 2023-24
Truck	79.28	60.65	59.30	93.98	103.31	83.99	-18.7	25.06	19.24	18.85	29.45	34.44	28.00	-18.7
Ocean	25.63	24.75	45.11	48.34	33.21	32.48	-2.2	25.63	25.13	46.28	49.48	34.13	33.25	-2.6
Total transportation	104.90	85.40	104.41	142.32	136.52	116.47	-14.7	50.68	44.36	65.12	78.92	68.57	61.25	-10.7
Farm gate price	285.35	357.23	482.47	536.97	415.95	367.34	-11.7	305.56	354.57	489.39	579.79	472.57	370.42	-21.6
Landed cost	390.25	442.62	586.88	679.28	552.47	483.80	-12.4	356.25	398.93	554.51	658.71	541.13	431.66	-20.2
Transport % of landed cost	26.9	20.0	17.8	20.9	24.8	24.1	-2.9	14.2	11.4	11.7	12.0	12.7	14.2	11.5
Item	North MT - Santos by rail —US\$/mt—							South GO - Santos by truck —US\$/mt—						
	2019	2020	2021	2022	2023	2024	% Change 2023-24	2019	2020	2021	2022	2023	2024	% Change 2023-24
Truck	27.62	21.47	20.64	31.47	36.92	28.78	-22.0	37.34	28.48	27.18	43.02	49.64	40.15	-19.1
Rail	39.98	32.13	29.69	44.31	54.79	46.32	-15.5	-	-	-	-	-	-	-
Ocean	25.63	24.75	45.11	48.34	33.21	32.48	-2.2	25.63	24.75	45.11	48.34	33.21	32.48	-2.2
Total transportation	93.23	78.35	95.44	124.12	124.92	107.58	-13.9	62.96	53.23	72.29	91.36	82.85	63.00	-24.0
Farm gate price	285.35	357.23	482.47	536.97	415.95	367.34	-11.7	291.46	331.01	479.82	536.05	420.54	361.35	-14.1
Landed cost	378.58	435.58	577.90	661.09	540.87	474.91	-12.2	354.42	384.24	552.11	627.41	503.38	424.35	-15.7
Transport % of landed cost	24.6	18.7	16.5	18.8	22.0	22.7	3.2	17.8	14.3	13.1	14.5	16.5	16.1	-2.9
Item	South GO - Santos by rail —US\$/mt—													
	2019	2020	2021	2022	2023	2024	% Change 2023-24							
Rail	-	-	-	31.71	36.91	30.53	-17.3							
Ocean	-	-	-	48.34	33.21	32.48	-2.2							
Total transportation	-	-	-	80.04	70.13	63.00	-10.2							
Farm gate price	-	-	-	536.05	420.54	361.35	-14.1							
Landed cost	-	-	-	616.09	490.66	424.35	-13.5							
Transport % of landed cost	-	-	-	13.0	15.4	16.1	4.2							

Producing regions: MT=Mato Grosso, RS=Rio Grande Do Sul, and GO=Goiás. Export ports: Santos and Rio Grande. Farm gate prices are from the Brazilian Government, Companhia Nacional de Abastecimento (CONAB). In Brazil, there are no published rail tariff rates. Rail rates can be approximately 30 percent lower than truck rates, depending on volumes hauled and the terms of contracts signed between the railroad company and shippers. Note: mt=metric ton. A hyphen in an otherwise empty cell denotes that the data are not available.

Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

From 2023-24, transportation costs decreased for selected routes from Brazil's northern and northeastern ports to Shanghai, China. In 2024, especially in the second and third quarter, the drought in the "Arco Norte" resulted in poor navigation conditions, reduced barge loads, and lower shipment frequency. As barge navigation capacity fell, shippers selected alternative modes, and barge rates declined significantly.

Table 3. Cost of transporting soybeans from the northern and northeastern ports to Shanghai, China, 2019-24

Item	North MT - Santarém by truck —US\$/mt—							South MA - São Luís —US\$/mt—						
	2019	2020	2021	2022	2023	2024	% Change 2023-24	2019	2020	2021	2022	2023	2024	% Change 2023-24
Truck	52.04	39.20	37.91	59.30	67.70	58.83	-13.1	32.99	26.83	24.85	40.83	43.61	35.90	-17.7
Ocean	35.06	33.66	57.31	61.68	39.33	37.70	-4.1	34.81	34.02	57.90	61.80	39.88	38.18	-4.3
Total transportation	87.10	72.86	95.22	120.98	107.02	96.53	-9.8	67.80	60.85	82.75	102.63	83.49	74.08	-11.3
Farm gate price	285.35	357.23	482.47	536.97	415.95	367.34	-11.7	297.05	353.30	484.89	558.13	445.89	364.29	-18.3
Landed cost	372.45	430.08	577.69	657.95	522.98	463.87	-11.3	364.85	414.15	567.63	660.76	529.38	438.37	-17.2
Transport % of landed cost	23.4	17.6	16.5	18.4	20.6	20.8	1.3	18.6	15.0	14.5	15.5	15.9	16.9	6.6
Item	Southwest PI - São Luís —US\$/mt—							North MT - Barcarena —US\$/mt—						
	2019	2020	2021	2022	2023	2024	% Change 2023-24	2019	2020	2021	2022	2023	2024	% Change 2023-24
Truck	39.34	29.81	29.15	44.32	48.59	38.78	-20.2	53.99	31.72	31.84	49.44	56.13	44.16	-21.3
Barge	-	-	-	-	-	-	-	15.99	11.94	12.63	18.32	26.38	19.31	-26.8
Ocean	34.81	34.02	57.90	61.80	39.88	38.18	-4.3	32.25	34.96	59.55	62.73	40.06	38.41	-4.1
Total transportation	74.15	63.83	87.05	106.12	88.47	76.96	-13.0	102.23	78.61	104.02	130.49	122.57	101.88	-16.9
Farm gate price	295.87	342.39	475.78	542.19	444.76	373.35	-16.1	275.38	357.23	482.47	536.97	415.95	367.34	-11.7
Landed cost	370.02	406.23	562.82	648.31	533.22	450.31	-15.5	377.61	435.84	586.49	667.45	538.52	469.21	-12.9
Transport % of landed cost	20.9	16.0	15.5	16.3	16.7	17.1	2.5	27.1	18.7	17.7	19.5	22.9	21.7	-4.9
Item	North MT - Santarém by barge —US\$/mt—													
	2019	2020	2021	2022	2023	2024	% Change 2023-24							
Truck	-	-	-	49.44	56.13	44.16	-21.3							
Barge	-	-	-	8.87	9.26	6.94	-25.0							
Ocean	-	-	-	61.68	39.33	37.70	-4.1							
Total transportation	-	-	-	111.12	104.71	88.80	-15.2							
Farm gate price	-	-	-	536.97	415.95	367.34	-11.7							
Landed cost	-	-	-	648.09	520.67	456.14	-12.4							
Transport % of landed cost	-	-	-	17.1	20.2	19.5	-3.5							

Producing regions: MT=Mato Grosso, PI=Piauí, and MA=Maranhão. Export ports: Santarém, São Luís and Barcarena. Farm gate prices are from the Brazilian Government, Companhia Nacional de Abastecimento (CONAB). In Brazil, there are no published barge rates. Barge rates can be up to 60 percent lower than truck rates, depending on the volumes hauled and the terms of contracts signed between the barge company and shippers. The distance is in nautical miles. Note: mt=metric ton. A hyphen in an otherwise empty cell denotes that the data are not available.

Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

Table 4. Cost of transporting soybeans from the northern and northeastern ports to Hamburg, Germany, 2019-24

Item	North MT - Santarém by truck —US\$/mt—							South MA - São Luís —US\$/mt—						
	2019	2020	2021	2022	2023	2024	% Change 2023-24	2019	2020	2021	2022	2023	2024	% Change 2023-24
Truck	52.04	39.20	37.91	59.30	67.70	58.83	-13.1	32.99	26.83	24.85	40.83	43.61	35.90	-17.7
Ocean	23.42	20.94	42.09	46.68	31.38	30.13	-4.0	20.34	22.76	48.36	49.08	36.25	34.90	-3.7
Total transportation	75.45	60.14	80.00	105.98	99.07	88.96	-10.2	53.33	49.59	73.21	89.90	79.86	70.80	-11.3
Farm gate price	285.35	357.23	482.47	536.97	415.95	367.34	-11.7	297.05	353.30	484.89	558.13	445.89	364.29	-18.3
Landed cost	360.81	417.37	562.47	642.95	515.03	456.29	-11.4	350.38	402.89	558.10	648.04	525.75	435.09	-17.2
Transport % of landed cost	20.9	15.0	14.2	16.5	19.3	19.5	0.9	15.2	12.6	13.1	13.8	15.3	16.3	6.5
Item	Southwest PI - São Luís —US\$/mt—							North MT - Barcarena —US\$/mt—						
	2019	2020	2021	2022	2023	2024	% Change 2023-24	2019	2020	2021	2022	2023	2024	% Change 2023-24
Truck	39.34	29.81	29.15	44.32	48.59	38.78	-20.2	46.64	31.72	31.84	49.44	56.13	44.16	-21.3
Barge	-	-	-	-	-	-	-	15.33	11.94	12.63	18.32	26.38	19.31	-26.8
Ocean	20.34	22.76	48.36	49.08	36.25	34.90	-3.7	21.16	20.31	41.00	44.43	30.85	29.58	-4.1
Total transportation	59.68	52.58	77.51	93.39	84.84	73.68	-13.2	83.13	63.97	85.47	112.19	113.35	93.04	-17.9
Farm gate price	295.87	342.39	475.78	542.19	444.76	373.35	-16.1	285.35	357.23	482.47	536.97	415.95	367.34	-11.7
Landed cost	355.55	394.97	553.28	635.58	529.60	447.04	-15.6	368.48	421.19	567.94	649.15	529.31	460.38	-13.0
Transport % of landed cost	16.8	13.6	14.0	14.6	16.1	16.5	2.4	22.6	15.2	15.0	17.3	21.5	20.2	-6.0
Item	North MT - Santarém by barge —US\$/mt—													
	2019	2020	2021	2022	2023	2024	% Change 2023-24							
Truck	-	-	-	49.44	56.13	44.16	-21.3							
Barge	-	-	-	8.87	9.26	6.94	-25.0							
Ocean	-	-	-	46.68	31.38	30.13	-4.0							
Total transportation	-	-	-	96.12	87.50	74.28	-15.1							
Farm gate price	-	-	-	567.60	415.95	367.34	-11.7							
Landed cost	-	-	-	663.72	503.46	441.62	-12.3							
Transport % of landed cost	-	-	-	14.6	17.5	16.8	-3.6							

Producing regions: MT=Mato Grosso, PI=Piauí, and MA=Maranhão. Export ports: Santarém, São Luís and Barcarena. Farm gate prices are from the Brazilian Government, Companhia Nacional de Abastecimento (CONAB). In Brazil, there are no published barge rates. Barge rates can be up to 60 percent lower than truck rates, depending on the volumes hauled and the terms of contracts signed between the barge company and shippers. The distance is in nautical miles. Note: mt=metric ton. A hyphen in an otherwise empty cell denotes that the data are not available. Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

In response to lower farm prices, total landed costs of U.S. soybeans decreased via the U.S. Gulf to Germany and China. From 2023 to 2024, transportation costs from the U.S. Gulf to China increased 5 percent because of higher truck and ocean rates. Ocean rates increased, especially in first half of the year as grain vessels leaving the U.S. Gulf for East Asia (i.e., China, Japan, Korea, and the Philippines) were diverted from the Panama Canal, because of drought-related restrictions, to navigate around the Cape of Good Hope. However, by Summer 2024—following much needed rain—the Panama Canal Authority (PCA) eased its restrictions, returning vessel transits to near normal levels ([Grain Transportation Report \(GTR\) October 24](#) and [December 12, 2024](#)). According to USDA's [Modal Share Analysis](#), 48 percent of soybean exports were shipped via barge to the Gulf.

Table 5. Average cost of transporting U.S. soybeans via U.S. Gulf to Hamburg, Germany, and Shanghai, China, 2020-2024

Item	To Hamburg, Germany											
	2020	2021	2022	2023	2024	% Change 2023-24	2020	2021	2022	2023	2024	% Change 2023-24
	Minneapolis, Minnesota —US\$/mt—						Davenport, Iowa —US\$/mt—					
Truck	11.04	13.58	18.86	15.11	17.03	12.7	11.04	13.58	18.86	15.11	17.03	12.7
Rail	9.18	9.10	9.51	10.67	10.70	0.3	8.26	8.33	8.70	9.48	9.79	3.3
Barge	26.14	27.48	53.62	31.50	31.64	0.4	20.05	23.09	44.80	26.10	25.97	-0.5
Ocean	16.61	25.31	30.12	27.37	26.94	-1.6	16.61	25.31	30.12	27.37	26.94	-1.6
Total transportation	62.97	75.47	112.11	84.64	86.30	2.0	55.96	70.32	102.49	78.06	79.73	2.1
Farm gate price	321.45	481.65	539.52	509.62	396.41	-22.2	330.02	482.26	541.97	516.56	407.86	-21.0
Landed cost	384.42	557.12	651.63	594.26	482.70	-18.8	385.98	552.58	644.46	594.61	487.59	-18.0
Transport % of landed cost	16.4	13.6	17.2	14.2	17.9	25.9	14.4	12.8	15.9	13.1	16.4	24.9

Item	To Shanghai, China											
	2020	2021	2022	2023	2024	% Change 2023-24	2020	2021	2022	2023	2024	% Change 2023-24
	Minneapolis, Minnesota —US\$/mt—						Davenport, Iowa —US\$/mt—					
Truck	11.04	13.58	18.86	15.11	17.03	12.7	11.04	13.58	18.86	15.11	17.03	12.7
Rail	9.18	9.10	9.51	10.67	10.70	0.3	8.26	8.33	8.70	9.48	9.79	3.3
Barge	26.14	27.48	53.62	31.50	31.64	0.4	20.05	23.09	44.80	26.10	25.97	-0.5
Ocean	40.08	68.58	67.25	52.37	55.94	6.8	40.08	68.58	67.25	52.37	55.94	6.8
Total transportation	86.44	118.74	149.24	109.64	115.30	5.2	79.43	113.58	139.62	103.05	108.74	5.5
Farm gate price	321.45	481.65	539.52	507.37	396.41	-21.9	330.02	482.26	541.97	516.56	407.86	-21.0
Landed cost	407.89	600.39	688.76	617.01	511.71	-17.1	409.45	595.85	681.59	619.61	516.59	-16.6
Transport % of landed cost	21.2	19.8	21.7	17.8	22.6	27.1	19.4	19.1	20.5	16.6	21.1	26.8

Rail rates include fuel surcharges, but do not include the cost of purchasing empty rail cars in the secondary rail markets. That cost could exceed the rail tariff rate plus fuel surcharge shown in the table. The Mississippi River closes from Minneapolis to just north of St. Louis during mid-December to late March; the distance by barge from Minneapolis and Davenport to the Port of New Orleans is 1,713 and 1,343 miles, respectively.

Source for ocean rates: The Baltic Exchange and O'Neil Commodity Consulting; excludes handling charges. The average of the sum of the total costs may not equal the sum of the individual average truck, rail, barge, and ocean costs, because rail is used only in the first quarter. Source for the U.S. farm prices: USDA, National Agricultural Statistics Service. Landed cost is transportation cost plus farm price. Note: mt=metric ton; "0.00" means that rail transportation was not applicable.

Source: Compiled by the USDA, Agricultural Marketing Service.

From North and South Dakota to Shanghai, China, via the Pacific Northwest (PNW), U.S. soybean transportation costs, as a share of total landed costs, decreased 17-18 percent from 2023 to 2024 in response to lower soybean prices.

Table 6. Average costs of transporting U.S. soybeans via Pacific Northwest to Shanghai, China, 2020-24

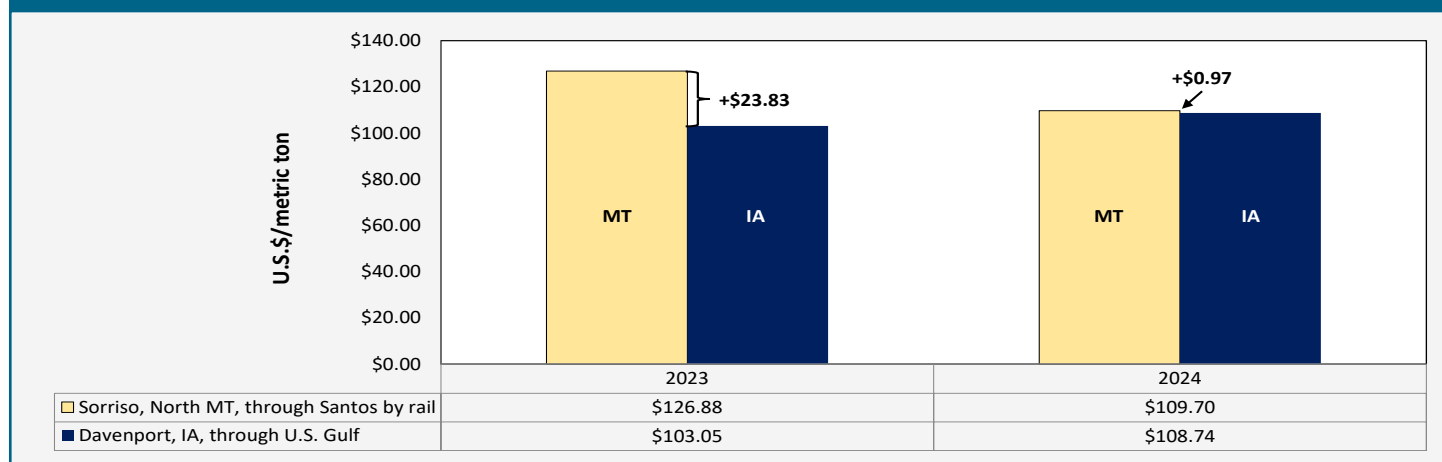
Item	2020	2021	2022	2023	2024	% Change 2023-24	2020	2021	2022	2023	2024	% Change 2023-24
	Fargo, North Dakota —US\$/mt—						Sioux Falls, South Dakota —US\$/mt—					
Truck	11.04	13.58	18.86	15.11	17.03	12.7	11.04	13.58	18.86	15.11	17.03	12.7
Rail	57.10	57.76	64.04	66.59	63.80	-4.2	58.09	58.76	65.52	68.11	65.09	-4.4
Ocean	21.38	38.05	38.32	28.26	30.45	7.7	21.38	38.05	38.32	28.26	30.45	7.7
Total transportation	89.52	109.39	121.22	109.96	111.28	1.2	90.51	110.39	122.70	111.48	112.57	1.0
Farm gate price	306.11	465.42	528.50	486.24	382.72	-21.3	315.51	474.61	541.61	507.06	393.56	-22.4
Landed cost	395.62	574.81	649.72	596.20	493.99	-17.1	406.01	584.99	664.31	618.55	506.12	-18.2
Transport % of landed cost	22.7	19.1	18.7	18.4	22.5	22.1	22.4	18.9	18.5	18.1	22.3	23.6

Rail rates include fuel surcharges, but do not include the cost of purchasing empty rail cars in the secondary rail markets, which could exceed the rail tariff rate plus fuel surcharge shown in the table. Source for the U.S. ocean freight rates: O'Neil Commodity Consulting. Source for U.S. farm prices: USDA, National Agricultural Statistics Service. Landed cost equals transportation cost plus farm price. Note: mt=metric ton. Truck, rail, and ocean transportation costs may not sum exactly to total transportation costs because of rounding.

Source: Compiled by the USDA, Agricultural Marketing Service.

In 2024, shipping soybeans to Shanghai, China, cost \$0.97 per metric ton (mt) more from Sorriso, North Mato Grosso, via Santos by rail, than from Davenport, IA, by barge to the U.S. Gulf. From 2023 to 2024, Iowa's cost advantage over Brazil shrank, because Iowa's transportation costs increased and Brazil's costs fell significantly. In 2024, Brazil exported 98.8 million metric tons (mmt) of soybeans—3 percent less than 2023's total of 101.9 mmt. Of soybeans exported from Santos, 57 percent were hauled by rail, and 47 percent by truck. From the Port of Santos, Sorriso is located 1,190 miles by truck or 1,401 miles by a combination of truck (382 miles from the Rondonópolis rail terminal) and rail (1,019 miles). From the Port of New Orleans, Davenport is about 900 miles by truck, 908 miles by rail, and 1,343 miles by barge.

Figure 4. Transportation costs to Shanghai, China, for routes from Mato Grosso (MT) (via rail) and Iowa (IA) (via U.S. Gulf), 2023-24

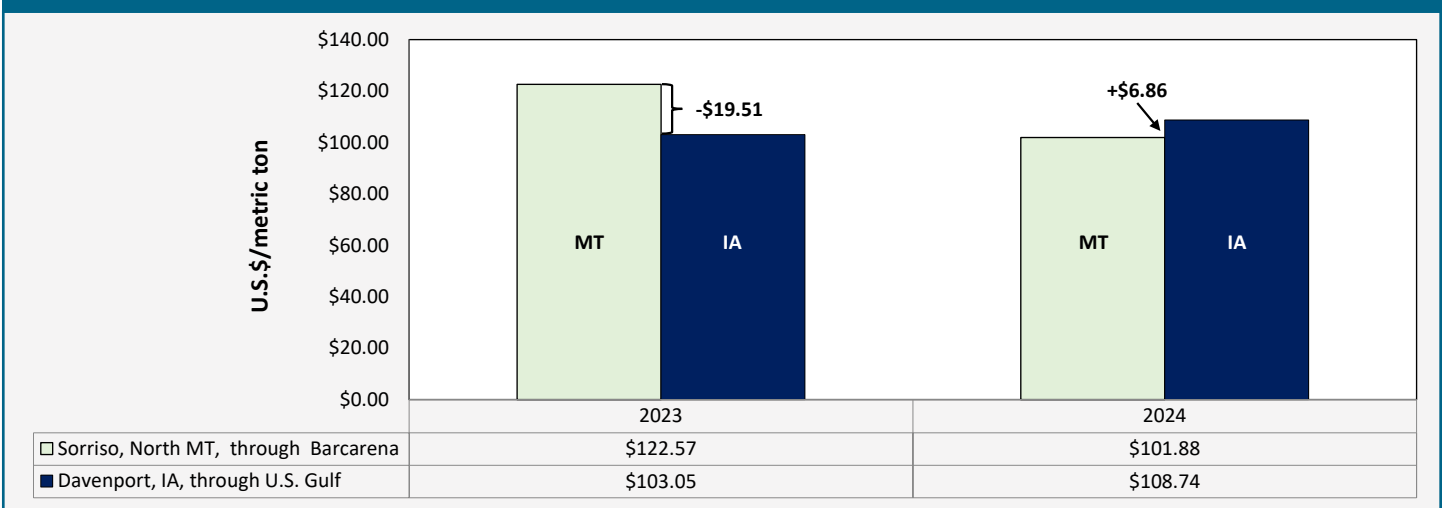


Note: MT=Mato Grosso and IA=Iowa.

Source: USDA, Agricultural Marketing Service.

In 2024, the total cost of shipping soybeans to Shanghai, China was \$6.86 per mt less from Sorriso, North Mato Grosso, via Barcarena than from Davenport, IA, via the U.S. Gulf. (Both routes included a barge portion.) From 2023 to 2024, Iowa entirely lost its cost advantage. In 2014—when the Port of Barcarena first opened—Brazil's agribusinesses exported 1 million metric ton (mmt) of soybeans from the port. By 2024, Barcarena had become the fifth-largest Brazilian port for exporting soybeans (after Santos, Paranaguá, São Luís, and Rio Grande). In 2024, Barcarena accounted for 9.8 mmt of total Brazilian soybean exports (98.8 mmt). From the Port of Barcarena, Sorriso is 1,272 miles away (600 miles by truck to Itaituba/Miritituba barge terminal, and 600 nautical miles by barge). From the Port of New Orleans, Davenport is 1,343 miles by barge.

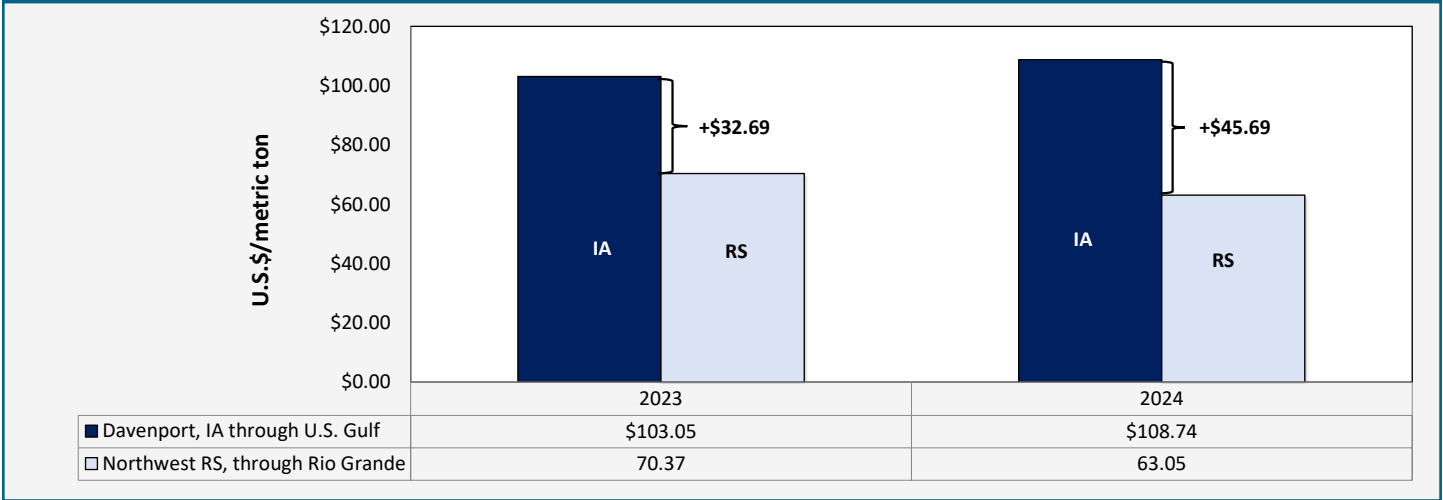
Figure 5. Transportation costs to Shanghai, China, for routes from Mato Grosso (MT) (via Barcarena) and Iowa (IA) (via U.S. Gulf), 2023-24



Note: MT=Mato Grosso and IA=Iowa.
Source: USDA, Agricultural Marketing Service.

In 2024, shipping soybeans to Shanghai, China, from Cruz Alta, Northwest Rio Grande do Sul, cost \$45.69 per mt less than from Davenport, IA. From 2023 to 2024, Brazil's cost advantage grew, because transportation costs from Iowa increased as Brazil's costs declined. The distance from Cruz Alta to the port of Rio Grande is 288 miles.

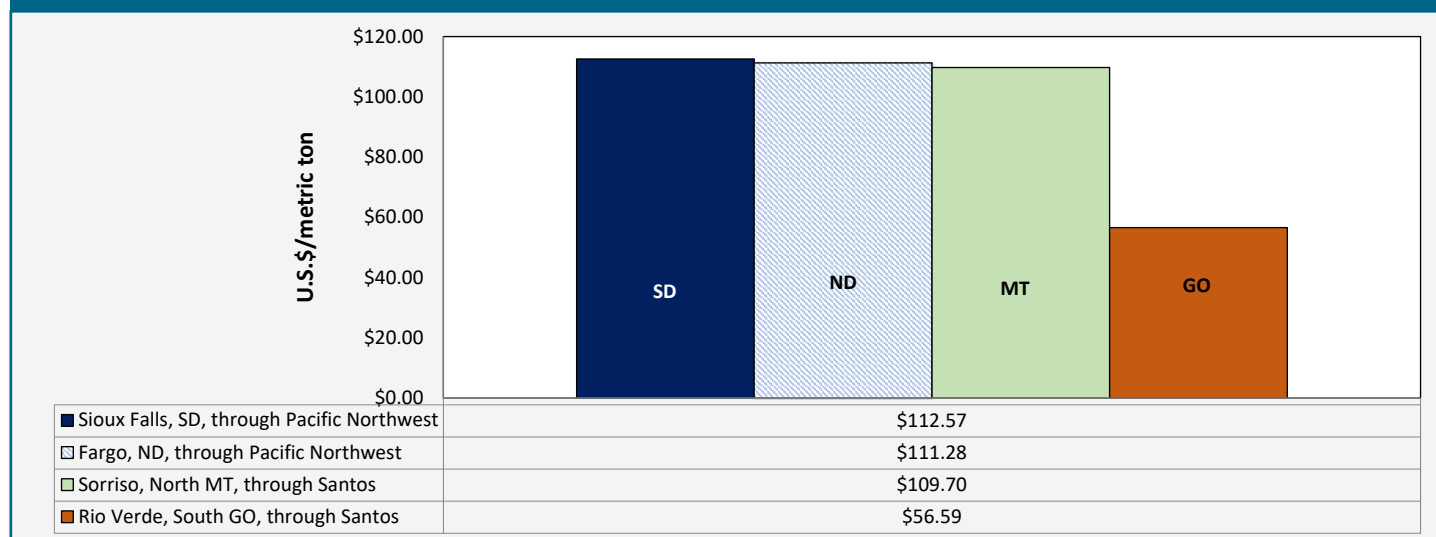
Figure 6. Transportation costs to Shanghai, China, for routes from Rio Grande do Sul (RS) and Iowa (IA), 2023-24



Note: MT=Mato Grosso and IA=Iowa.
Source: USDA, Agricultural Marketing Service.

During 2024, shipping soybeans to Shanghai, China, from Rio Verde, South Goiás, via Santos by rail cost about \$55-56 per metric ton less than U.S. shipments by the PNW routes. Rio Verde is 546 miles from Santos. The distances from Sioux Falls, SD, and Fargo, ND, to the PNW are 1,493 and 1,441 miles, respectively.

