

Brazil Soybean Transportation

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