Figure 7. Transportation costs to Shanghai, China, for selected U.S. and Brazilian rail-inclusive routes, 2024

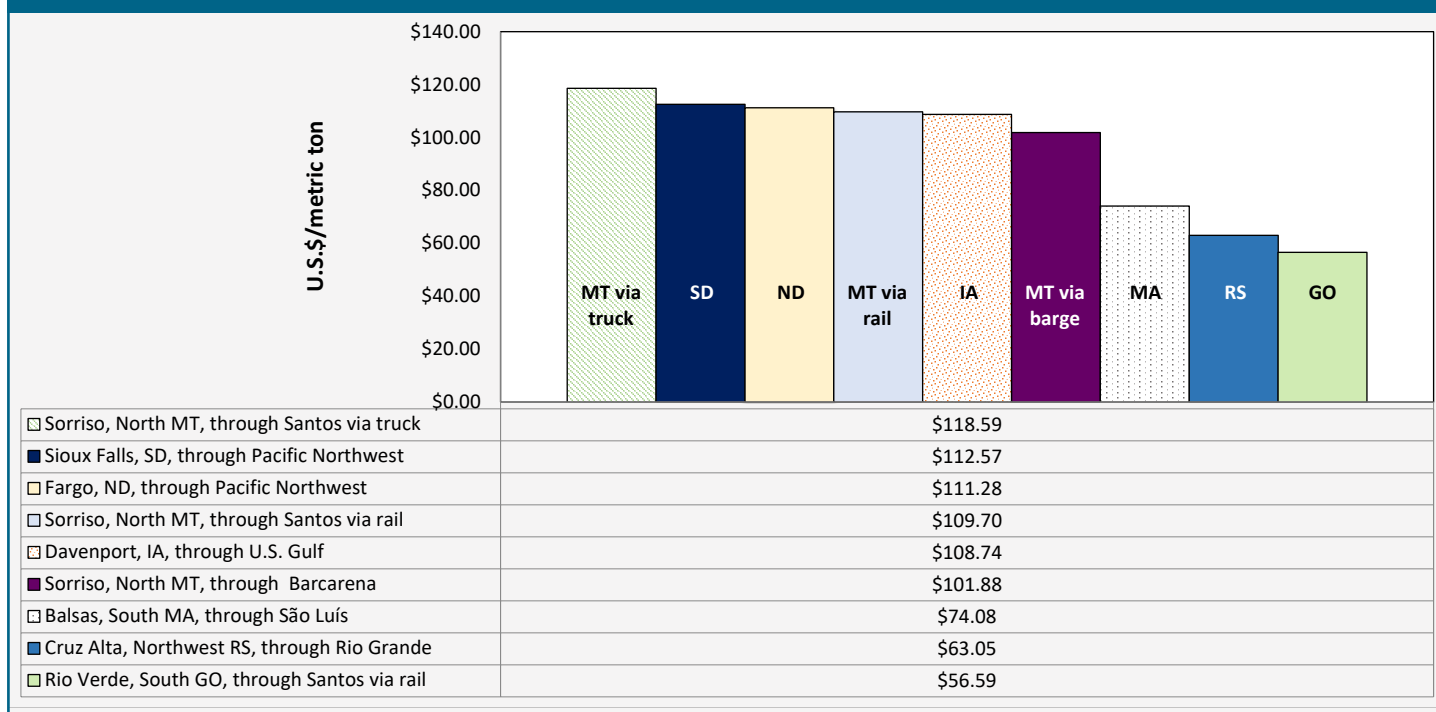


Note: MT=Mato Grosso, GO=Goiás, RS=Rio Grande do Sul, SD=South Dakota, and ND=North Dakota.

Source: USDA, Agricultural Marketing Service.

From January to December 2024, to ship soybeans to Shanghai, China, North Mato Grosso's transportation cost advantage over the U.S. Gulf and U.S. PNW routes grew, except when shipping from North MT via Santos by truck. Also, Brazil's cost advantage grew when soybeans were shipped by rail from Rio Verde, South Goiás, via Santos; Balsas, South Maranhão, via São Luís; or Cruz Alta, Northwest Rio Grande do Sul, via Rio Grande.

Figure 8. Transportation costs to Shanghai, China, for selected U.S. and Brazilian routes, 2024



Note: MT=Mato Grosso, GO=Goiás, RS=Rio Grande do Sul, SD=South Dakota, and ND=North Dakota.

Source: USDA, Agricultural Marketing Service.

In 2024, in both U.S. dollars and Brazilian reais, Brazilian truck costs decreased from 2023. However, selected Brazilian export truck routes, measured in reais (R\$), had proportionally lower cost decreases than those estimated in U.S. dollars. The 2023-24 dip in Brazil's costs were driven by flagging export demand and a weakening Brazilian Real (R\$) against the U.S. dollar. The Brazilian real depreciated 8 percent against the U.S. dollar from 2023 to 2024.

Table 7. Truck rates for selected Brazilian soybean export routes, U.S\$/metric ton, 2019-24										
Route #	Origin (reference city)	Destination	Distance (miles)	2019	2020	2021	2022	2023	2024	Percent change 2023-24
				Freight price, US\$/metric ton						
1	Northwest RS (Cruz Alta)	Rio Grande	288	25.06	19.24	18.85	29.45	34.44	28.00	-18.7
2	North MT (Sorriso)	Santos	1,190	79.28	60.65	59.30	93.98	103.31	83.99	-18.7
3	North MT (Sorriso)	Paranaguá	1,262	75.78	59.87	58.62	93.11	102.07	82.53	-19.1
4	South GO (Rio Verde)	Santos	587	37.34	28.48	27.18	43.02	49.64	39.88	-19.7
6	North Central PR (Londrina)	Paranaguá	268	22.64	18.13	17.20	26.76	32.69	25.61	-21.6
11	Southeast MT (Primavera do Leste)	Santos	901	53.56	41.57	40.89	64.24	73.74	58.87	-20.2
27	North MT (Sorriso)	Itaituba	672	46.64	31.72	31.84	49.44	56.13	44.16	-21.3
29	North MT (Sorriso)	Santarém	876	52.04	39.20	37.91	59.30	67.70	58.83	-13.1
30	South MA (Balsas)	São Luís	482	32.99	26.83	24.85	40.83	43.61	35.90	-17.7
31	Southwest PI (Bom Jesus)	São Luís	606	39.34	29.81	29.15	44.32	48.59	38.78	-20.2
32	Southeast PA (Paragominas)	Barcarena	249	20.12	15.20	14.42	22.51	26.46	19.24	-27.3
33	East TO (Campos Lindos)	São Luís	842	50.55	37.72	36.02	56.69	62.97	51.15	-18.8
34	North MT(Sorriso)	Rondonópolis (Rail terminal)	382	27.62	21.47	20.64	31.47	36.92	28.78	-22.0
35	Rondonópolis MT (Rail teminal)	Santos	1019	39.98	32.13	29.69	44.31	54.79	46.32	-15.5
36	Itaituba PA (Barge terminal)	Santarém	224	9.16	5.72	6.18	8.12	9.26	6.94	-25.0
37	Itaituba PA (Barge terminal)	Barcarena	738	18.85	14.68	15.53	22.52	26.38	19.31	-26.8
38	South Rio Verde GO (Rail teminal)	Santos	546	--na--	--na--	--na--	31.71	36.91	30.53	-17.3

Although each origin region comprises several cities, the main city is considered as a reference to establish the freight price; na=not available. Table defining routes by number is shown on page 35. Distance from the main city of the considered region to the mentioned ports. Average monthly exchange rate from “Banco Central do Brasil” was used to convert Brazilian reais to U.S. dollars. RS=Rio Grande do Sul, MT=Mato Grosso, GO=Goiás, PR=Paraná, MG=Minas Gerais, BA=Bahia, MS=Mato Grosso do Sul, SP=São Paulo, PI=Piauí, MA=Maranhão, PA=Pará, and TO=Tocantins. In Brazil, there are no public/official rail tariff rates. Rail rates can be up to 30 percent lower than truck rates, depending on the volumes hauled and the terms of contracts signed between the railroad company and shippers. In Brazil, there are no public/official barge rates. Barge rates can be up to 60 percent lower than truck rates, depending on the volumes hauled and the terms of contracts signed between the barge company and shippers. The distance is in nautical miles.

Source: University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz,” Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

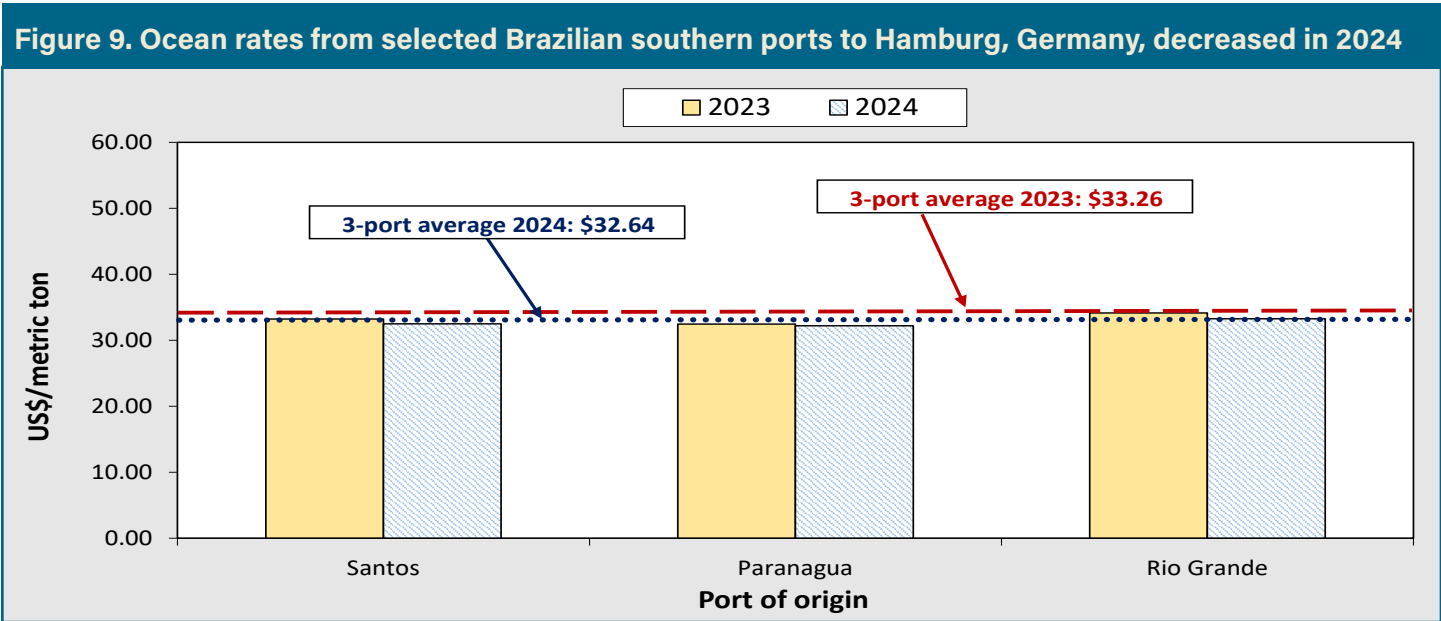
Table 8. Truck rates for selected Brazilian soybean export routes, reais/metric ton, 2019-24

Route #	Origin (reference city)	Destination	Distance (miles)	2019	2020	2021	2022	2023	2024	Percent change 2023-24
				Freight price, reais/metric ton						
1	Northwest RS (Cruz Alta)	Rio Grande	288	98.63	98.34	101.66	151.46	171.90	149.78	-12.9
2	North MT (Sorriso)	Santos	1,190	312.20	310.69	319.76	484.03	515.21	449.61	-12.7
3	North MT (Sorriso)	Paranaguá	1,262	298.83	306.56	316.02	479.55	509.10	441.81	-13.2
4	South GO (Rio Verde)	Santos	587	146.75	145.87	146.61	221.39	247.53	213.38	-13.8
6	North Central PR (Londrina)	Paranaguá	268	89.07	92.75	92.80	137.68	163.08	136.97	-16.0
11	Southeast MT (Primavera do Leste)	Santos	901	210.83	212.84	220.44	330.69	367.57	314.73	-14.4
27	North MT (Sorriso)	Itaituba	672	183.26	162.06	171.70	254.60	279.97	236.16	-15.6
29	North MT (Sorriso)	Santarém	876	204.53	200.87	204.50	305.34	337.58	314.39	-6.9
30	South MA (Balsas)	São Luís	482	129.69	138.13	133.96	209.80	217.52	192.24	-11.6
31	Southwest PI (Bom Jesus)	São Luís	606	154.46	153.25	157.30	227.92	242.58	207.46	-14.5
32	Southeast PA (Paragominas)	Barcarena	249	78.95	77.84	77.83	115.73	132.16	103.02	-22.0
33	East TO (Campos Lindos)	São Luís	842	198.95	193.24	194.31	291.88	314.16	273.74	-12.9
34	North MT(Sorriso)	Rondonópolis (Rail terminal)	382	108.61	109.95	111.36	161.94	184.12	154.01	-16.4
35	Rondonópolis MT (Rail teminal)	Santos	1019	157.62	164.24	160.22	228.32	273.13	247.92	-9.2
36	Itaituba PA (Barge terminal)	Santarém	224	25.78	21.19	24.12	30.07	41.10	37.16	-9.6
37	Itaituba PA (Barge terminal)	Barcarena	738	74.17	75.24	83.88	115.92	137.66	102.99	-25.2
38	South Rio Verde GO (Rail teminal)	Santos	546	--na--	--na--	--na--	163.08	184.02	163.63	-11.1

Although each origin region comprises several cities, the main city is considered as a reference to establish the freight price; na=not available. Table defining routes by number is shown on page 35. Distance from the main city of the considered region to the mentioned ports. Average monthly exchange rate from "Banco Central do Brasil" was used to convert Brazilian reais to U.S. dollars. RS=Rio Grande do Sul, MT=Mato Grosso, GO=Goiás, PR=Paraná, MG=Minas Gerais, BA=Bahia, MS=Mato Grosso do Sul, SP=São Paulo, PI=Piauí, MA=Maranhão, PA=Pará, and TO=Tocantins. In Brazil, there are no public/official rail tariff rates. Rail rates can be up to 30 percent lower than truck rates, depending on the volumes hauled and the terms of contracts signed between the railroad company and shippers. In Brazil, there are no public/official barge rates. Barge rates can be up to 60 percent lower than truck rates, depending on the volumes hauled and the terms of contracts signed between the barge company and shippers. The distance is in nautical miles.

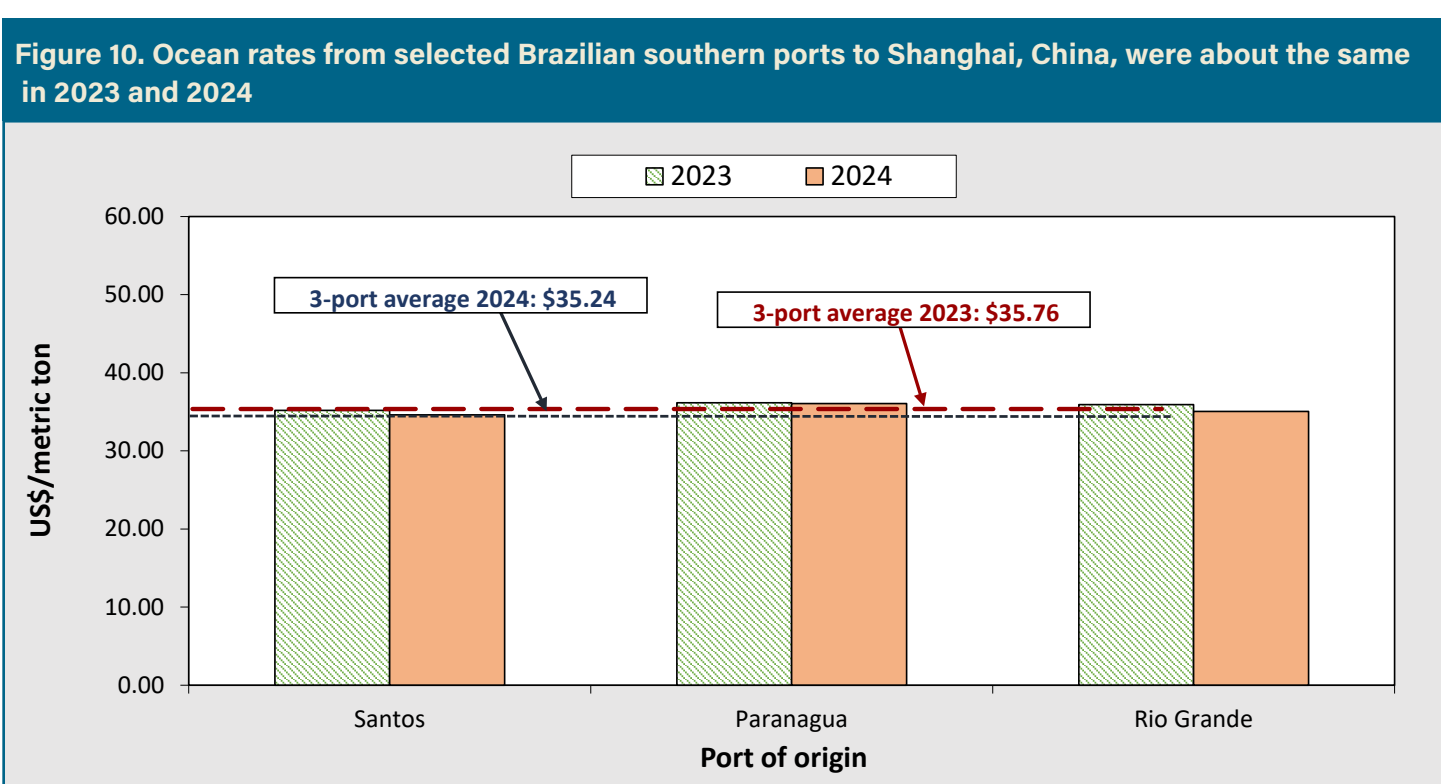
Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

On average, the cost to ship 1 mt of soybeans from Brazil to Hamburg, Germany, by oceangoing vessel decreased from \$33.26/mt in 2023 to \$32.64/mt in 2024.



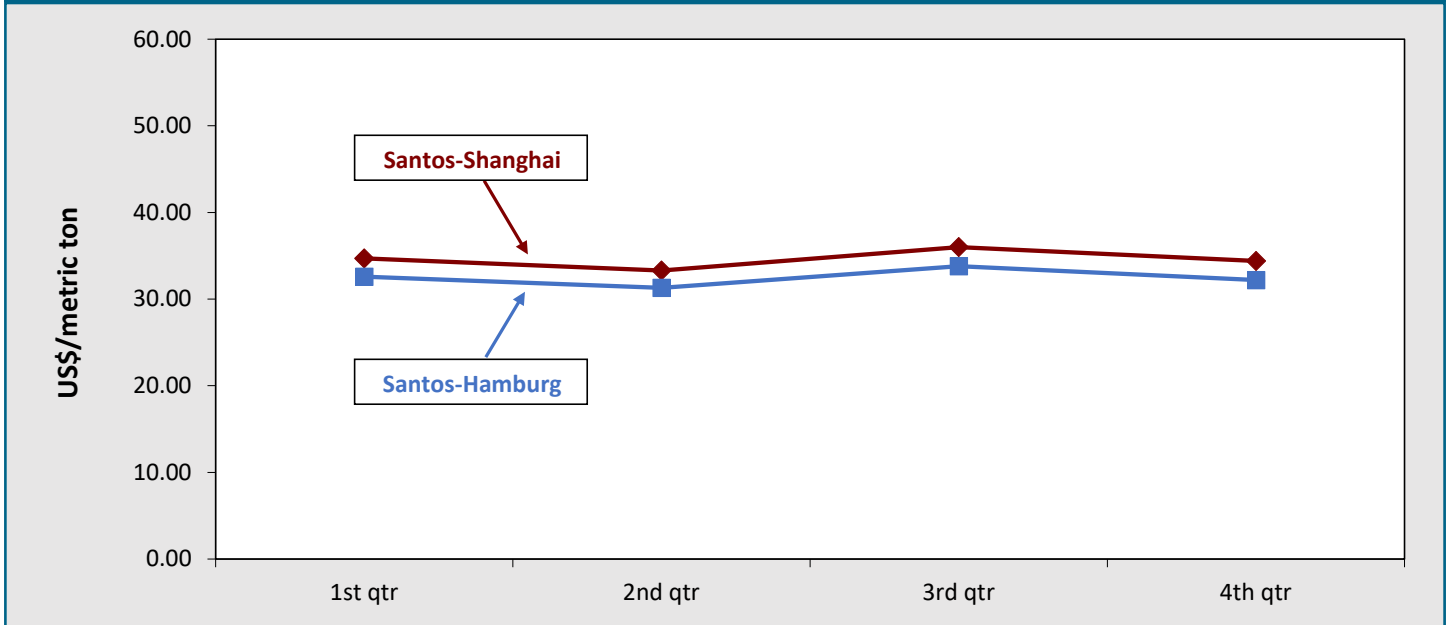
Source: University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz,” Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

On average, the cost to ship 1 mt of soybeans from Brazil to Shanghai by ocean vessel were about the same in 2023 (\$35.76/mt) and 2024 (\$35.24).



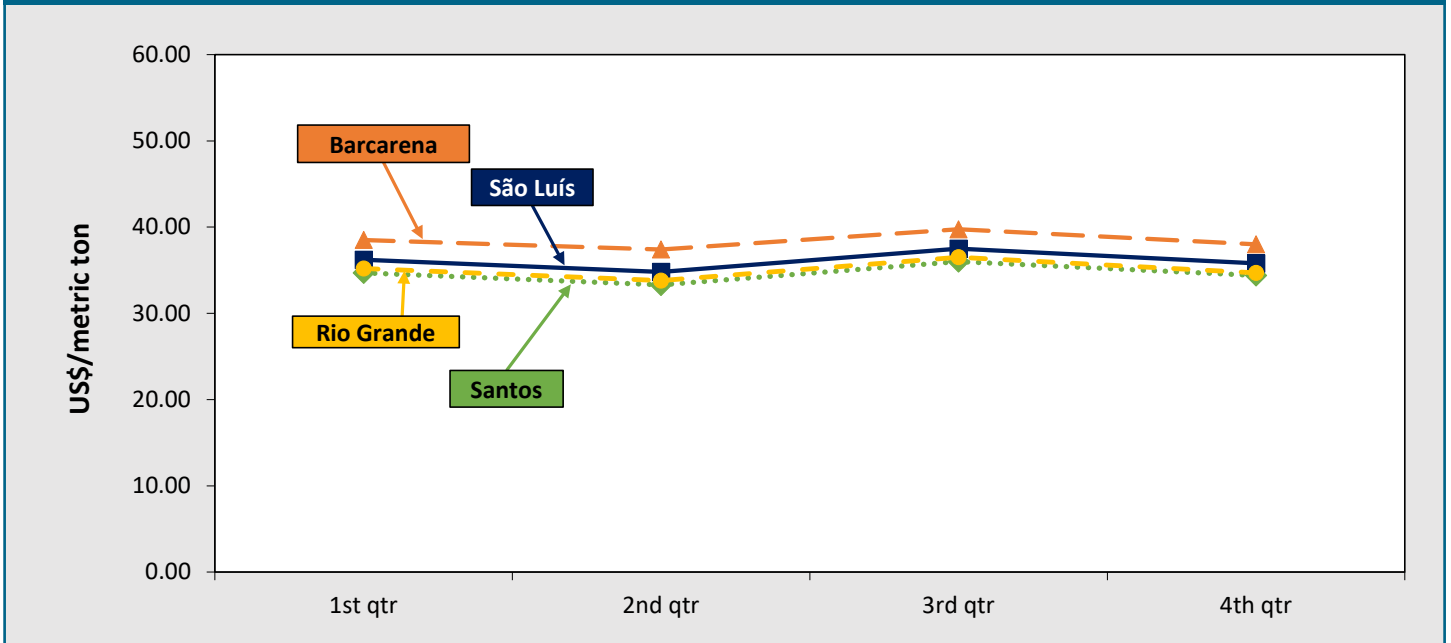
Source: University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz,” Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

Figure 11. Ocean rates for shipping soybeans from Santos to Shanghai, China, and Hamburg, Germany, 2024



Source: University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz,” Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

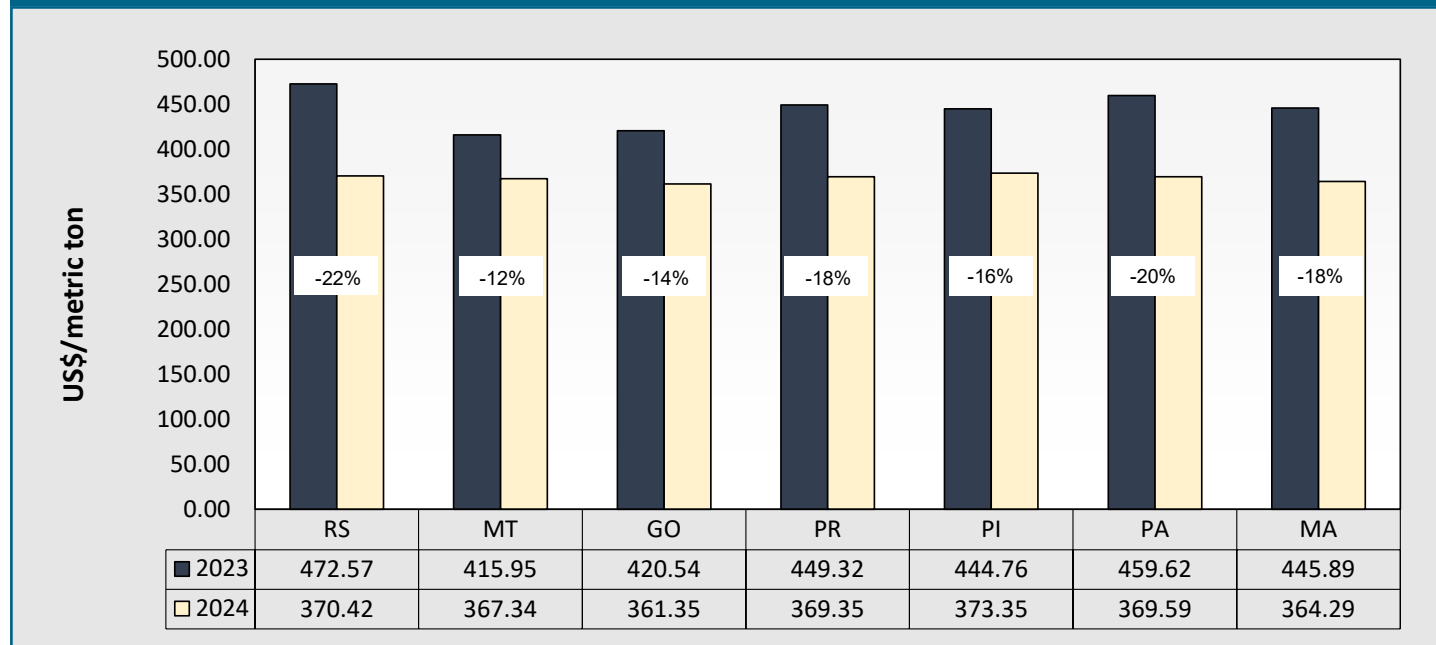
Figure 12. Ocean rates for shipping soybeans from selected Brazilian ports to Shanghai, China, 2024



Source: University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz,” Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

Brazil's 2024 average farm gate prices for soybeans decreased 17 percent in U.S. dollars (to the lowest levels since late 2020)—following the declining trend that started in 2023. Measured in U.S. dollars, average soybean farm gate prices fell from \$444.09/mt to \$367.95/mt—and in reais, from R\$ 2,221.45/mt to R\$ 1,981.43/mt. Farm prices measured in reais declined nearly 11 percent because Brazilian farmers continued to benefit from the real's relative weakness against the U.S. dollar. Soybeans are priced in U.S. dollars but paid in reais. The Brazilian real (R\$) depreciated by 8 percent against the U.S. dollar, from R\$4.99 per U.S. dollar to R\$5.39 per U.S. dollar.

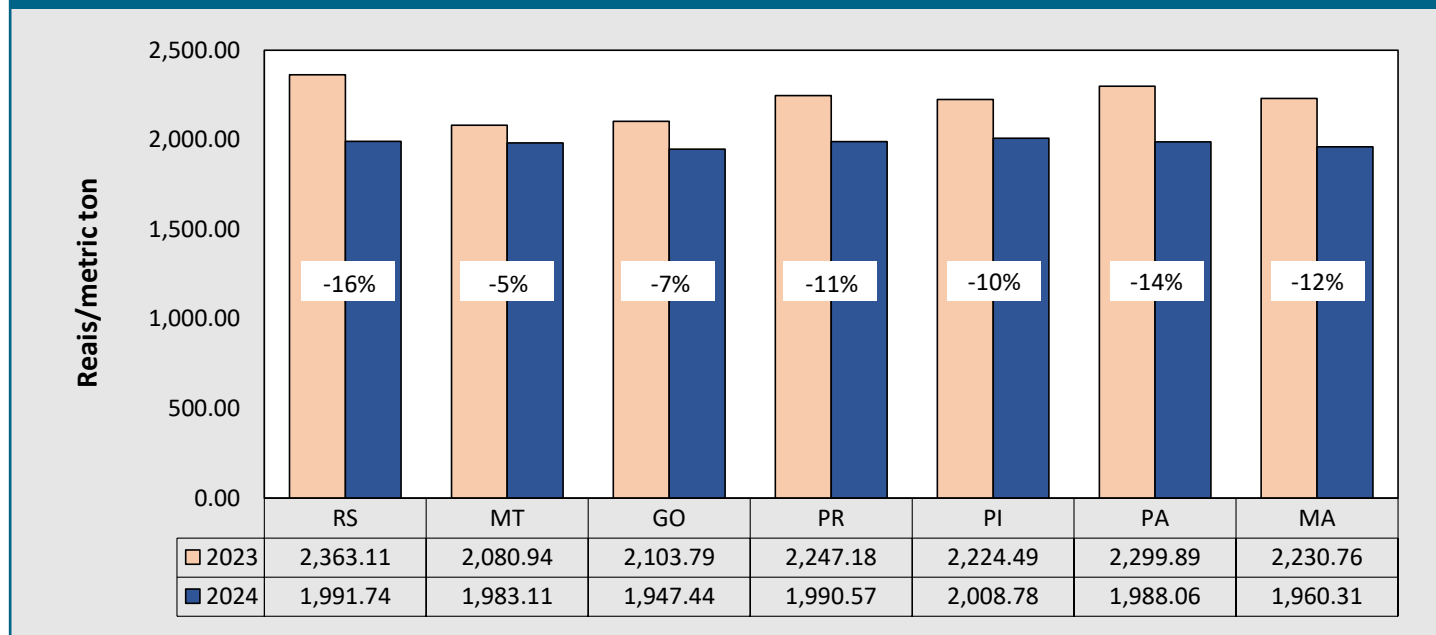
Figure 13. Selected Brazilian farm prices, US\$/metric ton, 2023-24



Note: RS=Rio Grande do Sul, MT=Mato Grosso, GO=Goiás, PR=Paraná, PI=Piauí, PA=Pará, and MA=Maranhão.

Source: Companhia Nacional de Abastecimento (CONAB).

Figure 14. Selected Brazilian farm prices, reais/metric ton, 2023-24

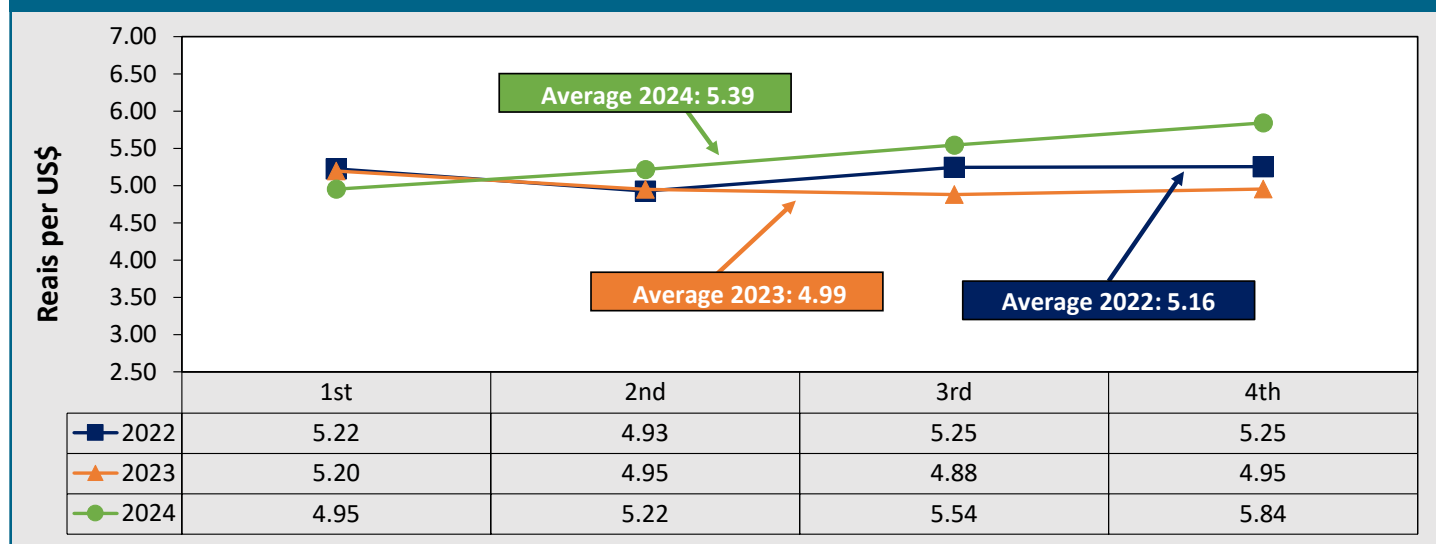


Note: RS=Rio Grande do Sul, MT=Mato Grosso, GO=Goiás, PR=Paraná, PI=Piauí, PA=Pará, and MA=Maranhão.

Source: Companhia Nacional de Abastecimento (CONAB).

From 2023 to 2024, the Brazilian real depreciated by 8 percent against the U.S. dollar, from R\$4.99 per U.S. dollar to R\$5.39 per U.S. dollar.

Figure 15. Average quarterly exchange rate, real per U.S. dollar, 2022-24

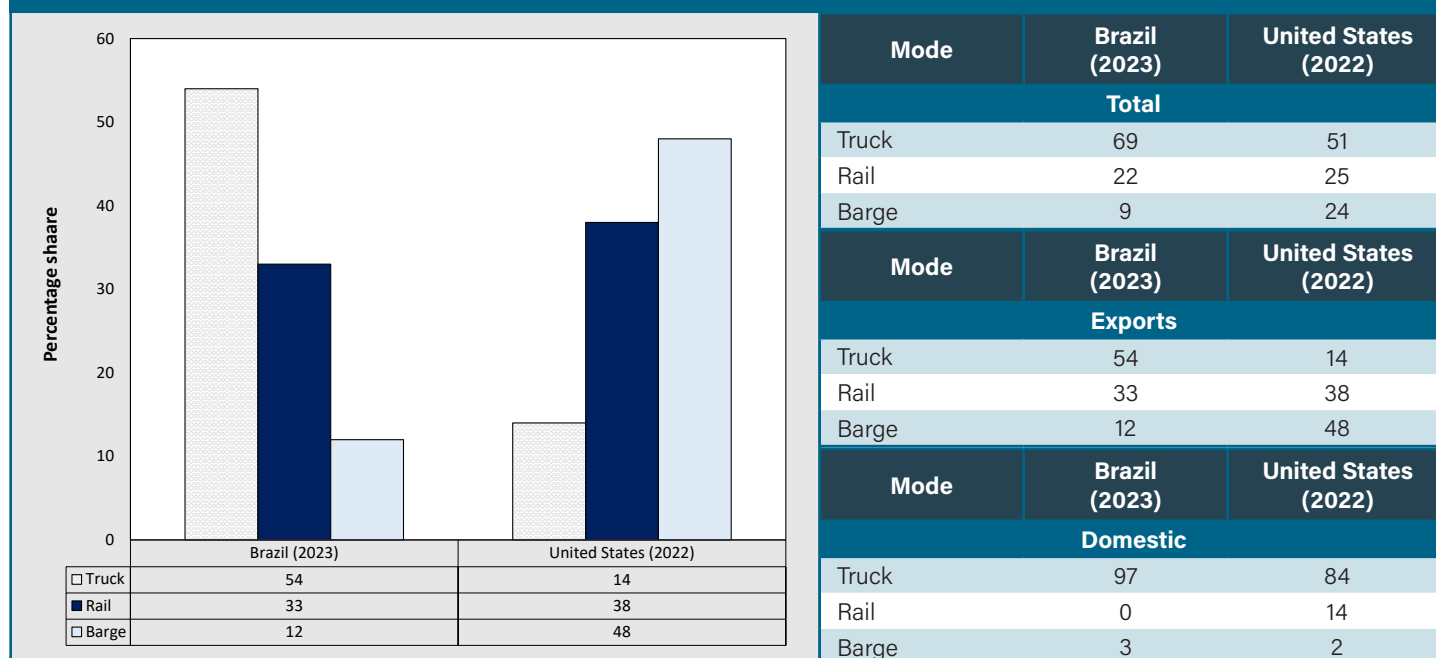


Source: Banco Central do Brasil

Nearly half of Brazilian soybean exports are moved by truck.

In Brazil, the mode that shipped the most soybeans to major export facilities was trucking, followed by rail, and barge. In contrast, in the United States, the mode that shipped the most soybeans to major export facilities was barge, followed by rail, and trucking. Brazil continues to depend heavily on trucks to transport grain to major destinations. In Brazil, short-haul movements' average distance is about 388 miles (625 kilometers (km)) from farm to rail and barge terminals. In the United States, the average distance from farm to inland grain elevator terminals is about 25-100 miles.

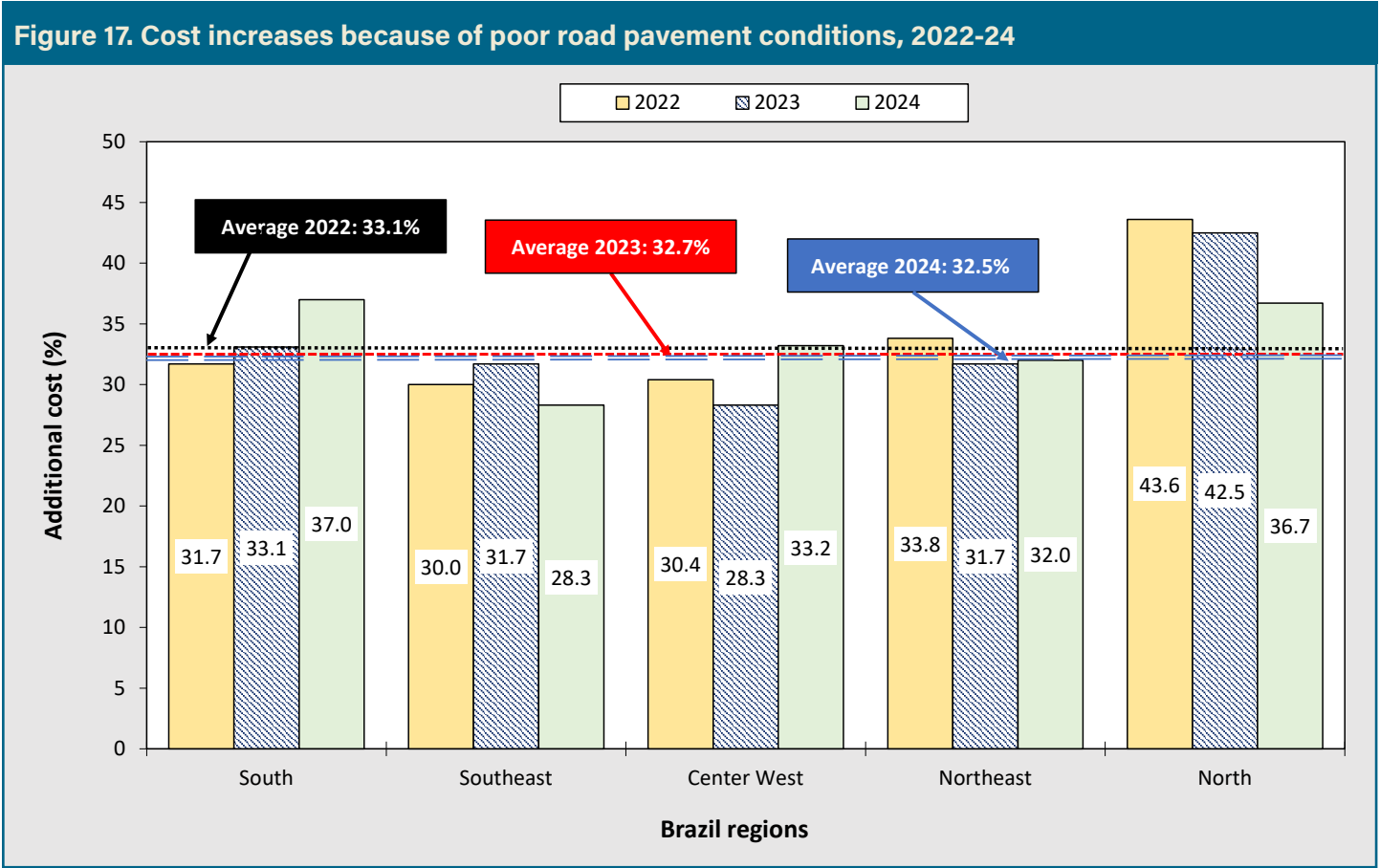
Figure 16. US-Brazil soybean modal shares for exports



Note: Brazil data compiled from the National Land Transport Agency (ANTT); National Water Transport Agency (ANTAQ), Comex-Vis, Ministry of Economy, and National Supply Company (CONAB). U.S. 2022 data is the latest available. Because of rounding, shares do not sum exactly to 100.

Source: Modal share analysis results—calculations by the University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz,” Brazil (ESALQ/ USP) and USDA, Agricultural Marketing Service.

According to estimates based on the 2024 Confederação Nacional do Transporte (CNT) survey of overall highway conditions in Brazil, the 2024 marginal operational cost of cargo trucks was nearly 33 percent higher than it would have been if the trucks had used only paved roads in optimal condition. This additional cost reflects the number of paved roads in poor condition. The share of the cost for not using paved roads in optimal condition in 2024 was about the same as in 2023. For example, according to CNT, the actual cost in 2024 of shipping a metric ton of soybeans from Sorriso, North MT, to Santos was \$100 per metric ton (mt), but the optimal cost was \$67.50.



Source: Confederação Nacional do Transporte (CNT).

Transportation Infrastructure

The updates in this section detail recent developments on some issues that affect Brazil's soybean-export competitiveness.

Brazilian Minimum Freight Rates Law Update

On January 16, 2020, Brazil's National Land Transportation Agency (ANTT) published updated guidelines to the National Policy of Minimum Freight Rates Law for truck cargo transportation. The main changes to the guidelines are as follows:

1. Shippers are obligated to pay backhaul freight rates for the return of empty containers. Shippers must also pay backhaul freight rates for trucks that cannot legally carry backhaul cargo—for example, trucks that carry fuel or gases cannot return with another type of cargo.
2. The truck driver's daily rate (salary and expenses for lodging and food) is included in the calculation of the minimum rate.
3. Pressurized cargo—such as carbon dioxide, nitrogen, and oxygen gases utilized in the food industry—has been added as a new type of cargo covered by the law.
4. Two new tables were created for high-efficiency loading operations that reduce the wait time for trucks and drivers.
5. The table's itemized costs (e.g., for tires and maintenance) are to be updated every 6 months.

Current status: The Brazilian Supreme Court held several conciliation hearings about the constitutionality of the law. Conciliation hearings were suspended because of the COVID-19 pandemic. As of September 2024, a new date for the hearings had not yet been set. Until the Supreme Court rules on the current law, it will remain in force. The [Brazilian Government](#) created a provisional measure that changes the freight table's automatic parameters. In January, 2025, ANTT made two revisions to the general provisions and Annex II of Resolution No. 5,867 of January 14, 2020:

- Setting a fine of \$97.80 (R\$550) on shippers who fail to declare the value of freight paid in the transport tax documents—e.g., declare a value equal to zero or below the established minimum;
- Updating the coefficients of the minimum freight floors.

New Growth Acceleration Plan Investment (PAC): Selected Infrastructure Project Priorities That Facilitate Agricultural Exports

On August 11, 2023, the Brazilian Government announced a New Growth Acceleration Plan ([PAC](#)) to promote expansion of railway networks; extend railway coverage to the new Brazilian production frontiers; and increase railway capacity. The PAC entrusts Public-Private Partnership (PPP) with fiscal and environmental responsibility, as well as looking after social needs. The new PAC will invest \$16.6 billion (R\$94.2 billion) in the railway sector between 2023 and 2026.¹ Key to the export sector, railways transfer part of long-distance cargo handling from highways to railroads, and reduce the logistical costs and environmental impacts of transportation. The new PAC will promote the railroad industry, encouraging the production of railroad materials and inputs in Brazil.

¹ Exchange rate of 5.68 real per U.S. dollar, June 2, 2025.

Railroad Projects

- **The West-East Integration (FIOL) Railroad (EF-334): Ilhéus, Bahia, to Figueirópolis, Tocantins.** Extension: 949 miles (1,527 km). To the port city of Ilhéus, FIOL railway will haul grains from Western Bahia and iron ore typical of the Caetité region in Central Bahia. In the future, FIOL may be integrated with the North-South railroad. The project is divided into three sections:

- FIOL I: Ilhéus - Caetité, Bahia (334 miles (537 km)).
- FIOL II: Caetité - Barreiras, Bahia (301 miles (485 km)).
- FIOL III: Barreiras - Figueirópolis, Tocantins (314 miles (505 km)).

Current Status: On April 8, 2021, the Brazilian mining company Bahia Mineração S.A. (Bamin) was named to run the 35-year concession to complete and operate FIOL I, which will facilitate iron ore exports from Bamin's mines to the ports. Bamin financed the \$277 million (1.5 billion reais (R\$)) investment for FIOL I, and began constructing the project in July 2023. In April 2025, the company halted construction, amid ongoing negotiations over the company's sale ([Bnamericas](#)).

China Railway No.10 Engineering Group Co Ltd. (CREC 10), a subsidiary of China Railway (State-owned enterprise in China), has been tasked with constructing the first 78 miles (126 km) of railway for FIOL I—China Railway's first rail project in Brazil. In 2027, this section is expected to be available for use.

Managed by the state-owned company Infra SA ([Bnamericas](#)), FIOL II is currently under construction between Caetité (BA) and Barreiras (BA).

FIOL III, from Barreiras (BA) to Figueirópolis (TO), is under study.

- **Center-West Integration (FICO) Railroad (EF-354):** Extension: 1,020 miles (1,641 km) divided in three sections as follows:
 - Section I, called FICO 1: from Mara Rosa, Goiás, to Água Boa, Mato Grosso (MT) (238 miles (383 km))
 - Section II: from Água Boa to Lucas do Rio Verde, MT (314 miles (505 km))
 - Section III: from Lucas do Rio Verde to Vilhena, (RO) (401 miles (646 km))

Current status: In 2023, Vale S.A. began constructing FICO 1, which will cost an estimated \$505 million (R\$2.73 billion). A 2021 agreement between the Brazilian Government and the World Bank will grant the FIOL-FICO rail concession to the private sector.

The 238 miles stretch of FICO 1, will connect the Araguaia Valley, a productive and developing region of Mato Grosso to Goiás with the North-South Railway. The route will facilitate the flow of grain to the ports of Santos (SP), Itaquí (MA), and (in the longer term future) to Ilhéus (BA) via FIOL. FICO 1 will be eventually extended from Lucas do Rio Verde (MT) to Mara Rosa and, finally, to Vilhena in Rondônia.

- **Ferrogrão Railroad (EF-170):** Estimated to cost \$4.7 billion (R\$ 25.2 billion), this project will consolidate the new Brazilian export rail corridor of the "Arco Norte" by connecting the grain-producing region of the Center-West to the State of Pará, ending at Miritituba Port. By serving as an alternative route for soybean and corn exports, the EF-170 is expected to increase transport capacity and competitiveness within the corridor and alleviate traffic conditions on highway BR-163. The concession is for 69 years. The railroad will be constructed in an environmental conservation area, previously owned by the Jamanxim National Park.

Current status: Public hearings and technical studies are complete. Currently, the Federal Audit Court is evaluating the project. The railroad faced renewed resistance from the region's indigenous peoples, who will be impacted. The Socio-Environmental Institute (ISA), which advocates for Indigenous and traditional Amazonian communities, alleged "methodological and conceptual flaws" in the government's technical report. In addition, ISA argues the Ferrogrão's cost-benefit socioeconomic analysis underestimated the required investment from private-sector backers ([Valorinternational](#)). In 2021, the project was stopped by court order, because the law did not consider how the project's leaders would provide environmental compensation to the region's indigenous people.

Highway Projects

- **BR-163:** On May 4, 2023, the Brazilian Government transferred—from [Rota do Oeste](#) to the State of Mato Grosso (Brazil's largest grain producer)—the concession of the 529-mile (850.9 km) stretch of BR-163 between the border of Mato Grosso do Sul and Sinop, North Mato Grosso. In 2013, the concession-holder Rota do Oeste committed to add 280 miles (450 km) of additional lanes to BR-163, but only 75 miles (120 km) were delivered.

Current status: The State of Mato Grosso began working on the highway, estimating that at least 52 miles (84 km) of additional lanes will be delivered in the first year of the concession. The government of Mato Grosso will invest \$281.7 million (R\$1.6 billion) within the next 2 years ([Canalrural](#)).

- **The 663-mile (1,067 km) stretch of BR-163 from Sorriso, North Mato Grosso to Miritituba:** On April 1, 2022, Consortium Via Brasil signed the contract to operate the Brazilian toll road BR 163. The concession is for 10 years, renewable for 2 more years.

Current status: Completed in late November 2019, this new route currently allows grain to ship by truck to Miritituba in about 2 days. However, there are reports of road deterioration ([A Tribuna](#)).

- **BR 158:** Together with BR 163 and BR 164, BR 158 is one of the longest and main highways in the interior of Brazil. The stretch of 2,452 miles (3,946 km) connects the northern part of Brazil from Altamira, Pará, to the southern part of Santana do Livramento, Rio Grande do Sul, on the Uruguayan border, where the highway joins Route 5.

BR 158 crosses the States of Pará, Goiás, Mato Grosso, Mato Grosso do Sul, Paraná, and Rio Grande do Sul. Because the highway traverses Mato Grosso, it will facilitate the export of agricultural products to ports in Brazil's Northeast and Southeast ([Canalrural](#)).

Current status: Estimated investment exceeds \$118 million (R\$670 million) in the extension and paving of the BR 158. The paving of BR-158 was divided into two main parts. Lot A, already started, covers 58.4 miles (93.9 km), starting at km 201.2, near Posto do Luizinho, up to the municipality of Alto Boa Vista, where the highway meets BR-242/MT. Lot A includes the contour of the Marâiwatsédé Indigenous Land, of the Xavante ethnic group.

Despite the progress, the remaining work on this lot could be delayed by the wait for more environmental licenses. The complexity of working in indigenous regions could also pose delays. Lot B, still in the design phase, covers 63 miles (101.4 km) between Alto Boa Vista and the district of Alô Brasil, located in Bom Jesus do Araguaia ([Click Petroleo and Gas \(CGP\)](#)).

- **BR-364:** In February 2025, the consortium formed by 4UM and Opportunity secured a 30-year concession to manage a 427-mile (687 km) stretch of Rota Agro Norte highway, which includes the BR-364 stretch between Porto Velho and Vilhena, in Rondônia. The investment plan includes \$1.1 billion (R\$6.35 billion) for improvements, such as approximately 67 miles (108 km) of road widening and 119 miles (191 km) of additional lanes. Another \$686.6 million (R\$3.9 billion) has been estimated for operational costs ([Valorinternational](#)).

Selected Port Projects

- **Port of Santos projects:** Several new projects to modernize and expand the capacity of the Port of Santos have been underway since 2022. COFCO International's growing investments in Santos include automation of the port's logistics for rail transport and other modes—similar to systems used in China and Peru ([DatamarNews](#)).

These investments are part of China's long-term strategy to ensure its domestic food security with stable supplies of agricultural commodities from abroad. China must rely on imports to compensate for its scarcity of arable land. COFCO International's primary focus is on Santos, rather than the recently inaugurated mega-port of Chancay, Peru, another potential export route to China.

- **New solid bulk terminal.** In 2022, [COFCO International Brasil SA](#) won the auction to build a new agricultural solid bulk terminal (STS 11), as well as a 25-year concession to run it. As part of the lease agreement, COFCO committed to investing in the modernization and expansion of the terminal facilities. On August 8, 2023, the construction started in the Valongo park area, at the Port of Santos ([DatamarNews](#)). In 2026, the terminal will be fully operational, expanding COFCO's port capacity in Brazil to 14.0 million tons.

Current status: In March 2025, the first phase of the export terminal of the Port of Santos began. In 2025, COFCO will be the terminal's sole operator, using it to move 8 million tons of grains, sugar, and soybean meal. Once the work is fully completed in 2026, the terminal will provide services to other companies besides COFCO. Shipment volumes are expected to reach 14.5 million tons. The new terminal's inaugural shipment will be 1.5 million tons of deforestation-free soybeans bound for China ([Globorural](#) and [DatamarNews](#)).

- **Rail fleet expansion.** In February 2025, COFCO International Brasil SA invested US\$ 211.3 million (R\$1.2 billion) to buy 979 rail cars and 23 locomotives to expand logistics operations at the Port of Santos. The fleet transports grains and sugar to the COFCO Export Terminal (TEC), located at STS-11 ([Globorural](#)).
- **The Santos-Guarujá underwater tunnel:** For the State of São Paulo, the tunnel is a top-priority infrastructure initiative that is integrated into the New PAC. Reaching a depth of 115 feet (35 meters) and likely to stretch 1.1 miles (1.7 km) long—the underwater tunnel will connect the right and left banks of the Port of Santos. The tunnel will facilitate the flow of cargo and passengers, with three lanes of traffic in either direction, between the ports of Santos and Guarujá. ([DatamarNews](#) and [World Highways](#)).

The Brazilian Federal Government and the government of the State of São Paulo have agreed to construct the Santos-Guarujá tunnel through a Public-Private Partnership (PPP). The project will involve a combination of public funds and concessions to the private sector. The tunnel will be tolled.

Current status: Begun in February 2025, the project is expected to take 24 months to complete. The project will receive an estimated investment of \$1.1 billion (R\$6 billion) in Federal resources, of which \$440 million (R\$2.5 billion) are already available for the Santos Port Authority ([Santos Port Authority](#), [Canalrural](#), and [CNNBrasil](#)).

- **New truck yards.** In January 2025, the Santos Port Authority (SPA) intends to build three new truck yards in the Baixada Santista region, with the possibility of a fourth to receive and store trucks that arrive from various parts of Brazil, often loaded with sugar, corn, and soybeans. The yards within the Organized Port Area will be built in São Vicente, Guarujá, and Cubatão. In Cubatão, two yards will be constructed—one on Tatu Island. The port expansion aims to improve operational efficiency and integration with the surrounding cities. One of the truck yards will have capacity for 500 trucks, on the Anchieta-Imigrantes interconnection, in the municipality of Cubatão.² On average days, approximately 20,000 trucks circulate through the port complex ([DatamarNews](#) and [Canalrural](#)).

Current status: The construction of the yard on Tatu Island in Cubatão has sparked controversy. The SPA committed to dialoguing with the community and authorities in Cubatão to avoid disruptions and that, if necessary, infrastructure works will be carried out to compensate for the damage.

- **Deepening the port's access channel.** Intended to sustain the competitiveness of the Port of Santos complex, this project deepened the access channel for a tunnel connecting the cities of Santos and Guarujá ([globo.com](#)). The channel depth was increased from 15 meters to 17 meters.

Current status: From November 2024 to January 2025, the Santos Port Authority (APS) completed the project ([globo.com](#)).

2 The Anchieta highway is the main route connecting the capital of São Paulo and the interior of São Paulo to the Port of Santos ([Canalrural](#))

- **New port terminal:** Brazil's largest private freight railroad operator Rumo has signed an agreement with global supply chain and logistics company DP World to build a new port terminal for grains, oilseeds, and fertilizer. The new project will increase Santos' handling capacity by up to 12.5 million metric tons (mmt)/year, comprising 9 mmt of grains and 3.5 mmt of fertilizers.

Current status: The project is subject to regulatory approval. The terminal will be built at DP World's private use terminal on the port's left bank and is expected to take 30 months to construct (world-grain.com).

- **Port of Itaqui:** In December 2024, COFCO International Brasil SA signed a contract with [VirtuGNL](https://virtugnl.com) for 2 years to transport part of its grain shipments by trucks powered by liquified Natural gas (LNG) to the port of Itaqui.³ The contract provides for the monthly transport of 18,000 tons of soybeans and corn, from the production regions of Balsas, in Maranhão, to the Port of Itaqui, in the same State ([Globo](https://globo.com)).
- **Dredging in the Amazon:** A total of \$ 88.0 million (R\$500 million) will be invested to mitigate drought effects in the region ([DatamarNews](https://datamarnews.com)) through dredging.

Current status: On June 19, 2024, the Brazilian Ministry of Ports and Airports made a service call to hire dredging services in four different stretches of the Amazon and Solimões Rivers.

Brazil's New Transportation Regulations

Rail regulations: On December 3, 2021, Brazil's [National Land Transport Agency \(ANTT\)](https://antt.gov.br) established rules for the execution of projects by railroad concessionaires, [ANTT Resolution nº 5956](https://antt.gov.br). The purpose of the regulation is to expedite the technical analysis required for the ANTT to approve infrastructure improvements of the Concessionaire's Interest Projects (PIC) and Third-Party Interest (PIT) projects.

The PIC are now categorized as the following:

- **Small-scale railway projects** are developed within the area covered by the concession, without the need for expropriation and with low environmental impact. Examples of small-scale projects include an expansion of a yard and the installation and relocation or demolition of a lane-change device.
- **Large-scale railway projects** extend to lengths that are equal to or greater than 6.2 miles (10 kilometers). Examples include a railway bypass, new stretch of track, branch, variant, or addition of a railway line.
- **Special artwork design projects** can involve a bridge, railway viaduct, underpass, or footbridge.
- **Auxiliary installation projects** include such examples as an administrative building, filling and washing station, sandpit, or wagon and locomotive workshop; and
- **Diverse projects** cover such items as level crossing (PN), pedestrian crossing (PNP) and signaling, or control system.

In the case of the PIC, projects that are classified as small-scale railway, special artwork, auxiliary installations, or diverse will be automatically authorized—unless they impact the economic-financial balance of the contract.

In the case of PIT projects, the works will be authorized after the concessionaire approves them. Most PIT projects encompass essential public services, such as railway crossings; sanitation networks (water supply network, sewage collection network, urban drainage network); and electric-power-transmission lines, required by third parties (city halls, sanitation, and energy companies, among others).

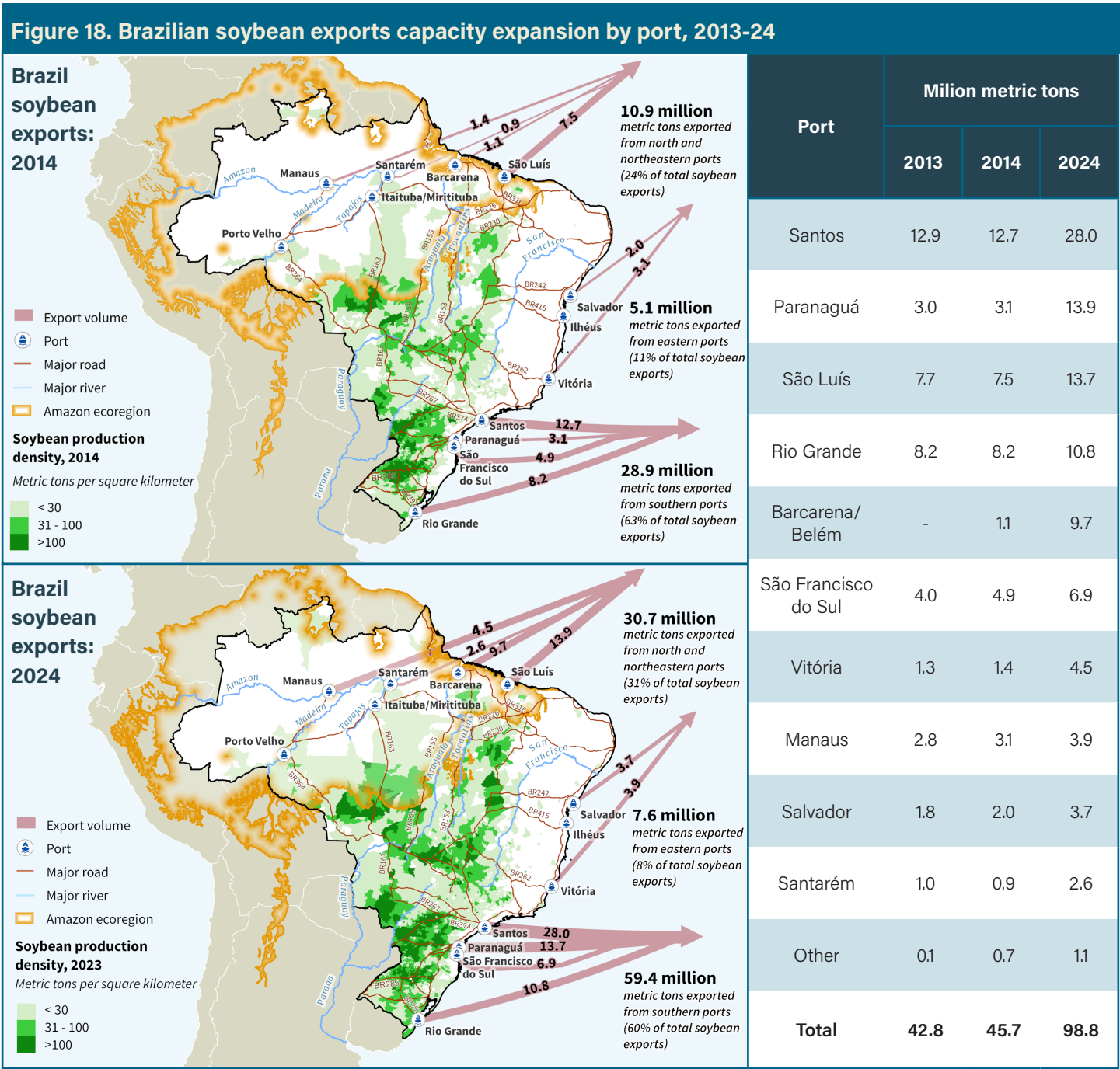
³ VirtuGNL is a logistics company that provides a specialized type of fleet to transport liquefied natural gas to areas where pipelines are not available.

BR do Mar Law: On January 10, 2022, the Brazilian Congress approved a cabotage project called "[BR do Mar](#)" (Road of the Sea) changing the rules to allow foreign ships to compete with Brazilian ones. The change increases fleet availability to engage in cabotage within the national territory. With "BR do Mar," the Government's intention is to make the cabotage sector more attractive, stimulating competition and lowering costs.

According to the Planning and Logistics Company (EPL), a public company linked to the Federal Government, cabotage accounts for only 11 percent of cargo transport in Brazil. Most freight is carried by truck (65 percent). EPL estimates that the BR do Mar program could reduce cabotage costs by more than 15 percent. According to EPL, the program could also increase containers transported per year from 1.2 million containers in 2019 to 2 million in 2022. Finally, EPL estimates the fleet dedicated to cabotage could increase by 40 percent in the next 3 years.

Current status: The Brazilian port sector is still awaiting the enactment of the cabotage project. The Federal Government is working on defining the details of the new rules ([DatamarNews](#)).

From 2013 to 2024, Brazil's total soybean export capacity more than doubled. The large expansion resulted from a comprehensive infrastructure improvement plan between the Brazilian Government and the private sector (started in 2007). One sign of the substantial growth: Brazil's agribusinesses exported 1 million metric ton (mmt) of soybeans from the Port of Barcarena in 2014—the year the port first began operating. By 2024, 9.7 mmt were exported from Barcarena, which had become the country's fifth-largest soybean-exporting port (after Santos, Paranaguá, São Luís, and Rio Grande).

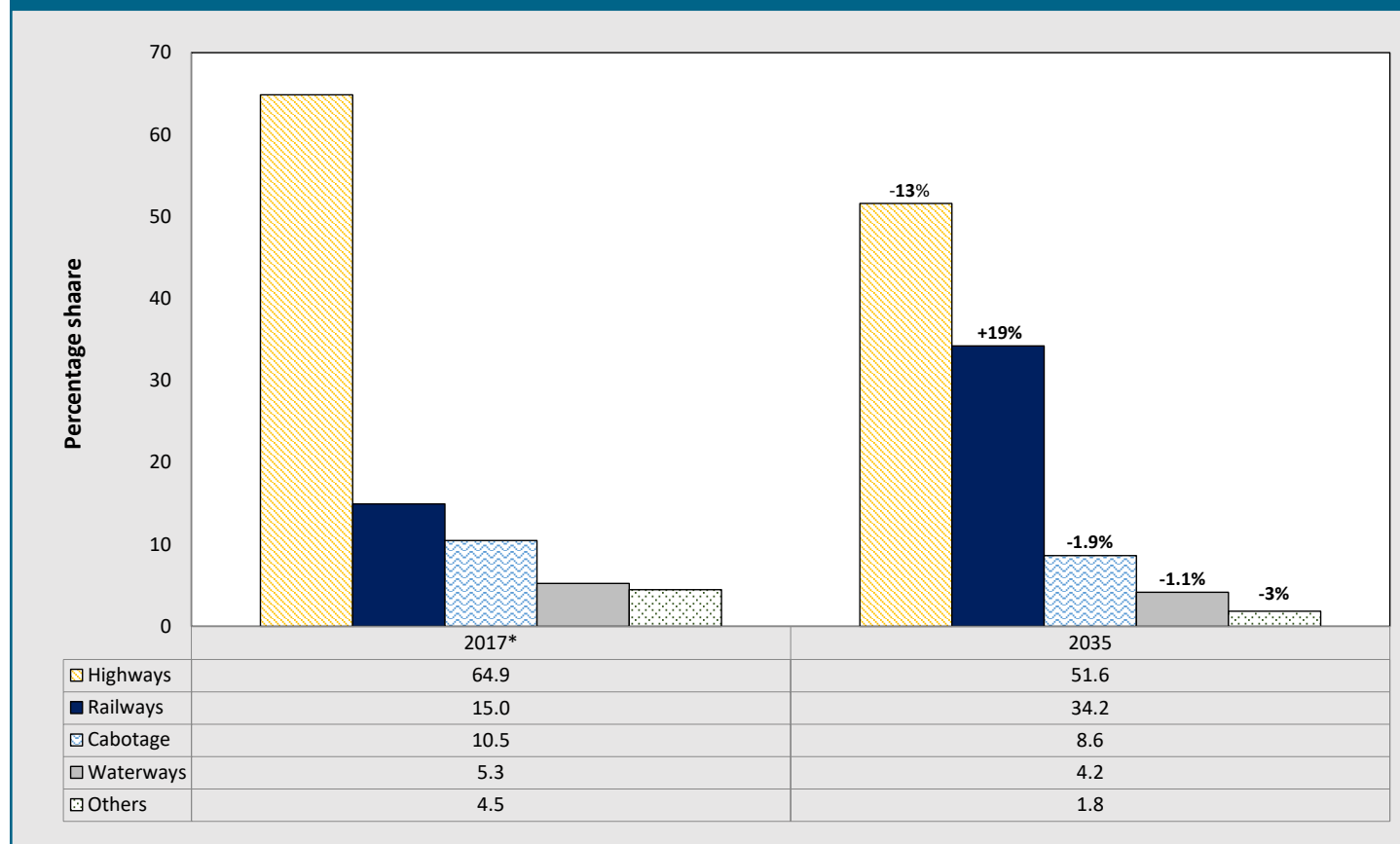


Amazon ecoregion provided by World Wildlife Fund.
Soybean production density provided by Brazilian Institute of Geography and Statistics—Produção Agrícola Municipal.
Map source: USDA/Agricultural Marketing Service and USDA/Foreign Agricultural Service.
Data table source: Comex Stat, Ministério da Indústria, Comércio Exterior e Serviços (MDIC).
Note: A hyphen in an otherwise empty cell denotes that the data are not available. The table totals for 2013, 2014, and 2023 differ from the map totals, because the table totals include an "other ports" category (not included in the map).

Brazilian Soybean-Export Modal Shares

In 2021, through a joint effort with the Ministry of Infrastructure, the Brazilian Enterprise for Planning and Logistics (EPL) presented the [Brazilian National Logistics Plan 2035 \(NLP 2035\)](#) to systematize and integrate the entire transport planning cycle at the Federal level. By 2035, the plan (which began in 2017) aims to reduce truck shipments by 13 percentage points, from 65 to nearly 52 percent—and to raise railway participation by 19 percentage points, from 15 to 34 percent. As a result, cabotage will decrease about 2 percent while waterway use slightly decreases. Already, the improved infrastructure has facilitated higher production of corn and soybeans in major agricultural producing regions. The NLP 2035 is a database with an integrated strategic plan of all modes of transport.

Figure 19. Brazilian modal shares for general cargo, 2017-35



Because of rounding, shares do not sum exactly to 100.

Source: National Logistics Plan (NLP) 2035, Scenario 7: includes the maintenance and completion of ongoing infrastructure projects, Brazil Ministry of Infrastructure, Planning and Logistics Company (EPL) 2021.

Table 9. Tonnages and modal share for Brazil soybeans, 2010-23

Total							
Year	Truck		Short-haul truck				Total soybeans
	1,000 tons	Percent	Rail		Barge		1,000 tons
			1,000 tons	Percent	1,000 tons	Percent	
2010	51,218	74.7	13,908	20.2	3,562	5.1	68,688
2011	54,936	73.0	16,169	21.4	4,219	5.6	75,324
2012	47,679	72.0	14,596	21.9	4,108	6.1	66,383
2013	60,908	74.9	16,120	19.7	4,472	5.4	81,500
2014	66,119	76.8	15,985	18.5	4,069	4.7	86,173
2015	73,941	76.2	17,691	18.2	5,462	5.6	97,094
2016	71,408	74.7	17,666	18.4	6,624	6.9	95,698
2017	81,817	71.2	24,324	21.1	8,886	7.7	115,027
2018	79,390	64.5	32,841	26.6	11,028	8.9	123,259
2019	80,557	67.4	28,783	24.0	10,378	8.6	119,718
2020	84,356	67.6	28,301	22.7	12,188	9.7	124,845
2021	95,016	68.2	32,628	23.4	11,741	8.4	139,385
2022	85,800	68.3	29,717	23.7	10,033	8.0	125,550
2023	106,398	68.8	34,256	22.2	13,956	9.0	154,610
Exports							
Year	Truck		Short-haul truck				Total soybeans
	1,000 tons	Percent	Rail		Barge		1,000 tons
			1,000 tons	Percent	1,000 tons	Percent	
2010	12,980	44.7	13,676	47.0	2,417	8.3	29,073
2011	13,964	42.4	15,960	48.4	3,051	9.2	32,975
2012	15,396	46.9	14,462	43.9	3,048	9.2	32,906
2013	23,492	55.0	15,997	37.3	3,307	7.7	42,796
2014	26,320	57.7	15,796	34.5	3,577	7.8	45,693
2015	31,406	57.9	17,456	32.1	5,462	10.0	54,324
2016	28,165	54.7	17,393	33.7	6,024	11.6	51,582
2017	36,323	53.4	24,017	35.2	7,815	11.4	68,155
2018	40,975	49.3	32,565	39.1	9,718	11.6	83,258
2019	36,225	49.1	28,442	38.3	9,406	12.6	74,073
2020	43,446	52.4	28,092	33.9	11,435	13.7	82,973
2021	43,161	50.1	32,376	37.6	10,573	12.3	86,110
2022	39,569	50.3	29,589	37.6	9,572	12.1	78,730
2023	55,254	54.2	34,037	33.4	12,579	12.4	101,870

(continued on page 35)

Domestic							
Year	Truck		Short-haul truck				Total soybeans
	1,000 tons	Percent	Rail		Barge		1,000 tons
			1,000 tons	Percent	1,000 tons	Percent	
2010	38,239	96.7	232	0.5	1,145	2.8	39,616
2011	40,972	96.9	208	0.4	1,168	2.7	42,348
2012	32,283	96.5	134	0.4	1,060	3.1	33,477
2013	37,416	96.7	123	0.3	1,165	3.0	38,704
2014	39,799	98.4	190	0.4	492	1.2	40,481
2015	42,535	99.5	234	0.5	0	0.0	42,769
2016	43,243	98.1	273	0.6	600	1.3	44,116
2017	45,494	97.2	307	0.6	1,071	2.2	46,872
2018	38,416	96.2	276	0.6	1,310	3.2	40,002
2019	44,332	97.2	342	0.7	972	2.1	45,646
2020	40,910	97.7	209	0.5	753	1.8	41,872
2021	51,855	97.3	252	0.5	1,168	2.2	53,275
2022	46,231	98.7	128	0.3	461	1.0	46,820
2023	51,144	97.0	219	0.4	1,377	2.6	52,740

Note: Data compiled from the National Land Transport Agency (ANTT); National Land Transport Agency (ANTAQ), Comex-Vis, Ministry of Economy, and National Supply Company (CONAB). Data for 2024 are not available. Short-haul truck shipments refer to the average distance of 388 miles (625 kilometers (km)) from the farm to rail and barge terminals.

Source: Modal share analysis results—calculations by the University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz,” Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

Transportation Indicators

Table 10. Quarterly costs of transporting Brazilian soybeans from the southern ports to Shanghai, China, 2024

Item	North MT - Santos by truck —US\$/mt—					North MT - Paranaguá —US\$/mt—				
	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.
Truck	91.79	91.10	82.31	70.75	83.99	89.66	90.18	80.92	69.35	82.53
Ocean	34.70	33.30	36.00	34.40	34.60	36.20	34.80	37.50	35.80	36.08
Total transportation	126.49	124.40	118.31	105.15	118.59	125.86	124.98	118.42	105.15	118.60
Farm gate price	349.39	366.79	366.60	386.58	367.34	349.39	366.79	366.60	386.58	367.34
Landed cost	475.88	491.19	484.91	491.73	485.93	475.25	491.76	485.02	491.72	485.94
Transport % of landed cost	26.6	25.3	24.4	21.4	24.4	26.5	25.4	24.4	21.4	24.4

Item	North MT - Santos by rail —US\$/mt—					Northwest RS - Rio Grande —US\$/mt—				
	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.
Truck	32.64	29.89	28.22	24.37	28.78	32.07	29.10	26.79	24.03	28.00
Rail	53.29	48.56	43.01	40.42	46.32	-	-	-	-	-
Ocean	34.70	33.30	36.00	34.40	34.60	35.20	33.80	36.50	34.70	35.05
Total transportation	120.63	111.76	107.23	99.19	109.70	67.27	62.90	63.29	58.73	63.05
Farm gate price	349.39	366.79	366.60	386.58	367.34	383.05	381.34	358.95	358.32	370.42
Landed cost	470.02	478.54	473.83	485.77	477.04	450.32	444.25	422.24	417.05	433.46
Transport % of landed cost	25.7	23.4	22.6	20.4	23.0	14.9	14.2	15.0	14.1	14.5

Producing regions: RS=Rio Grande do Sul and MT=Mato Grosso. Export ports: Santos, Paranaguá, and Rio Grande. Farm gate prices are from the Brazilian Government, Companhia Nacional de Abastecimento (CONAB). In Brazil, there are no published rail tariff rates. Rail rates can be up to 30 percent lower than truck rates, depending on the volumes hauled and the terms of contracts signed between the railroad company and shippers. Note: qtr=quarter. mt=metric ton. Avg=average. A hyphen in an otherwise empty cell denotes that the data are not available.

Source: University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz,” Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

Table 11. Quarterly costs of transporting Brazilian soybeans from the southern ports to Hamburg, Germany, 2024

Item	North MT - Santos by truck —US\$/mt—					North MT - Paranaguá —US\$/mt—				
	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.
Truck	91.79	91.10	82.31	70.75	83.99	89.66	90.18	80.92	69.35	82.53
Ocean	32.60	31.30	33.80	32.20	32.48	32.20	31.00	33.50	32.10	32.20
Total transportation	124.39	122.40	116.11	102.95	116.47	121.86	121.18	114.42	101.45	114.73
Farm gate price	349.39	366.79	366.60	386.58	367.34	349.39	366.79	366.60	386.58	367.34
Landed cost	473.78	489.19	482.71	489.53	483.80	471.25	487.96	481.02	488.02	482.06
Transport % of landed cost	26.3	25.0	24.1	21.0	24.1	25.9	24.8	23.8	20.8	23.8

Item	North MT - Santos by rail —US\$/mt—					Northwest RS - Rio Grande —US\$/mt—				
	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.
Truck	32.64	29.89	28.22	24.37	28.78	32.07	29.10	26.79	24.03	28.00
Rail	53.29	48.56	43.01	40.42	46.32	-	-	-	-	-
Ocean	32.60	31.30	33.80	32.20	32.48	33.40	32.00	34.60	33.00	33.25
Total transportation	118.53	109.76	105.03	96.99	107.58	65.47	61.10	61.39	57.03	61.25
Farm gate price	349.39	366.79	366.60	386.58	367.34	383.05	381.34	358.95	358.32	370.42
Landed cost	467.92	476.54	471.63	483.57	474.91	448.52	442.45	420.34	415.35	431.66
Transport % of landed cost	25.3	19.4	19.4	20.1	21.0	14.6	13.8	14.6	13.7	14.2

Producing regions: RS=Rio Grande do Sul and MT=Mato Grosso. Export ports: Santos, Paranaguá, and Rio Grande. Farm gate prices are from the Brazilian Government, Companhia Nacional de Abastecimento (CONAB). In Brazil, there are no published rail tariff rates. Rail rates can be up to 30 percent lower than truck rates, depending on the volumes hauled and the terms of contracts signed between the railroad company and shippers. Note: qtr=quarter. mt=metric ton. Avg=average. A hyphen in an otherwise empty cell denotes that the data are not available.

Source: University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz,” Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

Table 12. Quarterly costs of transporting Brazilian soybeans from the northern and northeastern ports to Shanghai, China, 2024

Item	North MT - Santarém —US\$/mt—					South MA - São Luís —US\$/mt—				
	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.
Truck	64.20	67.30	58.70	45.14	58.83	39.56	36.78	37.01	30.26	35.90
Ocean	38.00	36.50	39.00	37.30	37.70	38.30	37.10	39.50	37.80	38.18
Total transportation	102.20	103.80	97.70	82.44	96.53	77.86	73.88	76.51	68.06	74.08
Farm gate price	349.39	366.79	366.60	386.58	367.34	373.82	369.07	357.15	357.11	364.29
Landed cost	451.59	470.58	464.29	469.01	463.87	451.67	442.95	433.67	425.17	438.37
Transport % of landed cost	22.6	22.1	21.0	17.6	20.8	17.2	16.7	17.6	16.0	16.9

Item	Southwest PI - São Luís —US\$/mt—					North MT - Barcarena —US\$/mt—				
	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.
Truck	43.54	41.21	38.46	31.93	38.78	49.61	46.45	44.96	35.61	44.16
Barge	-	-	-	-	-	23.56	20.42	17.42	15.84	19.31
Ocean	38.30	37.10	39.50	37.80	38.18	38.50	37.40	39.75	38.00	38.41
Total transportation	81.84	78.31	77.96	69.73	76.96	111.68	104.27	102.12	89.45	101.88
Farm gate price	390.34	369.30	363.76	370.02	373.35	349.39	366.79	366.60	386.58	367.34
Landed cost	472.17	447.60	441.72	439.74	450.31	461.06	471.06	468.72	476.02	469.21
Transport % of landed cost	17.3	17.5	17.6	15.9	17.1	24.2	22.1	21.8	18.8	21.7

Producing regions: MT=Mato Grosso, PI=Piauí, and MA=Maranhão. Export ports: Santarém, São Luís, and Barcarena. Farm gate prices are from the Brazilian Government, Companhia Nacional de Abastecimento (CONAB). In Brazil, there are no published barge rates. Barge rates can be up to 60 percent lower than truck rates, depending on the volumes hauled and the terms of contracts signed between the barge company and shippers. The distance is in nautical miles.

Note: qtr=quarter. mt=metric ton. Avg=average. A hyphen in an otherwise empty cell denotes that the data are not available.

Source: University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz,” Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

Table 13. Quarterly costs of transporting Brazilian soybeans from the northern and northeastern ports to Hamburg, Germany, 2024

Item	North MT - Santarém —US\$/mt—					South MA - São Luís —US\$/mt—				
	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.
Truck	64.20	67.30	58.70	45.14	58.83	39.56	36.78	37.01	30.26	35.90
Ocean	30.40	29.20	31.20	29.70	30.13	35.20	33.80	36.10	34.50	34.90
Total transportation	94.60	96.50	89.90	74.84	88.96	74.76	70.58	73.11	64.76	70.80
Farm gate price	349.39	366.79	366.60	386.58	367.34	373.82	369.07	357.15	357.11	364.29
Landed cost	443.99	463.28	456.49	461.41	456.29	448.57	439.65	430.27	421.87	435.09
Transport % of landed cost	21.3	20.8	19.7	16.2	19.5	16.7	16.1	17.0	15.4	16.3

Item	Southwest PI - São Luís —US\$/mt—					North MT - Barcarena —US\$/mt—				
	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.
Truck	43.54	41.21	38.46	31.93	38.78	49.61	46.45	44.96	35.61	44.16
Barge	-	-	-	-	-	23.56	20.42	17.42	15.84	19.31
Ocean	35.20	33.80	36.10	34.50	34.90	29.90	28.70	30.60	29.10	29.58
Total transportation	78.74	75.01	74.56	66.43	73.68	103.08	95.57	92.97	80.55	93.04
Farm gate price	390.34	369.30	363.76	370.02	373.35	349.39	366.79	366.60	386.58	367.34
Landed cost	469.07	444.30	438.32	436.44	447.04	452.46	462.36	459.57	467.12	460.38
Transport % of landed cost	16.8	16.9	17.0	15.2	16.5	22.8	20.7	20.2	17.2	20.2

Producing regions: MT=Mato Grosso, PI=Piauí, and MA=Maranhão. Export ports: Santarém, São Luís, and Barcarena. Farm gate prices are from the Brazilian Government, Companhia Nacional de Abastecimento (CONAB). In Brazil, there are no published barge rates. Barge rates can be up to 60 percent lower than truck rates, depending on the volumes hauled and the terms of contracts signed between the barge company and shippers. The distance is in nautical miles.

Note: qtr=quarter. mt=metric ton. Avg=average. A hyphen in an otherwise empty cell denotes that the data are not available.

Source: University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz,” Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

Table 14. Quarterly truck rates for selected Brazilian soybean export transportation routes, 2024

Route #	Origin (reference city)	Destination	Distance (miles)	Share (%)	Freight price (US\$/mt/100miles)				
					1st qtr	2nd qtr	3rd qtr	4th qtr	Avg.
1	Northwest RS (Cruz Alta)	Rio Grande	288	4.3	11.13	10.11	9.30	8.34	9.72
2	North MT (Sorriso)	Santos	1,190	3.5	7.71	7.66	6.92	5.95	7.06
3	North MT (Sorriso)	Paranaguá	1,262	3.3	7.10	7.15	6.41	5.50	6.54
4	South GO (Rio Verde)	Santos	587	6.2	7.58	7.21	6.67	5.71	6.79
5	South GO (Rio Verde)	Paranaguá	726	5.0	7.53	7.31	6.72	5.72	6.82
6	North Central PR (Londrina)	Paranaguá	268	2.5	10.88	10.01	9.37	7.96	9.56
7	Western Central PR (Mamborê)	Paranaguá	311	1.2	10.18	9.33	8.72	7.47	8.93
8	Triangle MG (Uberaba)	Santos	339	4.1	10.40	9.71	9.01	7.62	9.18
9	West PR (Assis Chateaubriand)	Paranaguá	377	1.5	9.12	8.51	7.82	6.74	8.05
10	West Extreme BA (São Desidério)	Salvador	535	6.4	8.40	7.88	7.04	6.07	7.35
11	Southeast MT (Primavera do Leste)	Santos	901	3.1	7.35	7.03	6.42	5.33	6.53
12	Southeast MT (Primavera do Leste)	Paranaguá	975	2.9	6.61	6.74	6.03	5.22	6.15
13	Southwest MS (Maracaju)	Paranaguá	612	2.3	7.85	7.60	6.83	5.78	7.01
14	Southwest MS (Maracaju)	Santos	652	2.2	8.23	8.01	7.23	6.22	7.42
15	Northeast MT(Canarana)	São Luís	1,177	2.4	6.62	6.59	6.04	5.08	6.08
16	East GO (Cristalina)	Santos	585	2.5	8.67	8.58	7.69	6.56	7.87
17	North PR (Cornélio Procópio)	Paranaguá	306	1.9	8.88	8.01	7.50	6.45	7.71
18	Eastern Central PR (Castro)	Paranaguá	130	2.0	14.98	12.79	12.09	10.37	12.56
19	South Central PR (Guarapuava)	Paranaguá	204	2.3	13.10	11.80	11.33	9.33	11.39
20	North Central MS (São Gabriel do Oeste)	Santos	720	2.8	7.47	7.02	6.36	5.44	6.57
21	Ribeirão Preto SP (Guairá)	Santos	314	0.6	8.70	7.91	7.35	6.30	7.56
22	Northeast MT (Canarana)	Santos	950	3.0	7.38	7.01	6.37	5.44	6.55
23	East MS (Chapadão do Sul)	Santos	607	1.6	7.03	6.79	6.25	5.35	6.35
24	Northeast MT (Canarana)	Paranaguá	1,075	2.6	6.99	6.91	6.31	5.39	6.40
25	Western Central RS (Tupanciretã)	Rio Grande	273	1.0	9.96	8.90	8.62	7.85	8.83
26	Southwest PR(Chopinzinho)	Paranaguá	291	1.3	10.03	9.22	8.56	7.34	8.79
27	North MT (Sorriso)	Itaituba	672	6.3	7.39	6.92	6.69	5.30	6.57
28	North MT (Sorriso)	Porto Velho	632	6.7	7.02	6.61	6.17	5.26	6.27
29	North MT (Sorriso)	Santarém	876	4.8	7.33	7.68	6.70	5.15	6.72
30	South MA (Balsas)	São Luís	482	2.4	8.21	7.64	7.69	6.28	7.46
31	Southwest PI (Bom Jesus)	São Luís	606	3.2	7.19	6.80	6.35	5.27	6.40
32	Southeast PA (Paragominas)	Barcarena	249	2.1	8.90	7.98	7.33	6.76	7.74
33	East TO (Campos Lindos)	São Luís	842	2.2	6.72	6.51	5.95	5.11	6.07
Weighted average			587	100.0	8.29	7.86	7.24	6.15	7.38
34	North MT (Sorriso)	Rondonópolis (Rail terminal)	382		8.55	7.83	7.39	6.38	7.53
35	Rondonópolis MT (Rail terminal)	Santos	1,019		5.23	4.77	4.22	3.97	4.55
36	Itaituba PA (Barge terminal)	Santarém	153		5.30	4.52	4.36	3.98	4.54
37	Itaituba PA (Barge terminal)	Barcarena	600		3.93	3.40	2.90	2.64	3.22
38	South GO (Rio Verde) (Rail terminal)	Santos	546		6.25	5.66	5.53	4.93	5.59

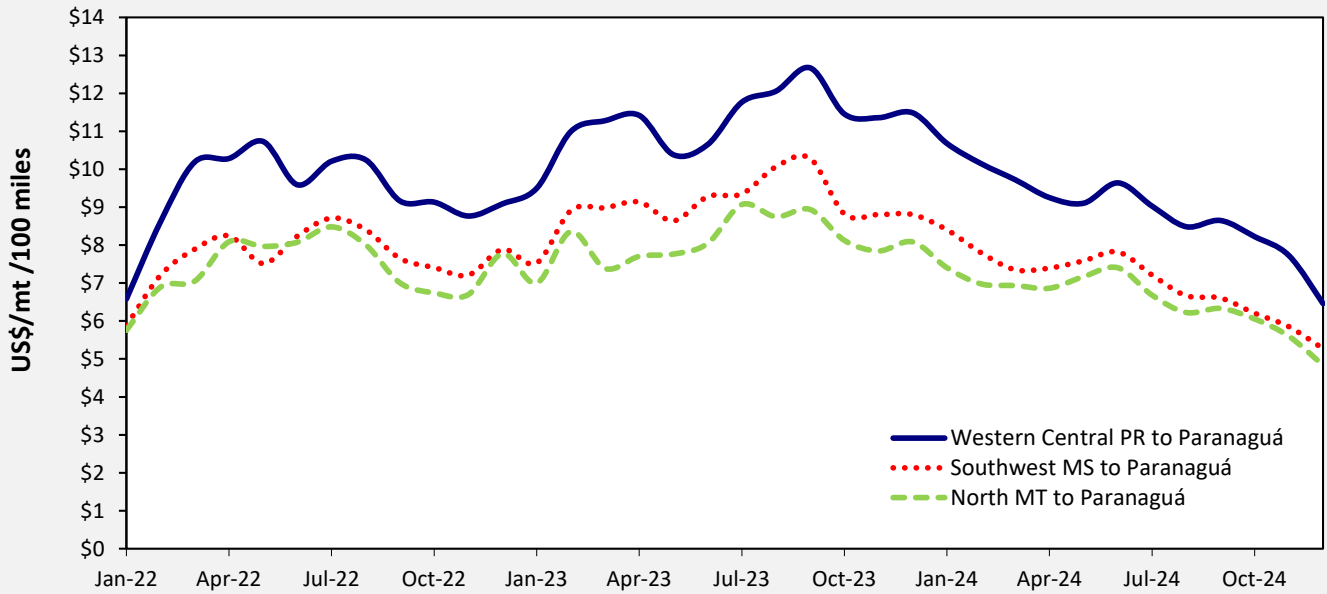
The main city in the region is considered as a reference to establish the freight price. Distance from the main city of the considered region to the mentioned ports. Share of exports in total production (percentage). Average monthly exchange rate from “Banco Central do Brasil” was used to convert Brazilian reais to U.S. dollars. RS=Rio Grande do Sul, MT=Mato Grosso, GO=Goiás, PR=Paraná, MG=Minas Gerais, BA=Bahia, MS=Mato Grosso do Sul, SP=São Paulo, PI=Piauí, MA=Maranhão, PA=Pará, and TO=Tocantins. Weighted average is calculated from production-based shares to weight high-volume routes more heavily than low-volume routes. The share associated with each route is used to define the weight of a given route's freight price in the composition of the weighted export freight index for trucks (calculated monthly). In Brazil, there are no published rail tariff rates. Rail rates can be up to 30 percent lower than truck rates, depending on the volumes hauled and the terms of contracts signed between the railroad company and shippers. In Brazil, there are no published barge rates. Barge rates can be up to 60 percent lower than truck rates, depending on the volumes hauled and the terms of contracts signed between the barge company and shippers. The distance is in nautical miles.

Note: qtr=quarter. mt=metric ton. Avg=average.

For more details, on the definitions/calculations contact esalqlog@esalqlog.esalq.usp.br.

Source: University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz,” Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

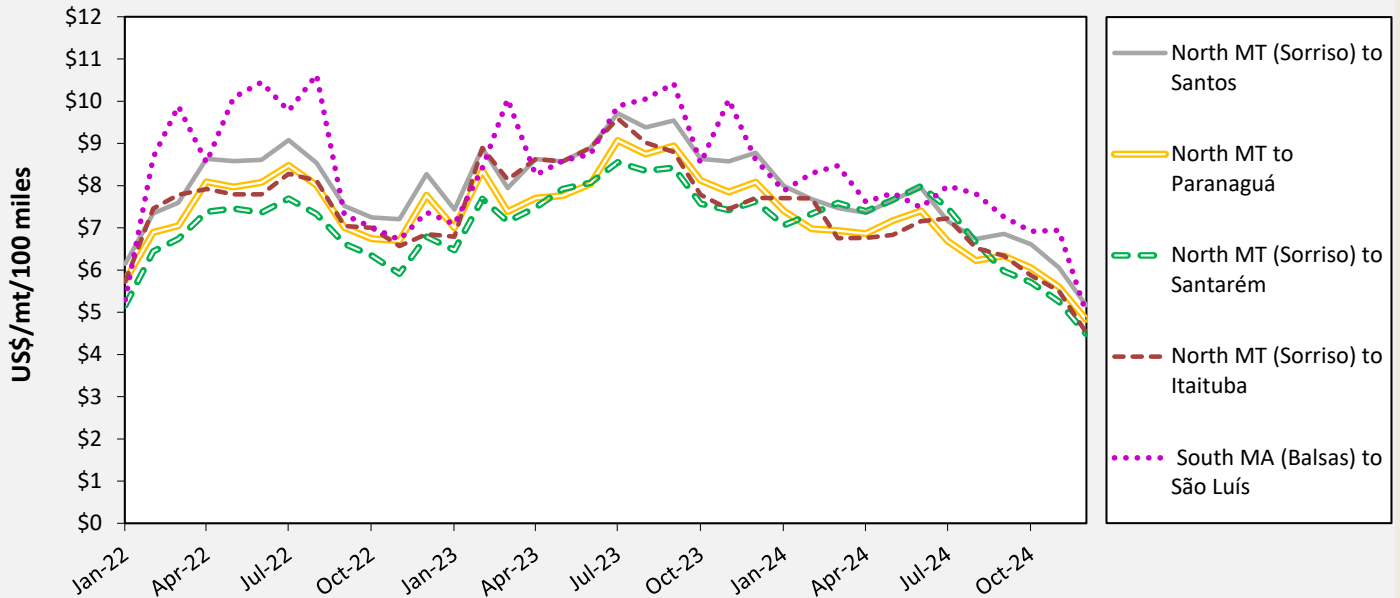
Figure 20. Truck rates for selected southern Brazilian soybean export transportation routes, 2022-24



Note: mt=metric ton. PR=Paraná, MT=Mato Grosso, and MS=Mato Grosso do Sul.

Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

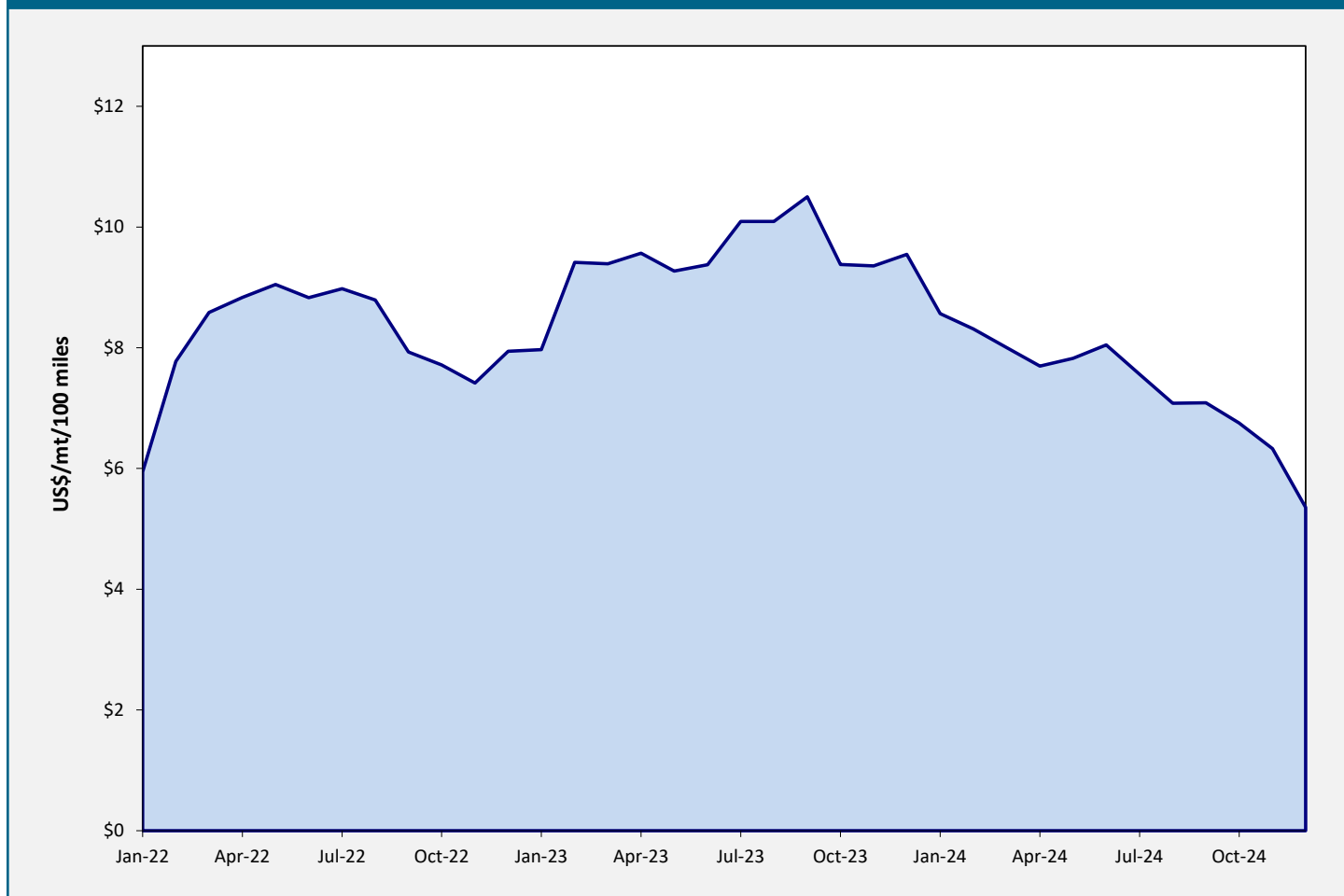
Figure 21. Truck rates for selected north, south, and northeastern Brazilian soybean export transportation routes, 2022-24



Note: mt=metric ton. MT=Mato Grosso and MA=Maranhão.

Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

Figure 22. Brazilian soybean export truck transportation weighted average prices, 2022-24



Note: mt=metric ton.

Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

Table 15. Monthly Brazilian soybean export truck transportation cost index, 2017-24

Month	Freight price (per 100 miles)	Index variation (%) (Base: prior month)	Index value (Base: Jan. 05=100)	Month	Freight price (per 100 miles)	Index variation (%) (Base: prior month)	Index value (Base: Jan. 05=100)
Jan-17	7.32	33.8	126.20	Jan-21	4.26	-1.3	73.39
Feb-17	9.85	34.6	169.85	Feb-21	5.60	31.5	96.50
Mar-17	10.38	5.3	178.90	Mar-21	6.93	23.8	119.49
Apr-17	9.52	-8.3	164.05	Apr-21	6.20	-10.5	106.96
May-17	8.75	-8.0	150.90	May-21	5.76	-7.2	99.22
Jun-17	8.18	-6.5	141.04	Jun-21	5.87	2.0	101.22
Jul-17	8.74	6.8	150.66	Jul-21	5.09	-13.4	87.70
Aug-17	9.85	12.7	169.76	Aug-21	5.09	0.1	87.81
Sep-17	8.97	-9.0	154.55	Sep-21	5.31	4.2	91.53
Oct-17	8.64	-3.6	148.93	Oct-21	4.49	-15.5	77.36
Nov-17	8.36	-3.2	144.11	Nov-21	4.28	-4.6	73.80
Dec-17	7.23	-13.5	124.63	Dec-21	4.54	6.0	78.26
Jan-18	7.59	5.0	130.90	Jan-22	5.94	30.9	102.42
Feb-18	8.65	13.9	149.04	Feb-22	7.77	30.8	134.02
Mar-18	10.59	22.5	182.61	Mar-22	8.59	10.4	147.99
Apr-18	9.78	-7.7	168.59	Apr-22	8.83	2.9	152.27
May-18	8.96	-8.4	154.45	May-22	9.05	2.4	155.94
Jun-18	8.89	-0.8	153.24	Jun-22	8.83	-2.4	152.18
Jul-18	8.97	0.9	154.58	Jul-22	8.98	1.7	154.78
Aug-18	8.24	-8.1	142.00	Aug-22	8.79	-2.1	151.51
Sep-18	7.24	-12.1	124.78	Sep-22	7.93	-9.8	136.68
Oct-18	7.69	6.2	132.55	Oct-22	7.71	-2.7	132.98
Nov-18	7.51	-2.3	129.44	Nov-22	7.42	-3.9	127.84
Dec-18	7.19	-4.3	123.87	Dec-22	7.94	7.1	136.89
Jan-19	7.72	7.5	133.13	Jan-23	7.97	0.4	137.38
Feb-19	8.19	6.0	141.15	Feb-23	9.41	18.1	162.28
Mar-19	7.34	-10.3	126.61	Mar-23	9.39	-0.3	161.87
Apr-19	7.16	-2.6	123.35	Apr-23	9.57	1.9	164.91
May-19	6.73	-5.9	116.02	May-23	9.27	-3.1	159.82
Jun-19	6.94	3.1	119.56	Jun-23	9.38	1.1	161.64
Jul-19	8.33	20.1	143.60	Jul-23	10.09	7.6	173.97
Aug-19	7.85	-5.8	135.23	Aug-23	10.09	0.0	173.94
Sep-19	7.09	-9.7	122.17	Sep-23	10.50	4.1	181.01
Oct-19	6.57	-7.4	113.19	Oct-23	9.38	-10.7	161.66
Nov-19	6.41	-2.3	110.54	Nov-23	9.36	-0.2	161.31
Dec-19	5.93	-7.5	102.21	Dec-23	9.55	2.0	164.60
Jan-20	6.03	1.7	103.90	Jan-24	8.57	-10.3	147.66
Feb-20	6.76	12.2	116.52	Feb-24	8.31	-3.0	143.29
Mar-20	6.20	-8.2	106.95	Mar-24	8.00	-3.7	137.96
Apr-20	5.86	-5.5	101.09	Apr-24	7.70	-3.8	132.68
May-20	5.26	-10.4	90.58	May-24	7.83	1.7	134.89
Jun-20	5.45	3.7	93.95	Jun-24	8.05	2.9	138.74
Jul-20	5.44	-0.2	93.74	Jul-24	7.56	-6.1	130.31
Aug-20	5.41	-0.4	93.34	Aug-24	7.08	-6.4	122.03
Sep-20	5.58	3.0	96.14	Sep-24	7.09	0.1	122.21
Oct-20	4.97	-10.8	85.71	Oct-24	6.75	-4.7	116.41
Nov-20	4.58	-7.9	78.95	Nov-24	6.33	-6.3	109.10
Dec-20	4.32	-5.8	74.39	Dec-24	5.36	-15.4	92.32

Weighted average is calculated from production-based shares to weigh high-volume routes more heavily than low-volume routes. The share associated with each route is used to define the weight of a given route's freight price in the composition of the monthly weighted export truck freight index.

Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz" (ESALQ/USP), Brazil, and USDA, Agricultural Marketing Service.

Table 16. Quarterly ocean freight rates for shipping soybeans from selected Brazilian ports to Shanghai, China, 2018-24 (US\$/metric ton)

Port	1st qtr 2018	2nd qtr 2018	3rd qtr 2018	4th qtr 2018	2018 Average
Santos	32.50	31.00	27.75	30.00	30.31
Paranaguá	32.00	32.00	28.75	31.00	30.94
Rio Grande	33.00	31.50	28.25	31.50	31.06
Santarém	38.50	35.50	31.25	34.00	34.81
São Luís	37.00	34.80	30.75	33.00	33.89
Barcarena	37.50	33.80	32.25	35.00	34.64
Port	1st qtr 2019	2nd qtr 2019	3rd qtr 2019	4th qtr 2019	2019 Average
Santos	32.25	30.92	33.25	38.17	33.65
Paranaguá	33.75	31.42	34.75	39.50	34.86
Rio Grande	31.58	30.25	34.25	39.67	33.94
Santarém	32.25	30.58	38.25	39.17	35.06
São Luís	31.00	30.58	38.25	39.42	34.81
Barcarena	32.25	29.92	38.25	39.42	34.96
Port	1st qtr 2020	2nd qtr 2020	3rd qtr 2020	4th qtr 2020	2020 Average
Santos	35.50	27.08	31.33	31.67	31.40
Paranaguá	37.25	28.83	33.08	33.42	33.15
Rio Grande	37.00	28.58	32.83	33.17	32.90
Santarém	36.50	28.08	34.83	35.21	33.66
São Luís	36.75	28.33	35.33	35.67	34.02
Barcarena	38.50	28.33	36.33	36.67	34.96
Port	1st qtr 2021	2nd qtr 2021	3rd qtr 2021	4th qtr 2021	2021 Average
Santos	37.00	50.60	64.00	62.00	53.40
Paranaguá	38.75	52.40	66.00	64.00	55.29
Rio Grande	37.25	51.00	64.75	62.75	53.94
Santarém	40.54	55.60	67.50	65.60	57.31
São Luís	41.00	56.60	68.00	66.00	57.90
Barcarena	42.00	58.20	70.00	68.00	59.55
Port	1st qtr 2022	2nd qtr 2022	3rd qtr 2022	4th qtr 2022	2022 Average
Santos	62.00	65.75	48.70	47.70	56.04
Paranaguá	64.00	67.75	49.00	48.60	57.34
Rio Grande	62.75	66.50	49.00	48.40	56.66
Santarém	66.00	69.90	56.00	54.80	61.68
São Luís	66.20	70.00	56.00	55.00	61.80
Barcarena	68.00	72.00	55.40	55.50	62.73
Port	1st qtr 2023	2nd qtr 2023	3rd qtr 2023	4th qtr 2023	2023 Average
Santos	33.50	35.20	37.00	35.00	35.18
Paranaguá	35.00	36.70	37.50	35.50	36.18
Rio Grande	34.00	35.70	38.50	35.50	35.93
Santarém	37.50	39.40	41.40	39.00	39.33
São Luís	38.00	40.00	42.00	39.50	39.88
Barcarena	38.25	40.20	42.20	39.60	40.06
Port	1st qtr 2024	2nd qtr 2024	3rd qtr 2024	4th qtr 2024	2024 Average
Santos	34.70	33.30	36.00	34.40	34.60
Paranaguá	36.20	34.80	37.50	35.80	36.08
Rio Grande	35.20	33.80	36.50	34.70	35.05
Santarém	38.00	36.50	39.00	37.30	37.70
São Luís	38.30	37.10	39.50	37.80	38.18
Barcarena	38.50	37.40	39.75	38.00	38.41

The rates correspond to the average actual values negotiated between shippers and carriers and weighted according to the magnitude of the shipped volume. Note: qtr=quarter.

Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz" (ESALQ/ USP), Brazil, and USDA, Agricultural Marketing Service.

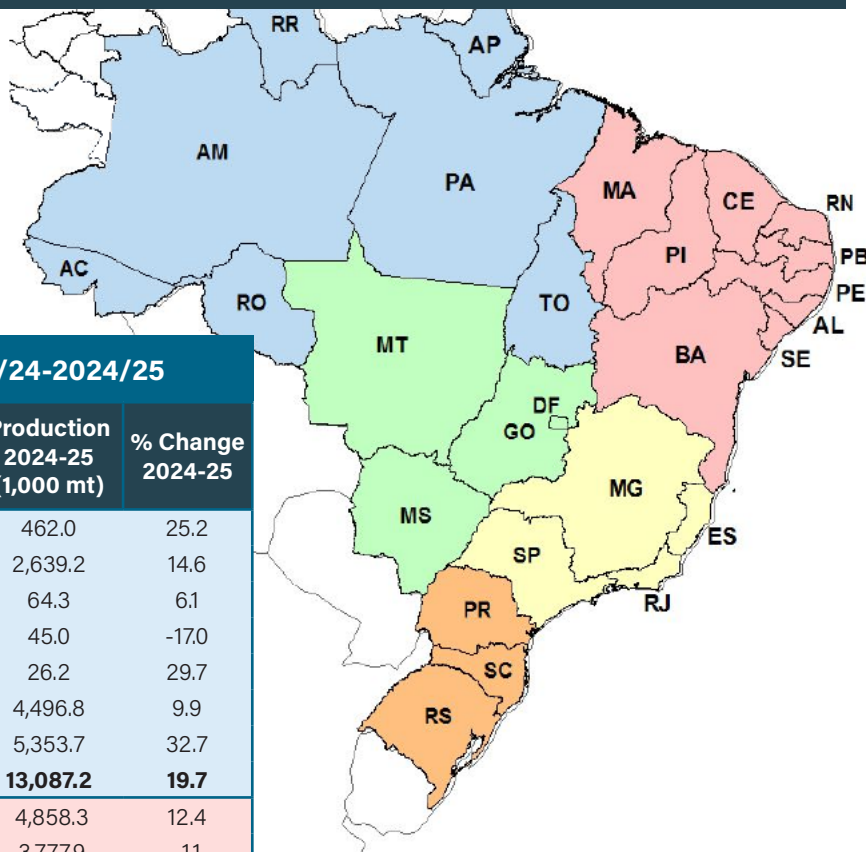
Table 17. Quarterly ocean freight rates for shipping soybeans from selected Brazilian ports to Hamburg, Germany, 2018-24 (US\$/metric ton)

Port	1st qtr 2018	2nd qtr 2018	3rd qtr 2018	4th qtr 2018	2018 Average
Santos	27.00	25.00	24.00	25.00	25.25
Paranaguá	28.00	26.00	25.00	26.00	26.25
Rio Grande	28.00	26.00	25.00	26.00	26.25
Santarém	25.00	22.90	22.50	23.00	23.35
São Luís	21.00	19.10	18.50	19.00	19.40
Barcarena	23.00	20.90	20.20	20.00	21.03
Port	1st qtr 2019	2nd qtr 2019	3rd qtr 2019	4th qtr 2019	2019 Average
Santos	23.00	21.50	27.00	31.00	25.63
Paranaguá	23.00	21.25	27.00	30.75	25.50
Rio Grande	23.00	21.25	27.00	31.25	25.63
Santarém	21.00	20.25	25.92	26.50	23.42
São Luís	18.00	17.10	22.77	23.50	20.34
Barcarena	19.00	17.85	23.52	24.25	21.16
Port	1st qtr 2020	2nd qtr 2020	3rd qtr 2020	4th qtr 2020	2020 Average
Santos	29.25	20.50	24.00	25.25	24.75
Paranaguá	30.00	21.50	25.00	25.35	25.46
Rio Grande	29.50	20.75	24.50	25.75	25.13
Santarém	25.00	16.00	20.75	22.00	20.94
São Luís	22.25	17.50	25.00	26.30	22.76
Barcarena	24.00	15.00	20.50	21.75	20.31
Port	1st qtr 2021	2nd qtr 2021	3rd qtr 2021	4th qtr 2021	2021 Average
Santos	31.25	42.70	54.00	52.50	45.11
Paranaguá	31.00	41.90	53.00	51.50	44.35
Rio Grande	32.00	43.80	55.50	53.80	46.28
Santarém	28.65	40.00	50.60	49.10	42.09
São Luís	33.25	45.90	58.00	56.30	48.36
Barcarena	28.10	38.90	49.20	47.80	41.00
Port	1st qtr 2022	2nd qtr 2022	3rd qtr 2022	4th qtr 2022	2022 Average
Santos	52.70	55.85	42.60	42.20	48.34
Paranaguá	51.50	54.60	41.60	41.20	47.23
Rio Grande	54.00	57.20	43.60	43.10	49.48
Santarém	49.10	52.00	46.00	39.60	46.68
São Luís	56.50	60.00	40.00	39.80	49.08
Barcarena	48.00	50.80	39.70	39.20	44.43
Port	1st qtr 2023	2nd qtr 2023	3rd qtr 2023	4th qtr 2023	2023 Average
Santos	31.65	33.20	35.00	33.00	33.21
Paranaguá	31.00	32.50	34.20	32.10	32.45
Rio Grande	32.50	34.20	36.00	33.80	34.13
Santarém	30.00	31.50	33.00	31.00	31.38
São Luís	34.50	36.30	38.20	36.00	36.25
Barcarena	29.40	31.00	32.50	30.50	30.85
Port	1st qtr 2024	2nd qtr 2024	3rd qtr 2024	4th qtr 2024	2024 Average
Santos	32.60	31.30	33.80	32.20	32.48
Paranaguá	32.20	31.00	33.50	32.10	32.20
Rio Grande	33.40	32.00	34.60	33.00	33.25
Santarém	30.40	29.20	31.20	29.70	30.13
São Luís	35.20	33.80	36.10	34.50	34.90
Barcarena	29.90	28.70	30.60	29.10	29.58

The rates correspond to the average actual values negotiated between shippers and carriers and weighted according to the magnitude of the shipped volume. Note: qtr=quarter.

Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz" (ESALQ/ USP), Brazil, and USDA, Agricultural Marketing Service.

Soybean Production



Note: CONAB's 2023-2024 season refers to the crop planted in 2023 and harvested in 2024. Production 2023-24=estimated and production 2024-25=forecast, September 2025.
Source: Companhia Nacional de abastecimento (CONAB).

Table 19. Brazil soybean supply and distribution (local marketing years)

Year	Area harvested	Beginning stocks	Production	Imports	Total supply	Exports	Crush	Domestic consumption	Ending stocks
	1,000 hectares	1,000 metric tons							
2012/13	27,700	8,072	82,000	282	90,354	42,796	36,237	38,612	8,946
2013/14	30,100	8,946	86,200	579	95,725	45,692	37,622	40,172	9,861
2014/15	32,100	9,861	97,100	324	107,285	54,324	40,556	43,206	9,755
2015/16	33,300	9,755	95,700	382	105,837	51,582	39,531	42,206	12,049
2016/17	33,900	12,049	114,900	254	127,203	68,155	41,837	44,737	14,311
2017/18	35,150	14,311	123,400	187	137,898	83,258	43,556	46,756	7,884
2018/19	35,900	7,884	120,500	144	128,528	74,073	43,454	46,369	8,086
2019/20	37,200	8,086	128,500	822	137,408	82,973	46,845	49,995	4,440
2020/21	39,800	4,440	139,500	864	144,804	86,110	47,781	51,081	7,613
2021/22	41,800	7,613	130,500	419	138,532	78,730	50,932	54,177	5,625
2022/23	44,600	5,625	162,000	181	167,806	101,870	54,165	57,965	7,971
2023/24	46,150	7,971	154,500	821	163,292	98,815	55,811	59,661	4,816
2024/25	47,400	4,816	169,000	550	174,366	108,000	57,000	61,100	5,266
2025/26	48,800	5,266	175,000	150	180,416	112,000	58,000	62,300	6,116

Data based on Brazil's local January/December Marketing Year (MY). Where January-December 2025 is the 2024/25 MY.
2025/26=forecast, August 12, 2025.

Source: USDA/Foreign Agricultural Service/Market and Trade Data/Reports/Oilseeds.

Exports

In 2024, Mato Grosso was Brazil's largest soybean-exporting State, accounting for 25 percent of Brazil's total exports. The next-largest exporting States (in descending order) were Paraná, Rio Grande do Sul, Goiás, Minas Gerais, Mato Grosso do Sul, and Bahia. Nearly 96 percent of Mato Grosso's total soybean exports were shipped through the Port of Santos, Barcarena/Belém, Manaus, Santarém, and São Luís.

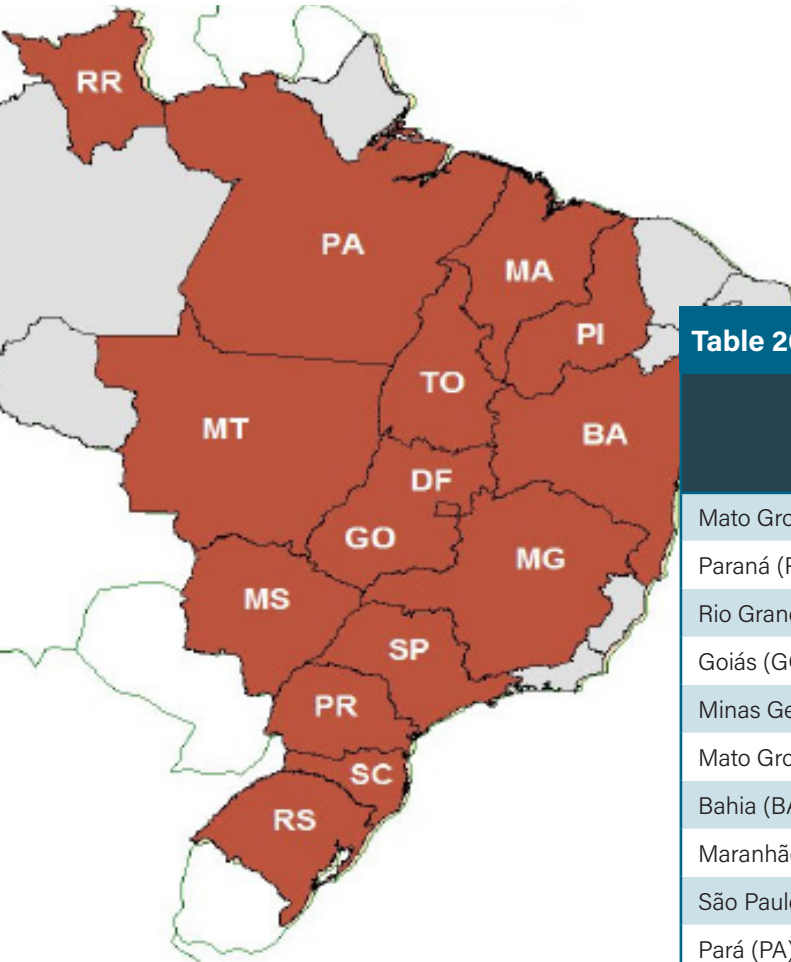
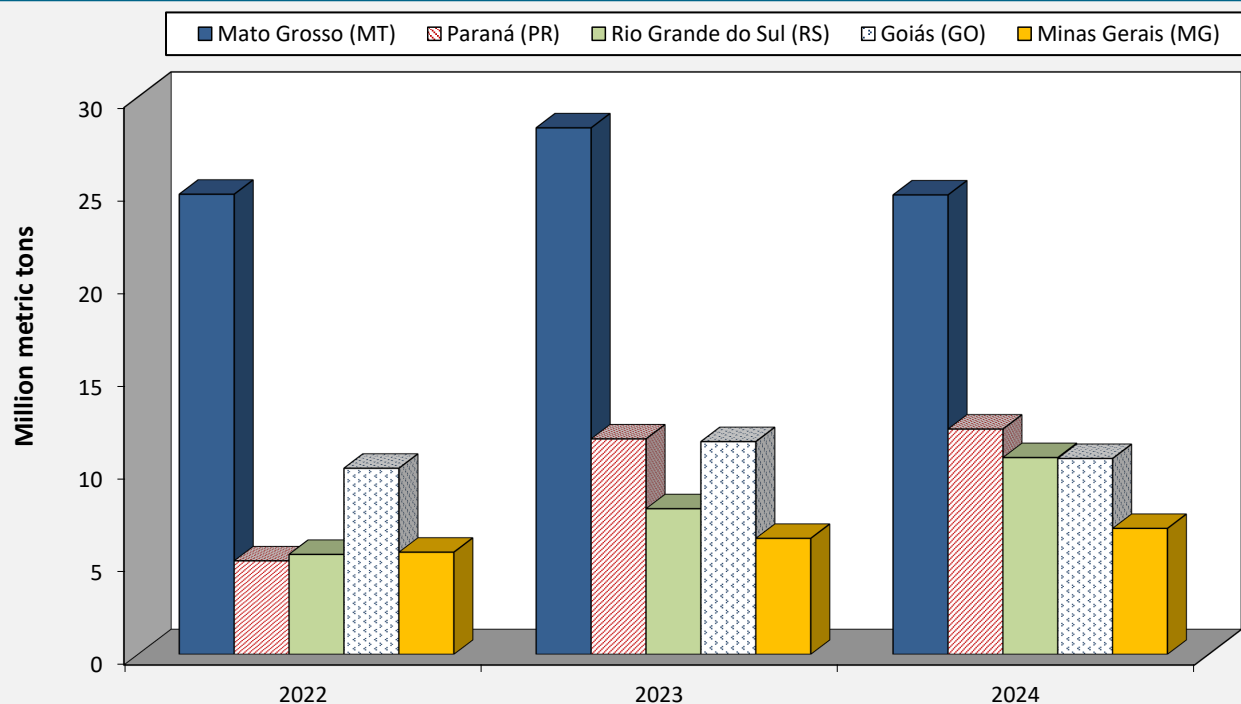


Table 20. Top 15 Brazilian soybean exporting states, 2022-24

State	2022	2023	2024	Rank
	1,000 metric ton			
Mato Grosso (MT)	24,765	28,336	24,727	1
Paraná (PR)	5,038	11,606	12,134	2
Rio Grande do Sul (RS)	5,383	7,846	10,599	3
Goiás (GO)	10,027	11,459	10,550	4
Minas Gerais (MG)	5,503	6,249	6,785	5
Mato Grosso do Sul (MS)	3,574	7,696	6,601	6
Bahia (BA)	4,521	4,554	5,514	7
Maranhão (MA)	3,449	4,187	4,367	8
São Paulo (SP)	5,060	5,767	3,960	9
Pará (PA)	2,424	3,199	3,490	10
Tocantins (TO)	3,144	3,634	3,088	11
Piauí (PI)	1,940	2,406	2,624	12
Rondônia (RO)	1,721	2,152	2,234	13
Santa Catarina (SC)	1,025	1,568	1,501	14
Distrito Federal (DF)	170	256	233	15
Others	984	951	400	
Brazil total exports	78,726	101,865	98,808	

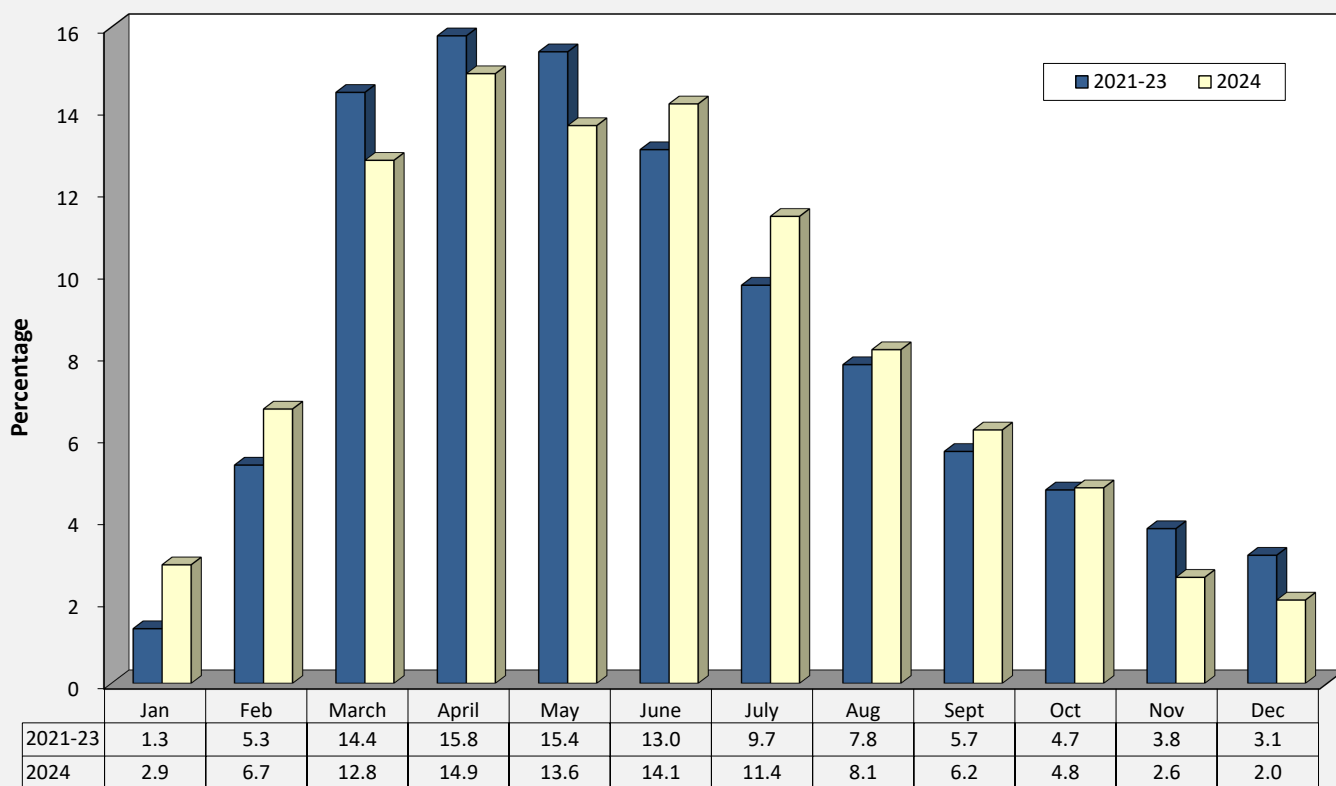
Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

Figure 23. Top five Brazilian soybean exporting states, 2022-24



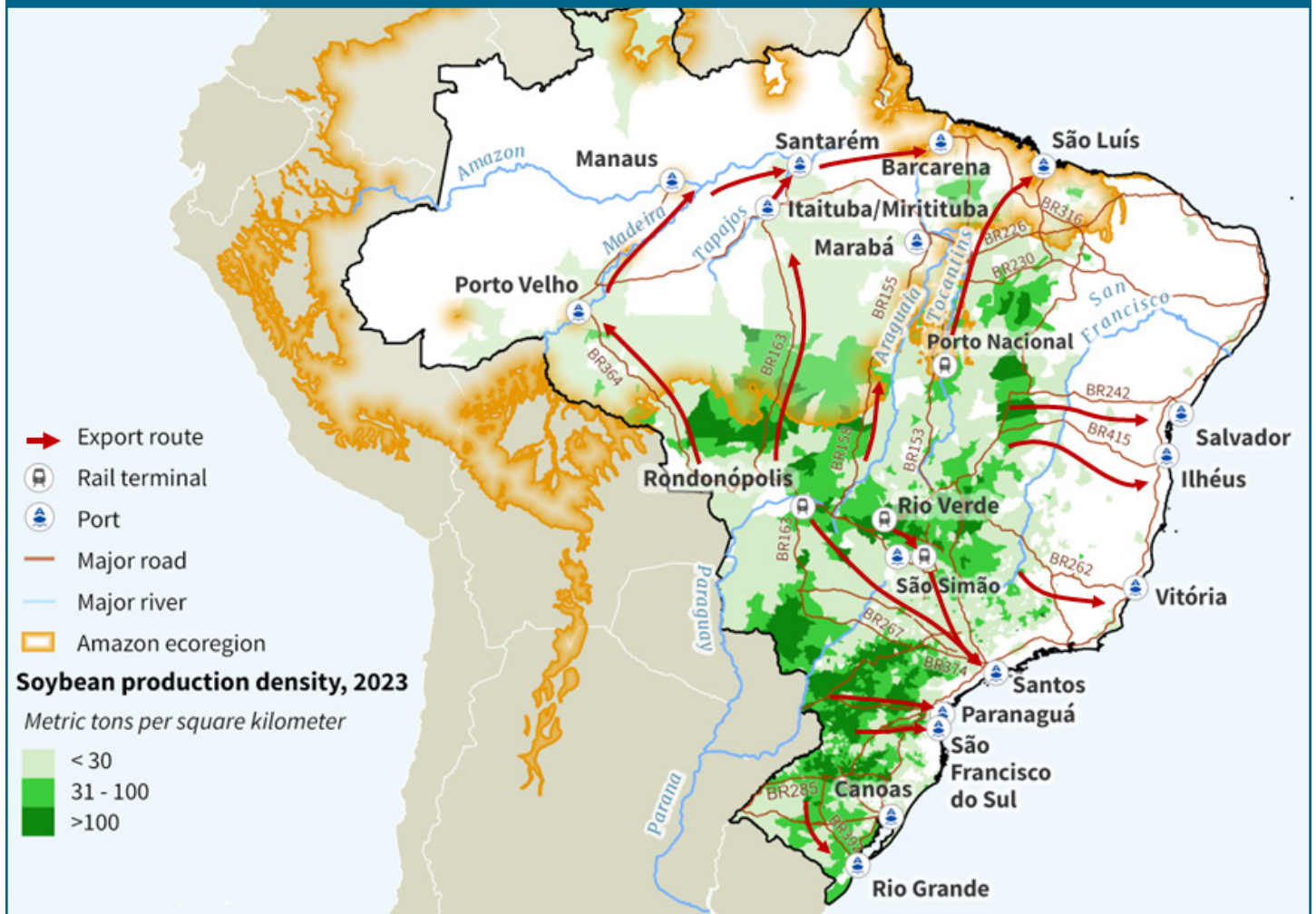
Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

Figure 24. Brazil average monthly soybean exports, 2021-24



Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

Figure 25. Main export routes for soybeans



Amazon ecoregion provided by the World Wildlife Fund. Soybean production density information provided by the Brazilian Institute of Geography and Statistics—Produção Agrícola Municipal.

Source: USDA/Agricultural Marketing Service (AMS) and USDA/Foreign Agricultural Service (FAS).

Table 21. Mato Grosso soybean exports by port, 2022-24

Port	2022	2023	2024
	metric ton		
Santos	11,268,571	12,014,129	10,658,800
Barcarena/Belém	6,479,172	8,044,554	7,078,018
Manaus	1,802,283	2,309,039	2,479,950
Santarém	1,655,337	1,933,519	1,788,089
São Luís	1,883,670	1,748,169	1,708,075
Paranaguá	925,532	916,254	369,349
Rio Grande	191,593	338,932	250,552
Vitória	393,875	413,084	137,372
Santana	127,325	119,621	121,256
São Francisco do Sul	28,600	53,593	104,773
Imbitituba	8,792	443,077	25,083
Salvador	0	2,117	5,865
Others	0	23	0
Top 5	23,089,033	26,049,409	23,712,932.2
Mato Grosso (MT) total	24,764,750	28,336,110	24,727,182
Brazil total exports	78,726,374	101,865,107	98,807,844
Port	2022	2023	2024
	% share		
Santos	45.5	42.4	43.1
Barcarena/Belém	26.2	28.4	28.6
Manaus	7.3	8.1	10.0
Santarém	6.7	6.8	7.2
São Luís	7.6	6.2	6.9
Paranaguá	3.7	3.2	1.5
Rio Grande	0.8	1.2	1.0
Vitória	1.6	1.5	0.6
Santana	0.5	0.4	0.5
São Francisco do Sul	0.1	0.2	0.4
Imbitituba	0.0	1.6	0.1
Salvador	0.0	0.0	0.0
Top 5	93.2	91.9	95.9
Mato Grosso total	100	100	100
MT % share of total Brazil exports	31.5	27.8	25.0

MT = metric ton.

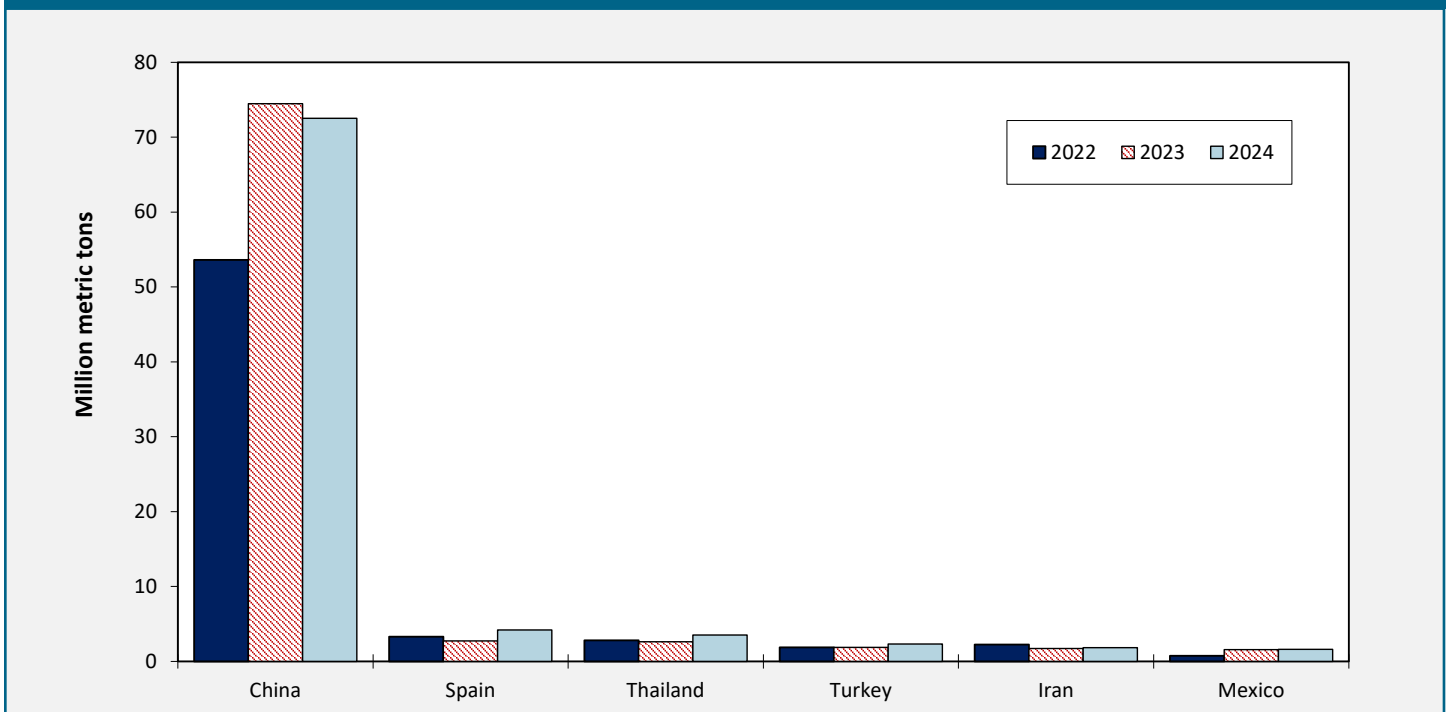
Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços

Figure 26. World export routes for Brazilian soybeans



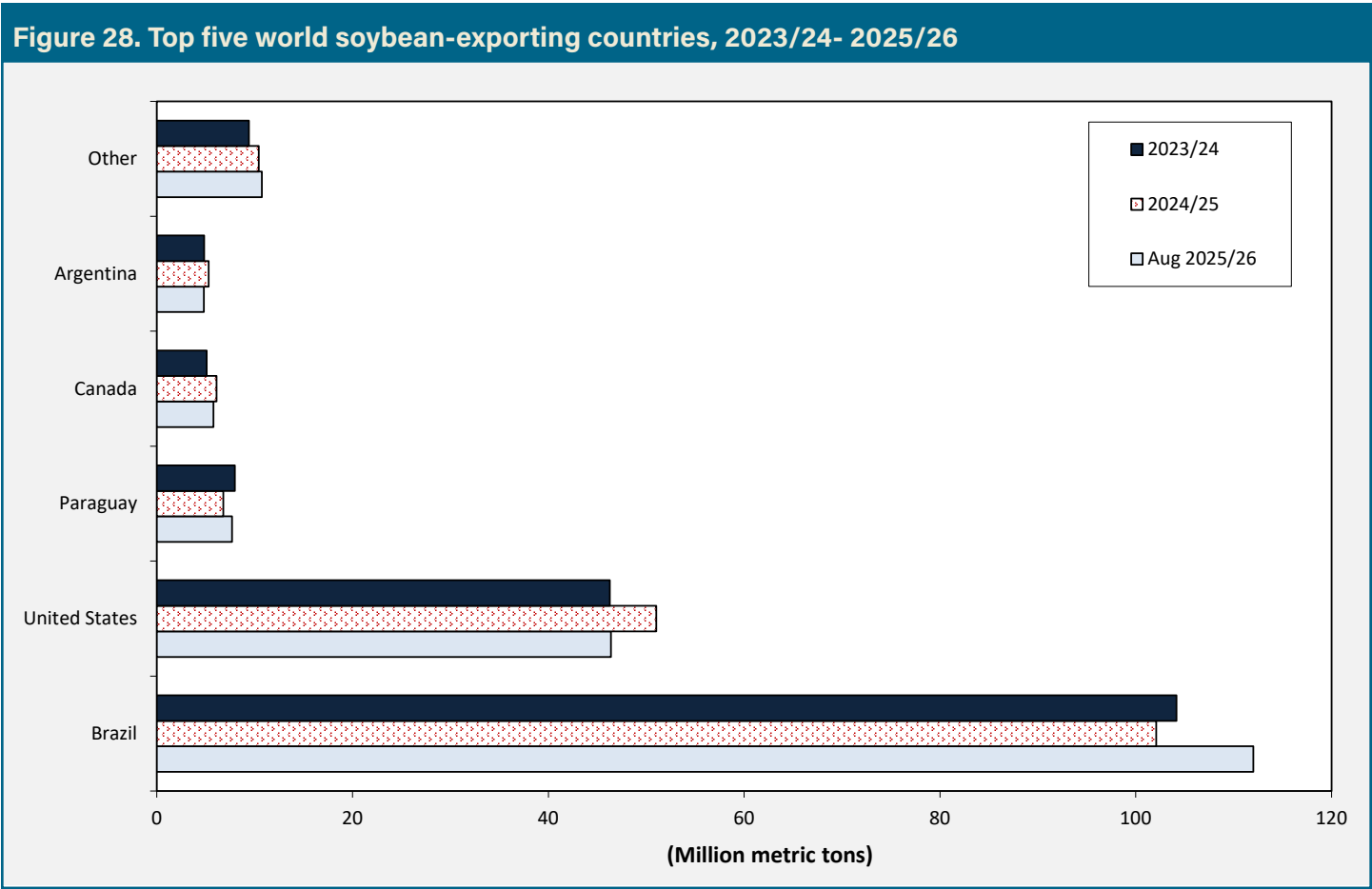
Source: USDA/Agricultural Marketing Service and USDA/Foreign Agricultural Service.

Figure 27. Top six Brazilian soybean-export destinations, 2022-24



Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

In 2024, Brazil was the world’s leading soybean exporter, followed by the United States, Paraguay, Canada, and Argentina. USDA forecasts that Brazil will sustain its leadership position in 2025.

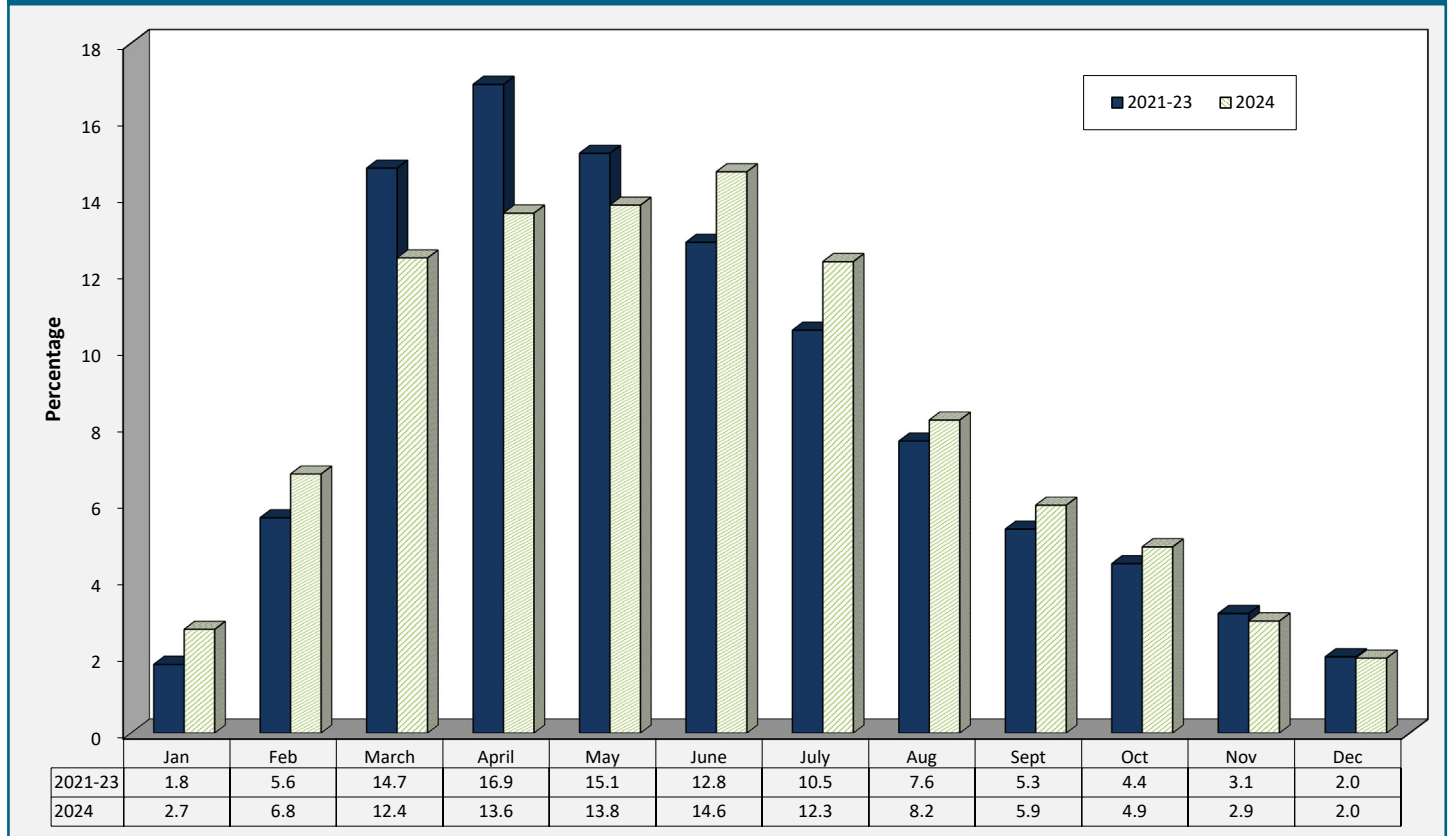


Note: August 2025/26 data are forecasts.
Source: USDA/Foreign Agricultural Service’s Production, Supply and Distribution report on “Oilseeds.”

Exports to China

In 2024, Brazil exported 72.5 mmt of soybeans to China, valued at \$31.5 billion and accounting for 73 percent of Brazil's total soybean exports (98.8 mmt). That volume was down 3 percent from 2023 (74.5 mmt). Over 90 percent of Brazilian soybean exports to China in 2024 originated from the following States: Mato Grosso, Paraná, Rio Grande do Sul, Goiás, Mato Grosso do Sul, Minas Gerais, Bahia, São Paulo, Maranhão, and Tocantins. A defined Brazilian export window to China no longer exists: China buys throughout the year.

Figure 29. Brazilian average monthly soybean exports to China, 2021-24



Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

Table 22. Top 15 Brazilian soybean exporting states to China, 2022-24

State	2022	2023	2024	Rank
	1,000 metric ton			
Mato Grosso	14,226	17,318	14,711	1
Paraná	4,049	10,536	10,250	2
Rio Grande do Sul	4,575	6,712	9,349	3
Goiás	8,487	9,979	8,974	4
Mato Grosso do Sul	2,800	5,265	5,694	5
Minas Gerais	4,628	5,099	5,573	6
Bahia	3,367	3,595	4,038	7
São Paulo	3,982	4,637	3,256	8
Maranhão	2,195	3,160	3,127	9
Tocantins	2,015	2,785	2,139	10
Piauí	1,294	1,867	1,900	11
Pará	649	1,442	1,640	12
Santa Catarina	801	1,356	1,200	13
Rondônia	51	118	321	14
Distrito Federal	143	219	185	15
Others	353	386	201	
Brazil exports to China	53,616	74,472	72,515	
Brazil total exports	78,726	101,865	98,808	

Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

Table 23. Top 15 Mato Grosso soybean export destinations, 2022-24

State	2022	2023	2024	% share	Rank
	Metric ton				
China	14,226,279	17,318,229	14,711,299	59.5	1
Spain	1,465,110	1,319,384	1,762,824	7.1	2
Turkey	826,619	873,182	1,324,271	5.4	3
Mexico	529,627	1,124,241	916,240	3.7	4
Thailand	720,269	712,085	844,446	3.4	5
Netherlands	1,176,168	701,467	653,476	2.6	6
Algeria	648,701	510,768	510,376	2.1	7
Iran	558,501	572,994	431,291	1.7	8
Russia	800,869	654,833	382,515	1.5	9
Taiwan	301,043	461,676	411,532	1.7	10
Italy	396,602	306,651	368,828	1.5	11
Norway	201,981	254,476	287,690	1.2	12
United Kingdom	345,247	270,868	285,630	1.2	13
Bangladesh	306,007	68,851	286,638	1.2	14
Japan	189,921	218,502	267,054	1.1	15
Others	1,931,914	2,967,900	1,283,071	5.2	
Mato Grosso total	24,624,858	28,336,110	24,727,182	100.0	

Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

In 2024, the southern ports of Santos, Paranaguá, Rio Grande, and São Francisco do Sul still dominated Brazil's soybean trade to China, accounting for nearly 70 percent of Brazil's soybean exports to China. The northeastern ports of São Luís, Vitória, Salvador accounted for 22 percent of soybean exports to China in 2024. The northern ports of Barcarena and Manaus accounted for nearly 8 percent of soybean exports to China in 2024.

Table 24. Total Brazilian soybean exports by port to China, 2022-24

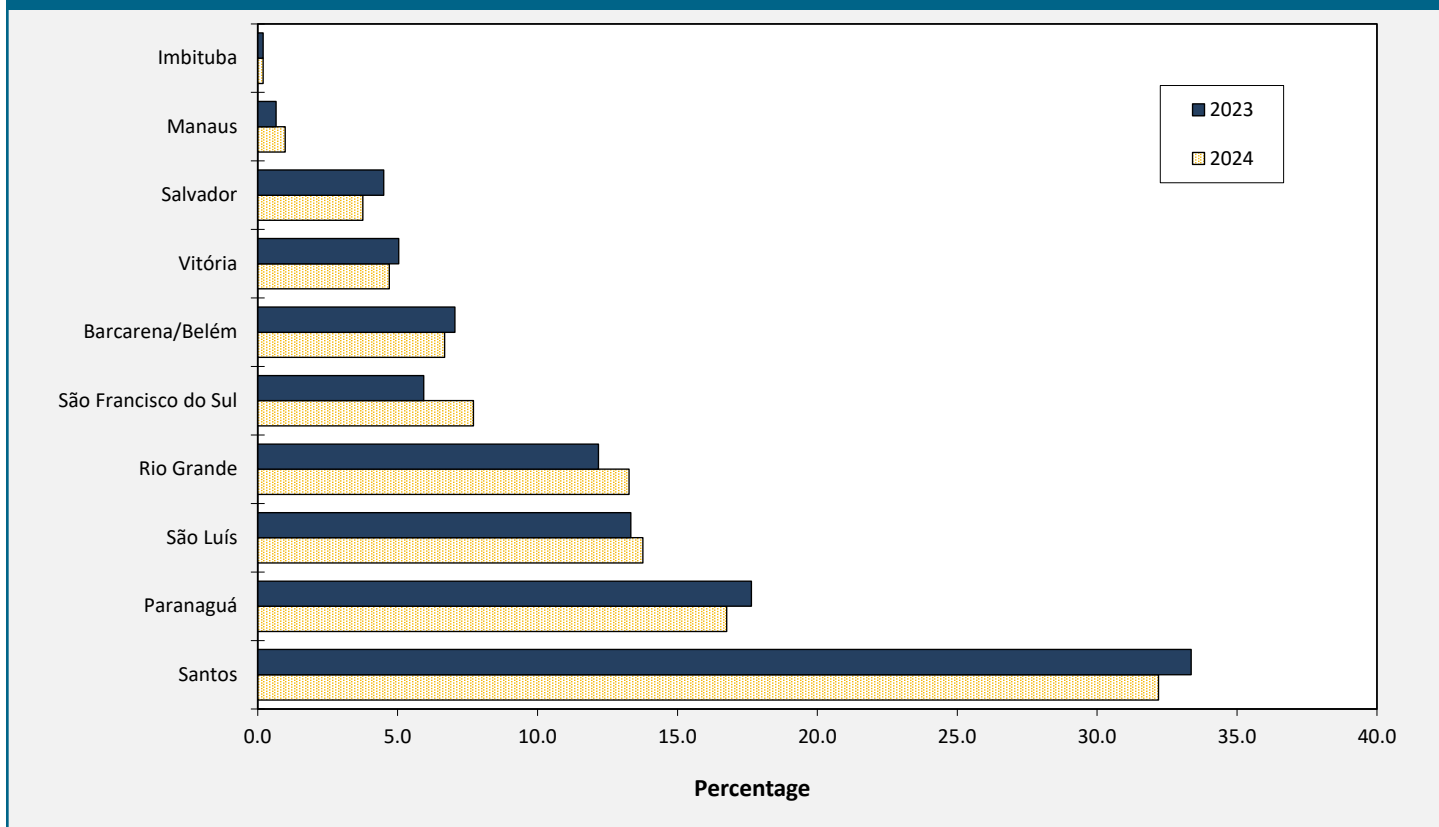
Ports	2022	2023	2024
	metric ton		
Santos	21,310,999	24,842,802	23,342,554
Paranaguá	8,406,844	13,141,028	12,150,070
São Luís	7,350,074	9,931,491	9,984,385
Rio Grande	4,894,756	9,069,434	9,620,213
São Francisco do Sul	2,335,201	4,418,385	5,592,826
Subtotal	44,297,876	61,403,140	60,690,047
Others	9,317,826	13,068,804	11,825,366
Total exports to China	53,615,702	74,471,944	72,515,413
Brazil total exports	78,726,374	101,865,107	98,807,844

Ports	2022	2023	2024
	% share of exports to China		
Santos	39.7	33.4	32.2
Paranaguá	15.7	17.6	16.8
São Luís	13.7	13.3	13.8
Rio Grande	9.1	12.2	13.3
São Francisco do Sul	4.4	5.9	7.7
Subtotal	82.6	82.5	83.7
Others	17.4	17.5	16.3
Total exports to China	100.0	100.0	100.0

Ports	2022	2023	2024
	% share of Brazil total exports		
Santos	27.1	24.4	23.6
Paranaguá	10.7	12.9	12.3
São Luís	9.3	9.7	10.1
Rio Grande	6.2	8.9	9.7
São Francisco do Sul	3.0	4.3	5.7
Subtotal	56.3	60.3	61.4
Others	11.8	12.8	12.0
Total exports to China	68.1	73.1	73.4

Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

Figure 30. Brazil soybean exports to China by port, 2023-24



Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

Table 25. Distance from selected Brazilian ports to Shanghai, China, and Hamburg, Germany

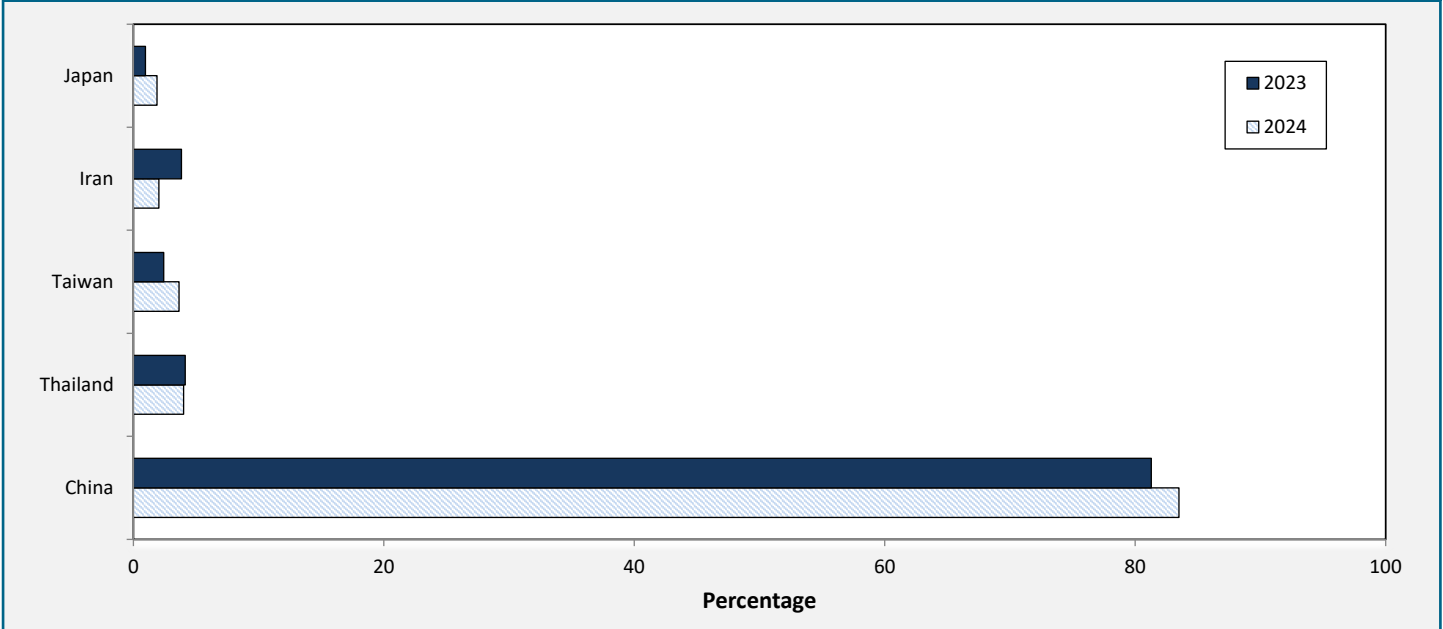
Brazilian port	Region	Route through	Destination	Nautical miles	Days at sea
Santos, São Paulo	South	Good Hope	Shanghai, China	11,056	32.2
Santos, São Paulo	South	Direct	Hamburg, Germany	5,683	16.2
Rio Grande, Rio Grande do Sul	South	Good Hope	Shanghai, China	11,129	33.0
Rio Grande, Rio Grande do Sul	South	Panama Canal	Shanghai, China	13,564	40.1
Rio Grande, Rio Grande do Sul	South	Cape Horn	Shanghai, China	11,397	33.2
Rio Grande, Rio Grande do Sul	South	Direct	Hamburg, Germany	6,204	18.1
Paranaguá, Paraná	South	Good Hope	Shanghai, China	11,111	33.0
Paranaguá, Paraná	South	Panama Canal	Shanghai, China	13,165	39.0
Paranaguá, Paraná	South	Direct	Hamburg, Germany	5,805	17.1
São Francisco do Sul, Santa Catarina	South	Good Hope	Shanghai, China	11,111	33.4
São Francisco do Sul, Santa Catarina	South	Direct	Hamburg, Germany	5,805	17.1
Itajaí, Santa Catarina	South	Good Hope	Shanghai, China	13,158	39.2
Itajaí, Santa Catarina	South	Direct	Hamburg, Germany	7,289	21.7
Vitória, Espírito Santo	Southeast	Good Hope	Shanghai, China	10,857	32.1
Vitória, Espírito Santo	Southeast	Panama Canal	Shanghai, China	12,587	37.1
Vitória, Espírito Santo	Southeast	Direct	Hamburg, Germany	5,227	15.1
Salvador, Bahia	Northeast	Good Hope	Shanghai, China	10,997	32.2
Salvador, Bahia	Northeast	Panama Canal	Shanghai, China	12,170	36.1
Salvador, Bahia	Northeast	Direct	Hamburg, Germany	4,811	14.1
Aratu, Bahia	Northeast	Good Hope	Shanghai, China	10,997	32.2
Aratu, Bahia	Northeast	Panama Canal	Shanghai, China	12,170	36.1
Aratu, Bahia	Northeast	Direct	Hamburg, Germany	4,811	14.1
Itaquí/São Luís - Ponta de Madeira, Maranhão	Northeast	Good Hope	Shanghai, China	11,708	34.2
Itaquí/São Luís - Ponta de Madeira, Maranhão	Northeast	Panama Canal	Shanghai, China	11,087	33.0
Itaquí/São Luís - Ponta de Madeira, Maranhão	Northeast	Direct	Hamburg, Germany	4,361	13.0
Santarém, Pará Reference point for Itaituba/Miritituba	North	Good Hope	Shanghai, China	12,305	37.8
Santarém, Pará Reference point for Itaituba/Miritituba	North	Panama Canal	Shanghai, China	11,200	33.1
Santarém, Pará Reference point for Itaituba/Miritituba	North	Direct	Hamburg, Germany	4,750	14.2
Manaus, Amazonas	North	Good Hope	Shanghai, China	12,880	38.0
Manaus, Amazonas	North	Panama Canal	Shanghai, China	10,926	32.1
Manaus, Amazonas	North	Direct	Hamburg, Germany	5,283	15.2
Barcarena, Pará	North	Good Hope	Shanghai, China	11,905	35.6
Barcarena, Pará	North	Panama Canal	Shanghai, China	10,950	32.6
Barcarena, Pará	North	Direct	Hamburg, Germany	4,510	13.6

Vessel speed: 14 knots. Barcarena is located 49 nautical miles from Belém; Itaituba is located 140 nautical miles from Santarém.

Source: <http://sea-distances.com/> and Ports.com.

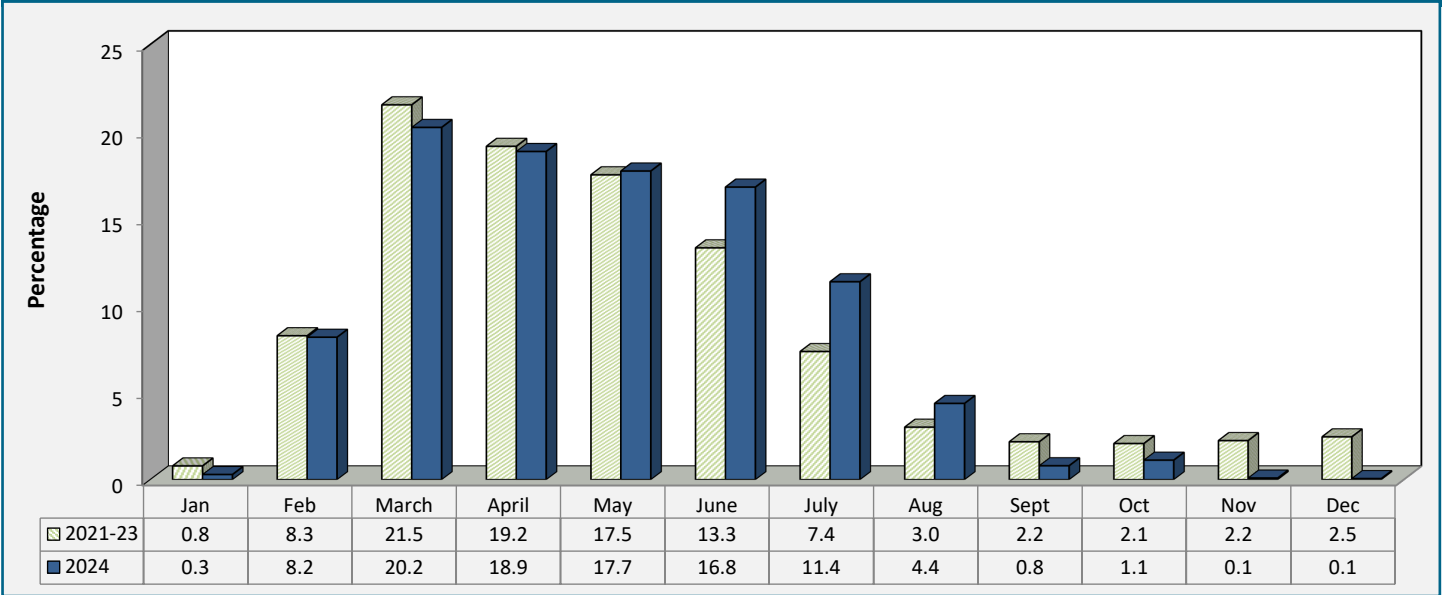
Through the port of Santos, Brazil’s largest soybean-exporting port, the top destination for Brazilian soybeans in 2024 was China, followed by (in descending order) Thailand, Taiwan, Iran, and Japan. The peak of soybean shipments to China from Santos usually occurs from March to May. Of total soybean exports through Santos, 38 percent originated from Mato Grosso, followed (in descending order) by the origins of Goiás, Minas Gerais, São Paulo, and Mato Grosso do Sul.

Figure 31. Port of Santos soybean exports by country, 2023-24



Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

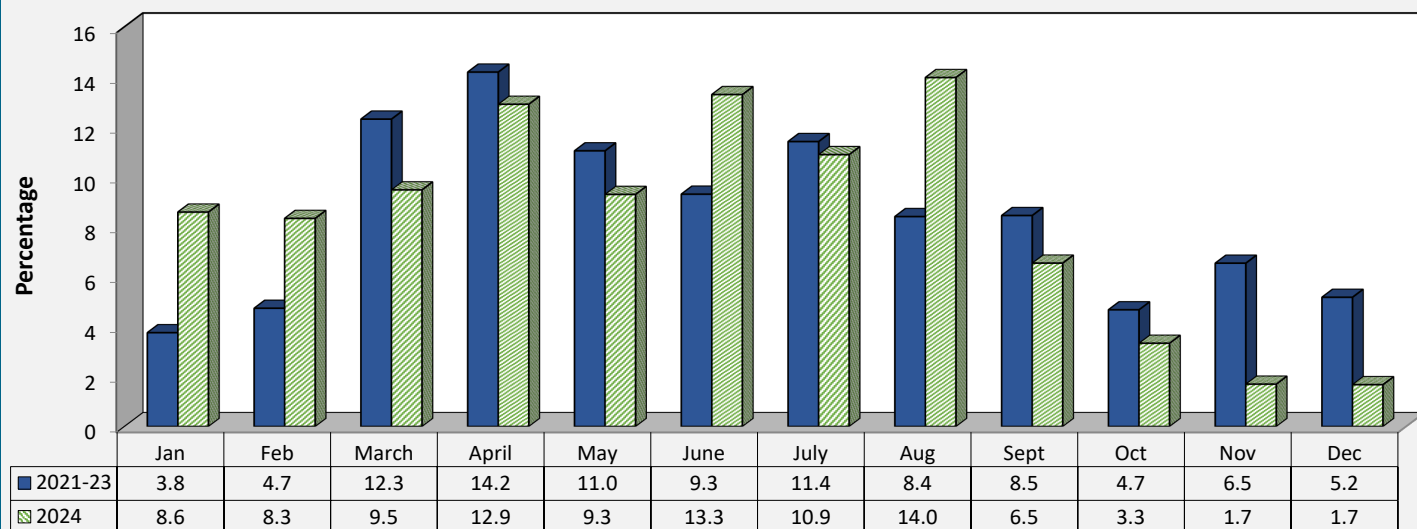
Figure 32. Port of Santos average monthly soybean exports to China, 2021-24



Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

Through the Port of Paranaguá, the top Brazilian soybean-export destination in 2024 was China, followed by (in descending order) Thailand, South Korea, Mexico, and Iraq. Typically, soybean shipments to China from Paranaguá peak from March to May. Of total exports through the Port of Paranaguá, 63 percent originated from Paraná. The next-highest levels of Paranaguá exports (in descending order) originated from Mato Grosso do Sul, São Paulo, Goiás, and Mato Grosso.

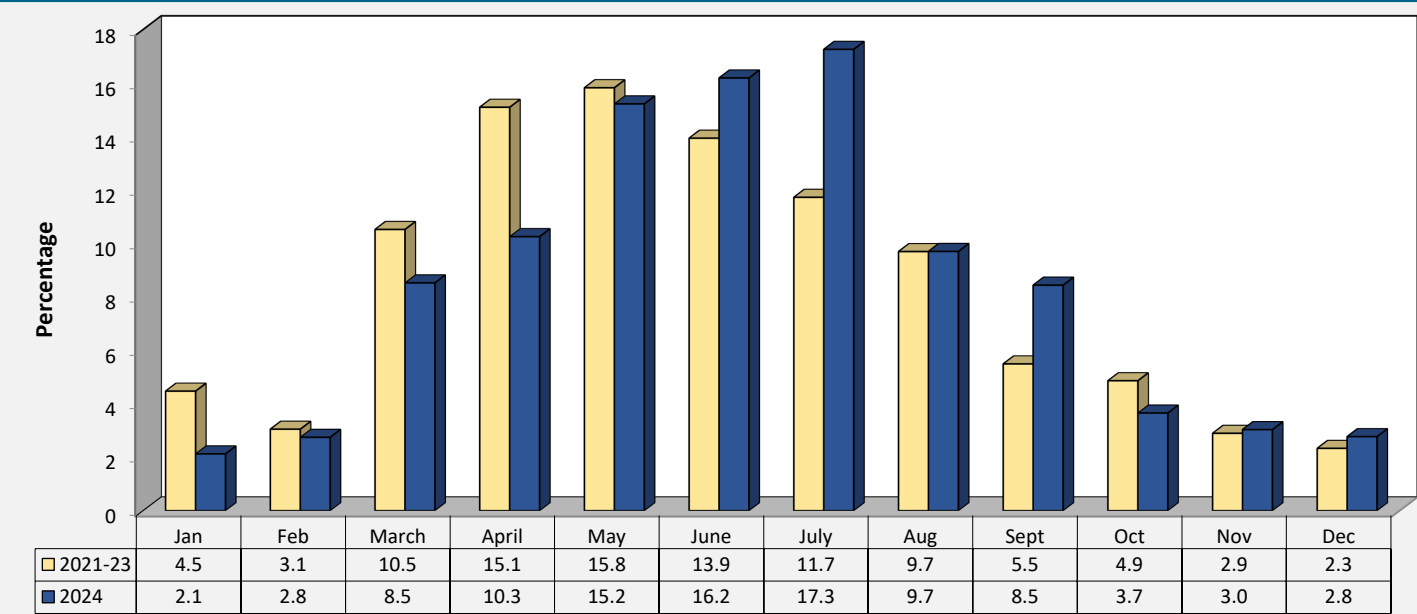
Figure 33. Port of Paranaguá average monthly soybean exports to China, 2021-24



Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

Through the Port of São Luís, the top Brazilian soybean-export destination in 2024 was China, accounting for nearly 72 percent, followed by (in descending order) Spain, Thailand, Egypt, and Turkey. Typically, soybean shipments to China from the Port of São Luís peak from March to July. Of total exports from the Port of São Luís, 52 percent originated from Maranhão and Tocantins. The next-highest levels of São Luís exports (in descending order) originated from Piauí, Bahia, Mato Grosso, and Pará.

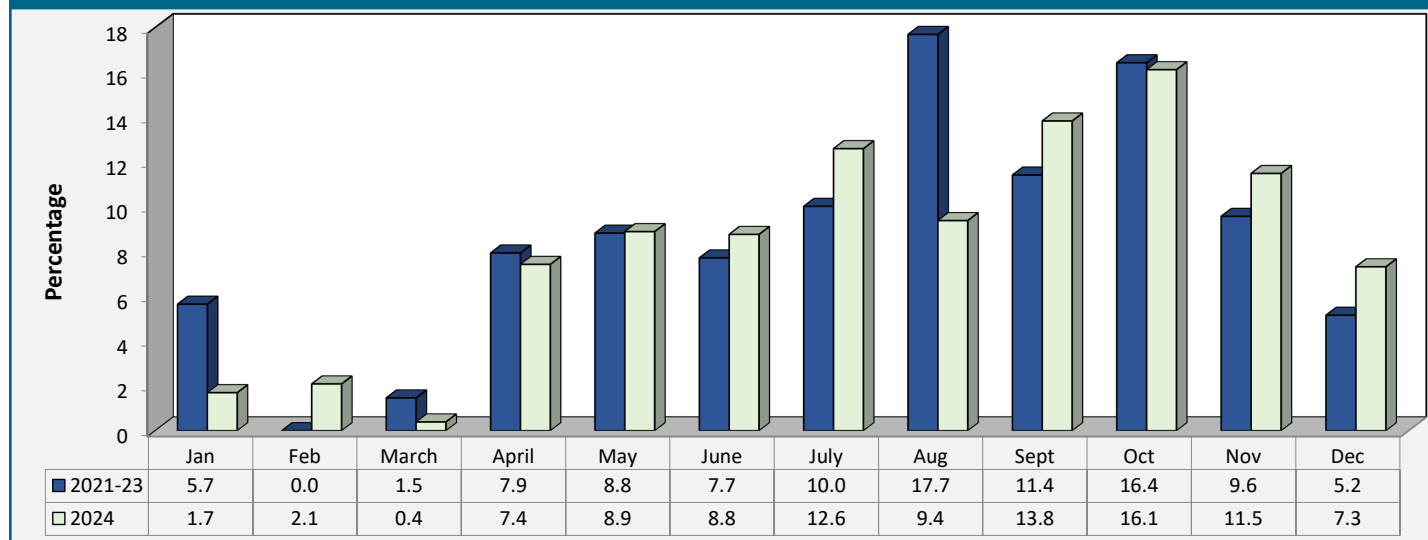
Figure 34. Port of São Luís average monthly soybean exports to China, 2021-24



Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

In 2024, the top destination for soybeans through the port of Rio Grande was China, which received 89 percent. China was followed (in descending order of shipments) by Iraq, Iran, Bangladesh, and Thailand. Typically, soybean shipments to China through the port of Rio Grande peak from April to July. However, in 2024, the peak occurred from May to November. Of the soybean exports through the Port of Rio Grande, 96 percent originated from Rio Grande do Sul. The next-highest levels of exports originated from the following ports (in descending order): Mato Grosso do Sul, Paraná, Mato Grosso, and Santa Catarina.

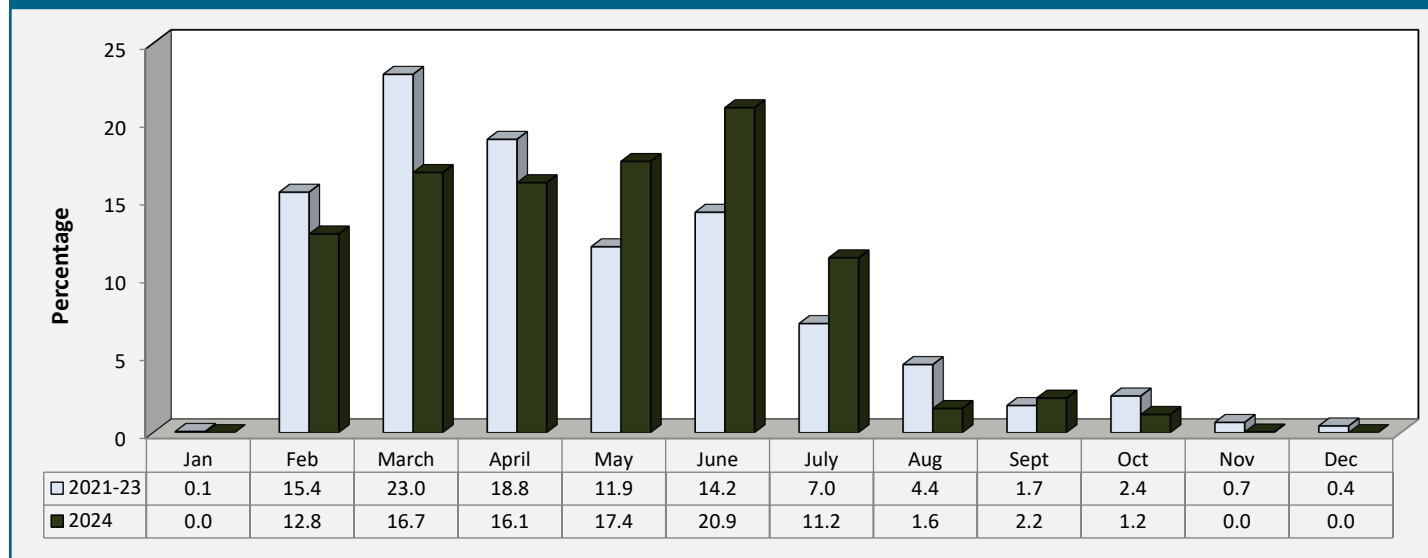
Figure 35. Port of Rio Grande average monthly soybean exports to China, 2021-24



Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

Through the Port of Barcarena/Belém, the top Brazilian soybean export destination in 2024 was China, which received 47 percent. China was followed (in descending order of shipments) by Spain, Turkey, the Netherlands, and Mexico. Typically, soybean shipments to China from the Port of Barcarena/Belém peak from March to June. Seventy-three percent of exports from the port of Barcarena/Belém originated from Mato Grosso. The next-highest levels of Barcarena/Belém (in descending order) originated from Pará, Maranhão, and Amapá.

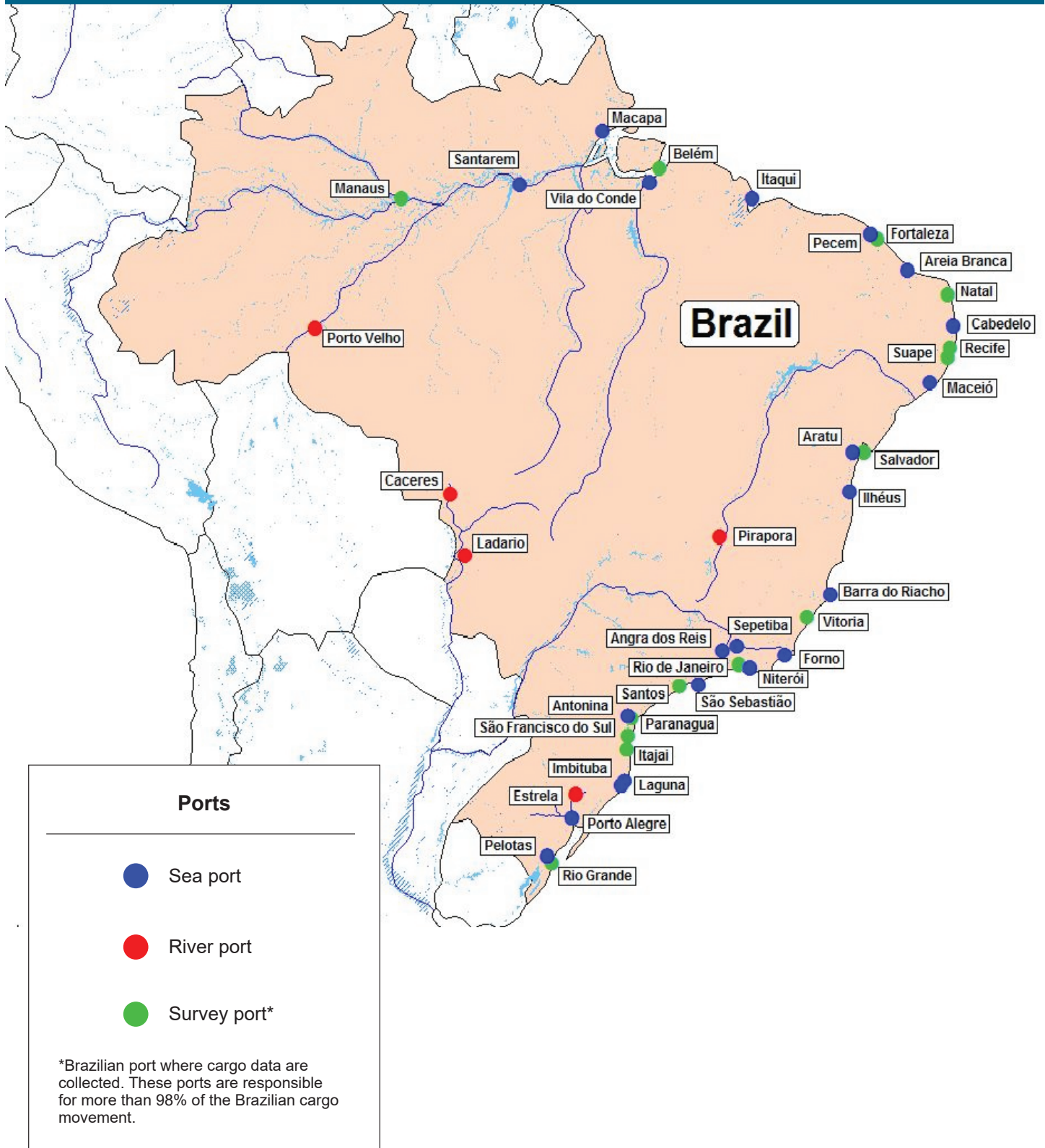
Figure 36. Port of Barcarena/Belém average monthly soybean exports to China, 2021-24



Source: Comex Stat, Ministério do Desenvolvimento, Indústria, Comércio e Serviços.

Transportation Modes

Figure 37. Brazilian ports



Source: Companhia Nacional de Abastecimento (CONAB) and Ministério dos Transportes, Brazil.

Figure 38. Major rivers of the Amazonian Basin



Source: National Agency for Waterway Transportation (ANTAQ).

Brazil's waterways encompass 22,567 nautical miles, but only 10,531 are commercially navigated.

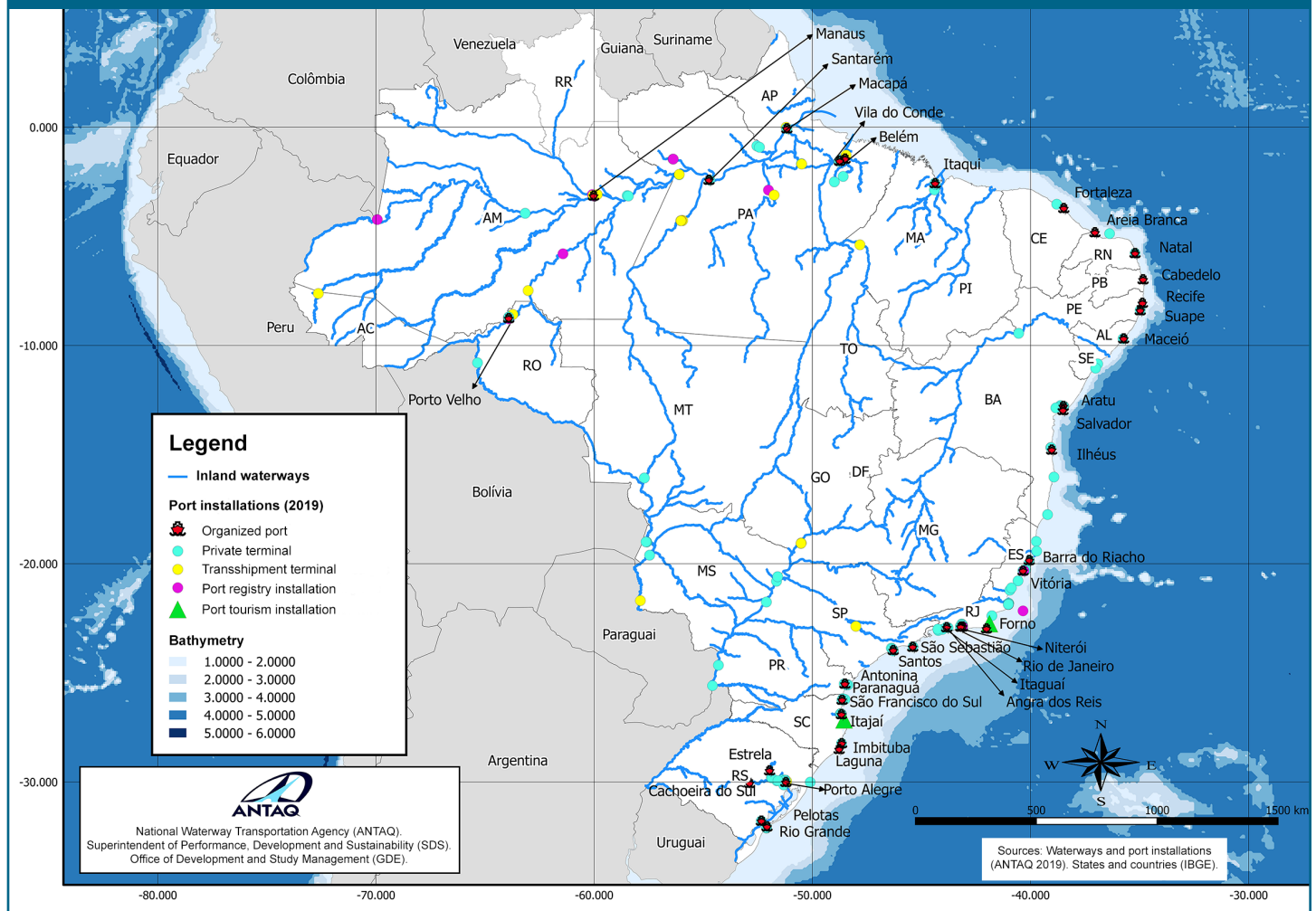
Table 26. Brazil waterway system

Extension	Nautical miles
Waterways	22,567
Commercial navigations	10,531

Source: Confederação Nacional do Transporte.

The Port of Manaus access channel is 1,640 ft wide and 114.8 ft deep. Porto Velho's access channel depth varies from 8.2 to 57.4 ft. The Port of Santarém's access channel is 5,904 ft wide and 49.2 ft deep.

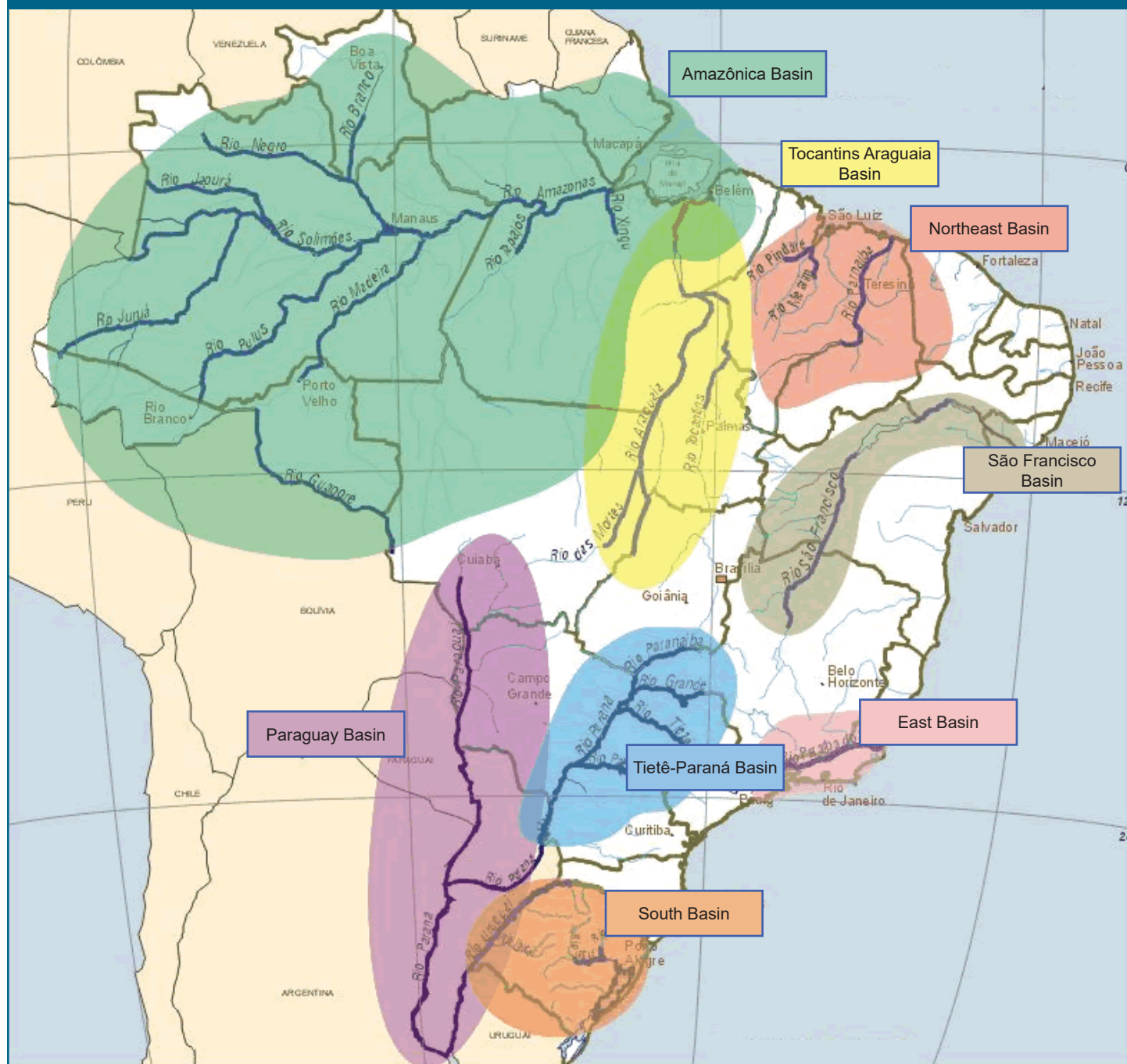
Figure 39. Brazilian port installations



Source: Agência Nacional de Transportes Aquaviários (ANTAQ).

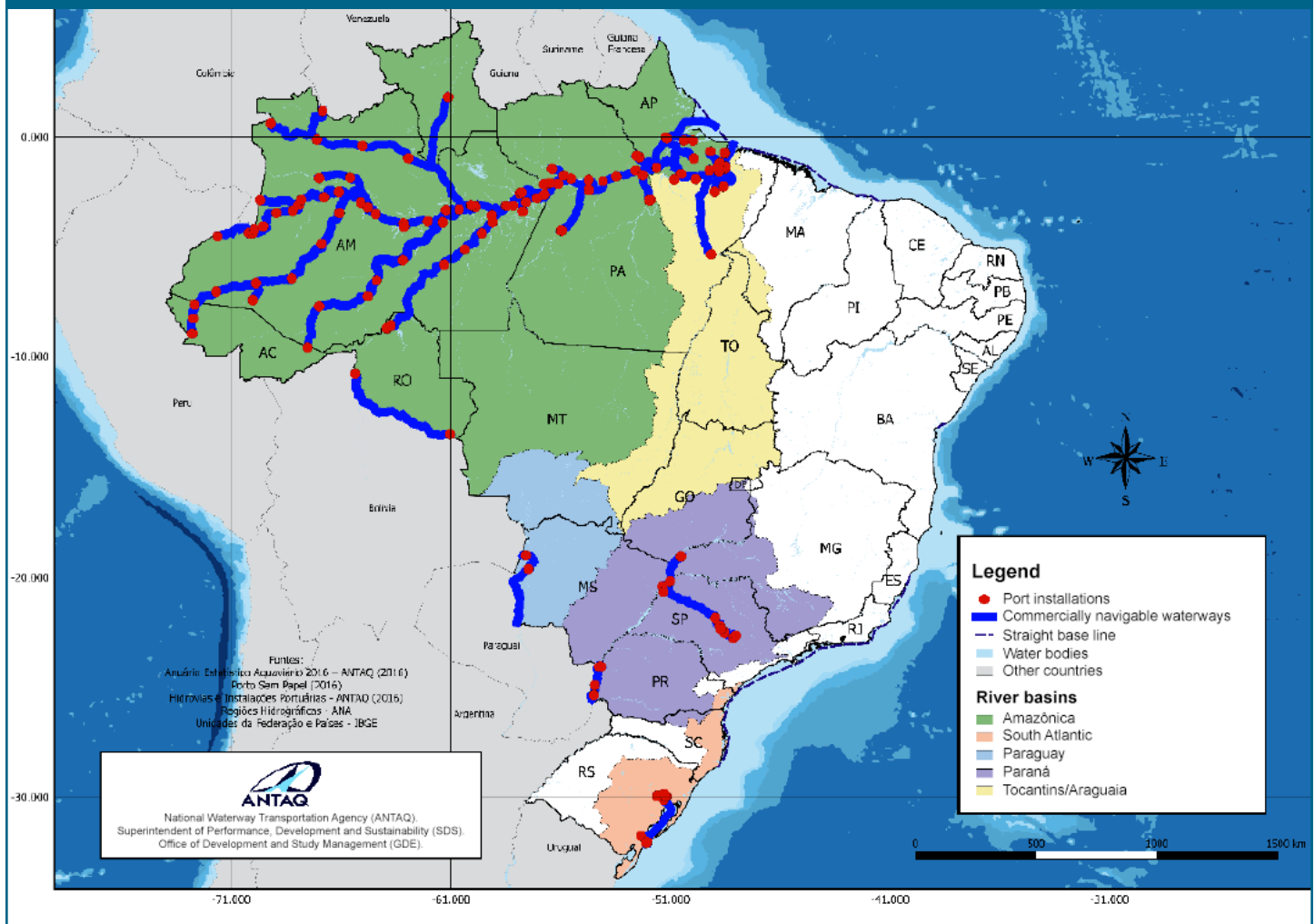
Brazil's river system comprises eight basins: Amazônica, Northeast, Tocantins Araguaia, São Francisco, East, Tietê-Paraná, Paraguay, and South. The Amazônica and Paraguay Basin account for 72 percent of the total area of the Brazilian basins. The Paraguay Basin serves Argentina, Brazil, Bolivia, Paraguay, and Uruguay. Its navigable portion is comparable with the Mississippi River in the United States and the Rhine River in Europe.

Figure 40. Brazilian river basins



Source: Ministério dos Transportes, Brazil.

Figure 41. Brazilian commercial inland waterways



Source: Agência Nacional de Transportes Aquavários.

Figure 42. Major Brazilian highways



Source: Confederação Nacional do Transporte.

The Brazilian highway system extends 969,432 miles (1,563,600 kilometers), with nearly 14 percent paved. The U.S. highway system consists of 4,217,423 miles (6,787,268).

Table 27. Brazil highway system, 2024			
Type	Miles	% Paved	% Unpaved
Federal	46,132	89	11
State and county	923,300	10	90
Total (federal + state and county)	969,432	14	86
All roads		14	86

Source: Confederação Nacional do Transporte (CNT)

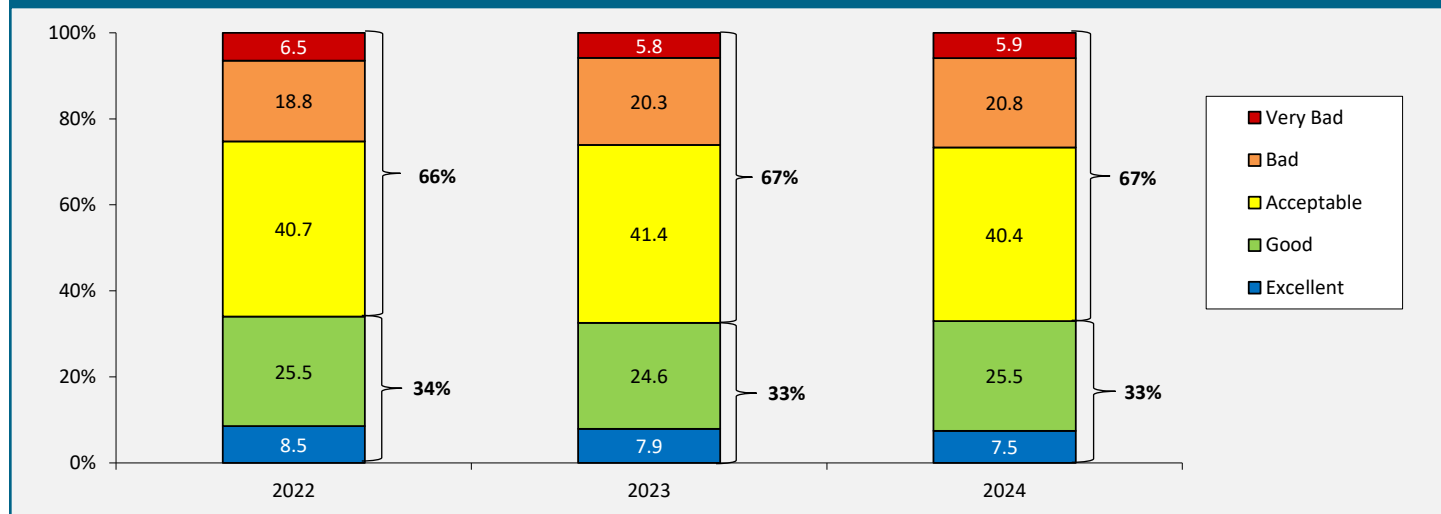
Table 28. U.S. highway system, 2022		
Type	Extension (in miles)	% Share
Rural	2,949,361	70
Urban	1,268,062	30
Total	4,217,423	

Includes the 50 States, Puerto Rico and the District of Columbia.
Source: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues); *Highway Statistics, 2022*.

Brazilian highways

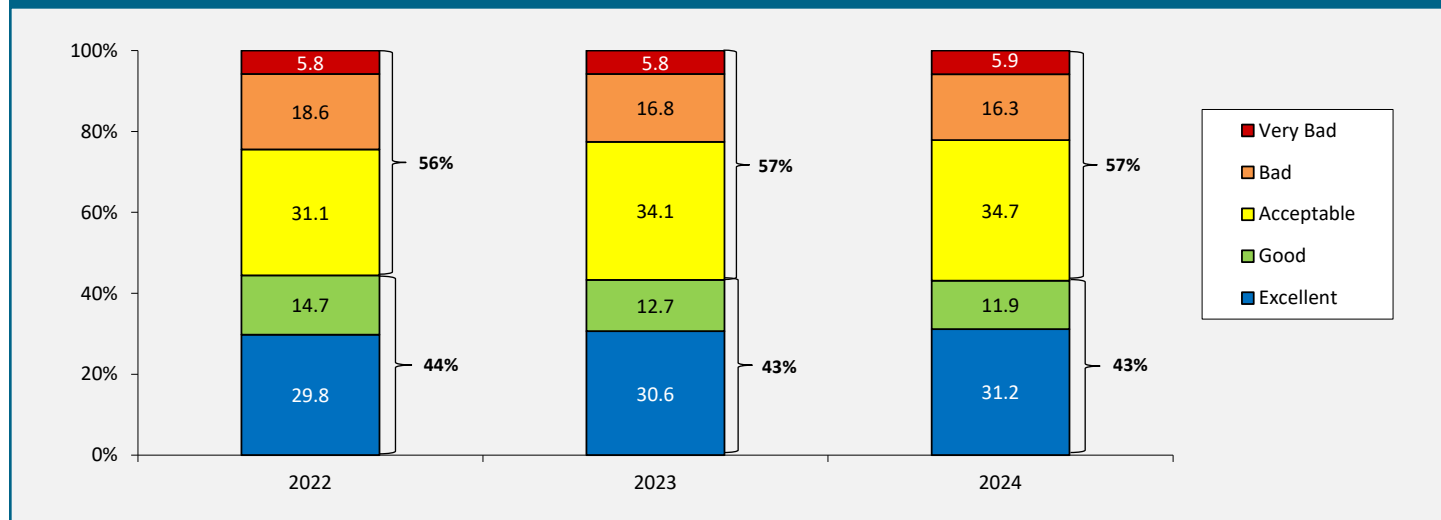
According to the 2024 Confederação Nacional do Transporte (CNT) survey of the overall highway conditions in Brazil, 33 percent of the roads ranged from good to excellent in 2024. The remaining 67 percent ranged from acceptable to very bad. Also, in 2024, 43 percent of the paved roads were in good to excellent condition; 64 percent of traffic road signs had problems; and 85 percent of the paved roads had two lanes. The survey sample of paved roads slightly increased from 69,131 miles in 2024 to 69,349 miles in 2023.

Figure 43. Brazilian highway conditions, 2022-24



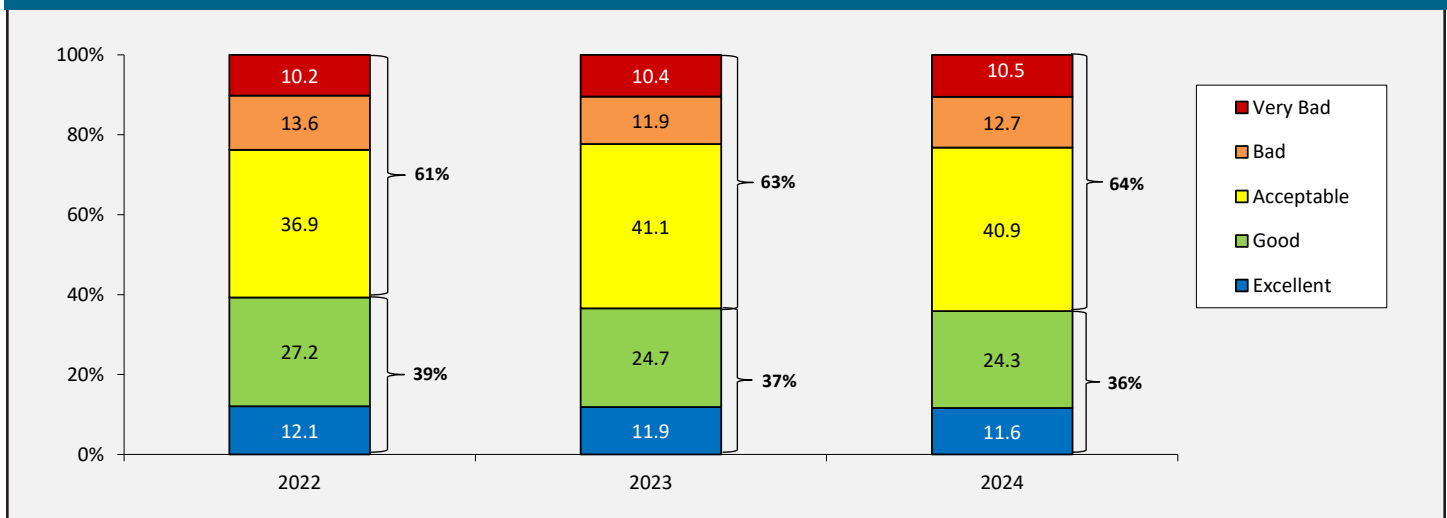
Source: Confederação Nacional do Transporte (CNT).

Figure 44. Brazilian paved highway conditions, 2022-24



Source: Confederação Nacional do Transporte (CNT).

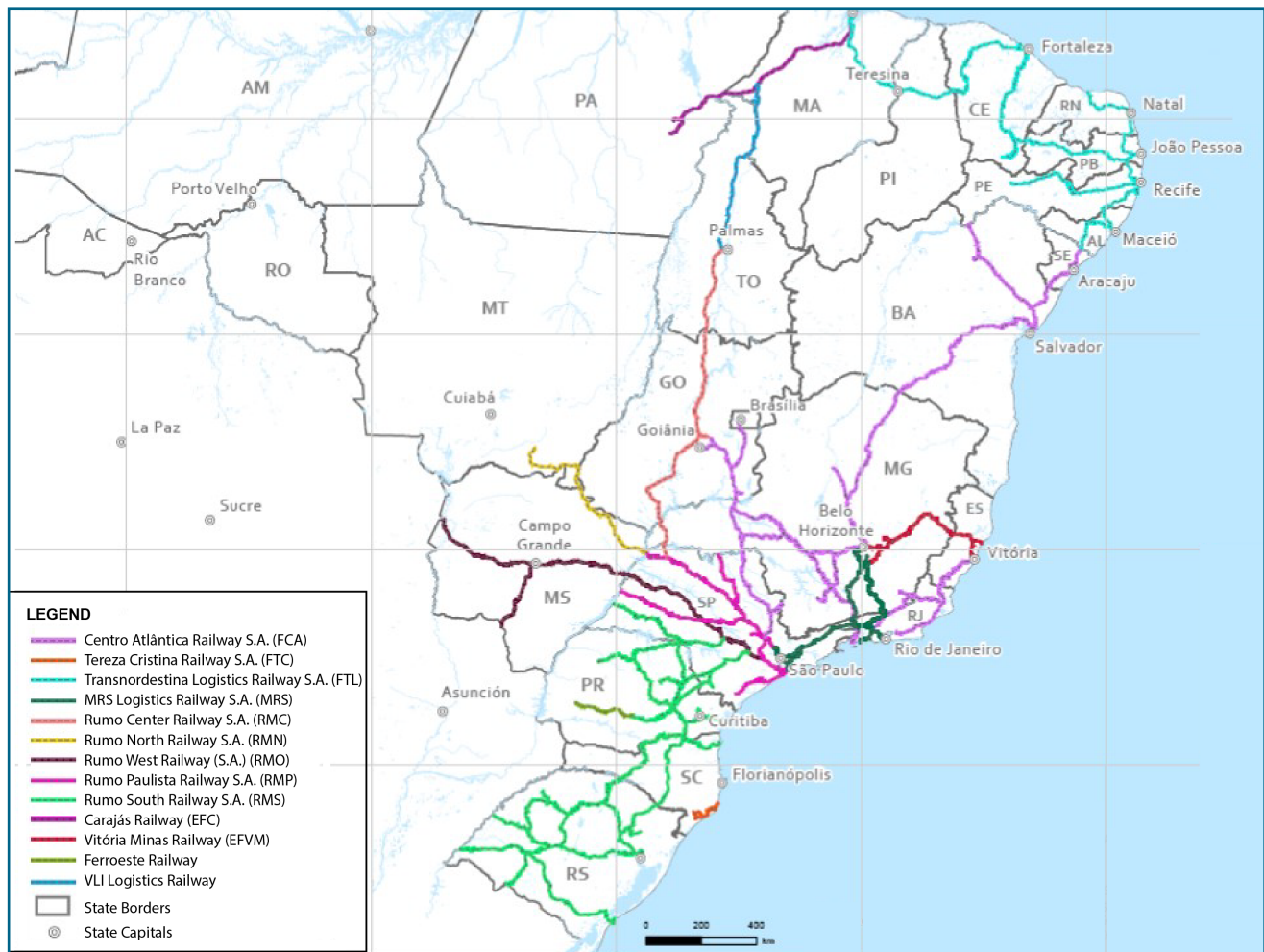
Figure 45. Brazilian road sign conditions, 2022-24



Source: Confederação Nacional do Transporte (CNT).

Figure 46. Brazilian railway expansion: ongoing projects

The Brazilian railroad system consists of 13 railroads, with an extension of 19,066 miles (30,684 km), mostly concentrated in the South, Southeast, and Northeast.



Source: Agência Nacional de Transportes Terrestres (ANTT).

Figure 47. Brazilian rail system: gauge sizes

Unlike in North America, which uses a standard gauge (distance between two rails), the Brazilian gauge system varies by region, creating difficulty in integrating rail movements across the country. There are three types of gauges: metric (39"), broad (63"), and mixed (39"- 63"). The metric gauge accounts for 76 percent of total Brazilian rail miles and predominates in the Southern region. The broad gauge accounts for 22 percent of total railroads and prevails in the Southeast region, leaving about 2 percent as mixed gauge.



Source: Grupo de Pesquisa e Extensão em Logística Agroindustrial (ESALQ-LOG)/University of São Paulo, Brazil, based on data from the Ministry of Infrastructure 2023.

Reference Material

Table 29. Quarterly costs of transporting U.S. soybeans to Hamburg, Germany, via U.S. Gulf, 2024

Item	Minneapolis, Minnesota (US\$/mt)				
	2024 1st qtr.	2024 2nd qtr.	2024 3rd qtr.	2024 4th qtr.	2024 Average
Truck	16.11	16.47	17.67	17.87	17.03
Rail	42.78	0.00	0.00	0.00	10.70
Barge	13.63	24.29	39.70	48.92	31.64
Ocean	29.76	27.94	26.41	23.64	26.94
Total transportation	102.28	68.70	83.78	90.43	86.30
Farm price	433.58	417.65	377.85	356.54	396.41
Landed cost	535.86	486.35	461.63	446.97	482.70
Transport % of landed cost	19.1	14.1	18.1	20.2	17.9
Item	Davenport, Iowa (US\$/mt)				
	2024 1st qtr.	2024 2nd qtr.	2024 3rd qtr.	2024 4th qtr.	2024 Average
Truck	16.11	16.47	17.67	17.87	17.03
Rail	39.17	0.00	0.00	0.00	9.79
Barge	13.63	19.18	32.08	39.00	25.97
Ocean	29.76	27.94	26.41	23.64	26.94
Total transportation	98.67	63.59	76.16	80.51	79.73
Farm price	440.92	437.25	383.36	369.89	407.86
Landed cost	539.59	500.84	459.52	450.40	487.59
Transport % of landed cost	18.3	12.7	16.6	17.9	16.4

Rail rates include fuel surcharges, but do not include the cost of purchasing empty rail cars in the secondary rail markets, which could exceed the rail tariff rate plus fuel surcharge shown in the table. The Mississippi River closes from Minneapolis to just north of St. Louis during mid-December to late March. Source for the U.S. ocean freight rates: O'Neil Commodity Consulting. Source for the U.S. farm prices: USDA, National Agricultural Statistics Service. Landed cost is transportation cost plus farm price. Note: qtr.=quarter; mt=metric ton; "0.00" means that rail transportation was not applicable.

Source: Compiled by the USDA, Agricultural Marketing Service.

Table 30. Quarterly costs of transporting U.S. soybeans to Shanghai, China, via U.S. Gulf, 2024

Item	Minneapolis, Minnesota (US\$/mt)				
	2024 1st qtr.	2024 2nd qtr.	2024 3rd qtr.	2024 4th qtr.	2024 Average
Truck	16.11	16.47	17.67	17.87	17.03
Rail	42.78	0.00	0.00	0.00	10.70
Barge	13.63	24.29	39.70	48.92	31.64
Ocean	58.99	59.66	56.72	48.39	55.94
Total transportation	131.51	100.42	114.09	115.18	115.30
Farm price	433.58	417.65	377.85	356.54	396.41
Landed cost	565.09	518.07	491.94	471.72	511.71
Transport % of landed cost	23.3	19.4	23.2	24.4	22.6
Item	Davenport, Iowa (US\$/mt)				
	2024 1st qtr.	2024 2nd qtr.	2024 3rd qtr.	2024 4th qtr.	2024 Average
Truck	16.11	16.47	17.67	17.87	17.03
Rail	39.17	0.00	0.00	0.00	9.79
Barge	13.63	19.18	32.08	39.00	25.97
Ocean	58.99	59.66	56.72	48.39	55.94
Total transportation	127.90	95.31	106.47	105.26	108.74
Farm price	440.92	437.25	383.36	369.89	407.86
Landed cost	568.82	532.56	489.83	475.15	516.59
Transport % of landed cost	22.5	17.9	21.7	22.2	21.1

Rail rates include fuel surcharges, but do not include the cost of purchasing empty rail cars in the secondary rail markets, which could exceed the rail tariff rate plus fuel surcharge shown in the table. The Mississippi River closes from Minneapolis to just north of St. Louis during mid-December to late March. Source for the U.S. ocean freight rates: O'Neil Commodity Consulting. Source for the U.S. farm prices: USDA, National Agricultural Statistics Service. Landed cost is transportation cost plus farm price. Note: qtr.=quarter; mt=metric ton; "0.00" means that rail transportation was not applicable.

Source: Compiled by the USDA, Agricultural Marketing Service.

Table 31. Quarterly costs of transporting U.S. soybeans to Shanghai, China, via PNW, 2024

Item	Fargo, North Dakota (US\$/mt)				
	2024 1st qtr.	2024 2nd qtr.	2024 3rd qtr.	2024 4th qtr.	2024 Average
Truck	16.11	16.47	17.67	17.87	17.03
Rail	64.96	64.86	63.52	61.87	63.80
Ocean	31.44	31.77	30.23	28.34	30.45
Total transportation	112.51	113.10	111.42	108.08	111.28
Farm price	420.10	400.51	362.78	347.47	382.72
Landed cost	532.61	513.61	474.20	455.55	493.99
Transport % of landed cost	21.1	22.0	23.5	23.7	22.5
Item	Sioux Fall, South Dakota (US\$/mt)				
	2024 1st qtr.	2024 2nd qtr.	2024 3rd qtr.	2024 4th qtr.	2024 Average
Truck	16.11	16.47	17.67	17.87	17.03
Rail	66.33	66.22	64.77	63.05	65.09
Ocean	31.44	31.77	30.23	28.34	30.45
Total transportation	113.88	114.46	112.67	109.26	112.57
Farm price	433.58	420.10	369.76	350.78	393.56
Landed cost	547.46	534.56	482.43	460.04	506.12
Transport % of landed cost	20.8	21.4	23.4	23.8	22.3

Rail rates include fuel surcharges, but do not include the cost of purchasing empty rail cars in the secondary rail markets, which could exceed the rail tariff rate plus fuel surcharge shown in the table. The Mississippi River closes from Minneapolis to just north of St. Louis during mid-December to late March. Source for the U.S. ocean freight rates: O'Neil Commodity Consulting. Source for the U.S. farm prices: USDA, National Agricultural Statistics Service. Landed cost is transportation cost plus farm price. Note: qtr.=quarter; mt=metric ton; "0.00" means that rail transportation was not applicable.

Source: Compiled by the USDA, Agricultural Marketing Service.

Table 32. Average quarterly exchange rate, 2015-24

Year	Quarter	Real per US\$	Year	Quarter	Real per US\$
2015	1st	2.8637	2020	1st	4.4651
	2nd	3.0722		2nd	5.3848
	3rd	3.5480		3rd	5.3766
	4th	3.8426		4th	5.3915
	Average	3.3316		Average	5.1545
2016	1st	3.8999	2021	1st	5.4827
	2nd	3.5076		2nd	5.2901
	3rd	3.2912		3rd	5.2280
	4th	3.2953		4th	5.5853
	Average	3.4985		Average	5.3965
2017	1st	3.1429	2022	1st	5.2234
	2nd	3.2137		2nd	4.9260
	3rd	3.1639		3rd	5.2456
	4th	3.2506		4th	5.2548
	Average	3.1928		Average	5.1624
2018	1st	3.2425	2023	1st	5.1957
	2nd	3.7732		2nd	4.9499
	3rd	3.9505		3rd	4.8799
	4th	3.8084		4th	4.9529
	Average	3.6936		Average	4.9946
2019	1st	3.7684	2024	1st	4.9524
	2nd	3.9221		2nd	5.2164
	3rd	3.9736		3rd	5.5448
	4th	4.1144		4th	5.8421
	Average	3.9446		Average	5.3889

Source: Banco Central do Brasil

Table 33. Selected quarterly Brazilian farm prices, 2018-24 (US\$/metric ton)

Year	Quarter	Rio Grande do Sul	Mato Grosso	Goiás	Paraná	Piauí	Pará	Maranhão
2018	1st	334.43	305.85	318.87	338.61	321.69	344.84	357.97
	2nd	343.90	323.46	313.65	347.41	320.70	343.23	342.78
	3rd	326.13	301.39	302.33	330.85	290.62	323.15	305.07
	4th	328.39	293.43	314.40	319.39	292.04	344.82	326.30
	Avg	333.21	306.03	312.31	334.06	306.26	339.01	333.03
2019	1st	308.52	275.38	296.01	304.16	292.96	317.97	298.43
	2nd	294.72	271.70	281.40	292.33	285.28	294.15	278.70
	3rd	304.20	286.87	286.67	300.23	288.35	303.50	300.20
	4th	314.81	307.47	301.77	313.72	316.88	316.00	310.87
	Avg	305.56	285.35	291.46	302.61	295.87	307.90	297.05
2020	1st	300.04	282.59	285.74	301.23	302.03	302.01	300.23
	2nd	297.17	287.53	262.95	285.62	286.59	283.28	294.95
	3rd	367.58	367.89	333.43	343.91	344.92	346.83	359.63
	4th	453.49	490.89	441.91	442.13	436.03	444.28	458.37
	Avg	354.57	357.23	331.01	343.22	342.39	344.10	353.30
2021	1st	475.64	463.10	466.39	472.61	484.07	483.48	466.73
	2nd	505.86	495.57	500.77	492.31	489.79	525.44	503.18
	3rd	497.59	513.31	495.90	496.46	483.65	503.71	501.47
	4th	478.45	457.88	456.20	471.40	445.58	488.97	468.17
	Avg	489.39	482.47	479.82	483.19	475.78	500.40	484.89
2022	1st	604.37	550.71	553.47	584.53	543.56	587.96	558.85
	2nd	617.87	566.29	565.92	598.83	585.80	615.15	591.24
	3rd	552.66	514.98	513.50	539.82	529.04	557.88	545.43
	4th	544.28	515.89	511.31	533.81	510.35	548.17	537.00
	Avg	579.79	536.97	536.05	564.25	542.19	577.29	558.13
2023	1st	525.80	472.04	479.17	504.74	499.05	522.07	508.13
	2nd	437.80	384.93	390.39	424.21	406.67	431.96	420.39
	3rd	469.48	399.94	406.45	440.87	432.42	424.31	428.33
	4th	457.20	406.91	406.12	427.46	440.89	460.14	426.71
	Avg	472.57	415.95	420.54	449.32	444.76	459.62	445.89
2024	1st	383.05	349.39	353.29	360.87	390.34	385.83	373.82
	2nd	381.34	366.79	367.50	376.75	369.30	368.37	369.07
	3rd	358.95	366.60	360.62	366.49	363.76	369.72	357.15
	4th	358.32	386.58	363.97	373.27	370.02	354.46	357.11
	Avg	370.42	367.34	361.35	369.35	373.35	369.59	364.29

Source: Companhia Nacional de Abastecimento (CONAB) www.conab.gov.br

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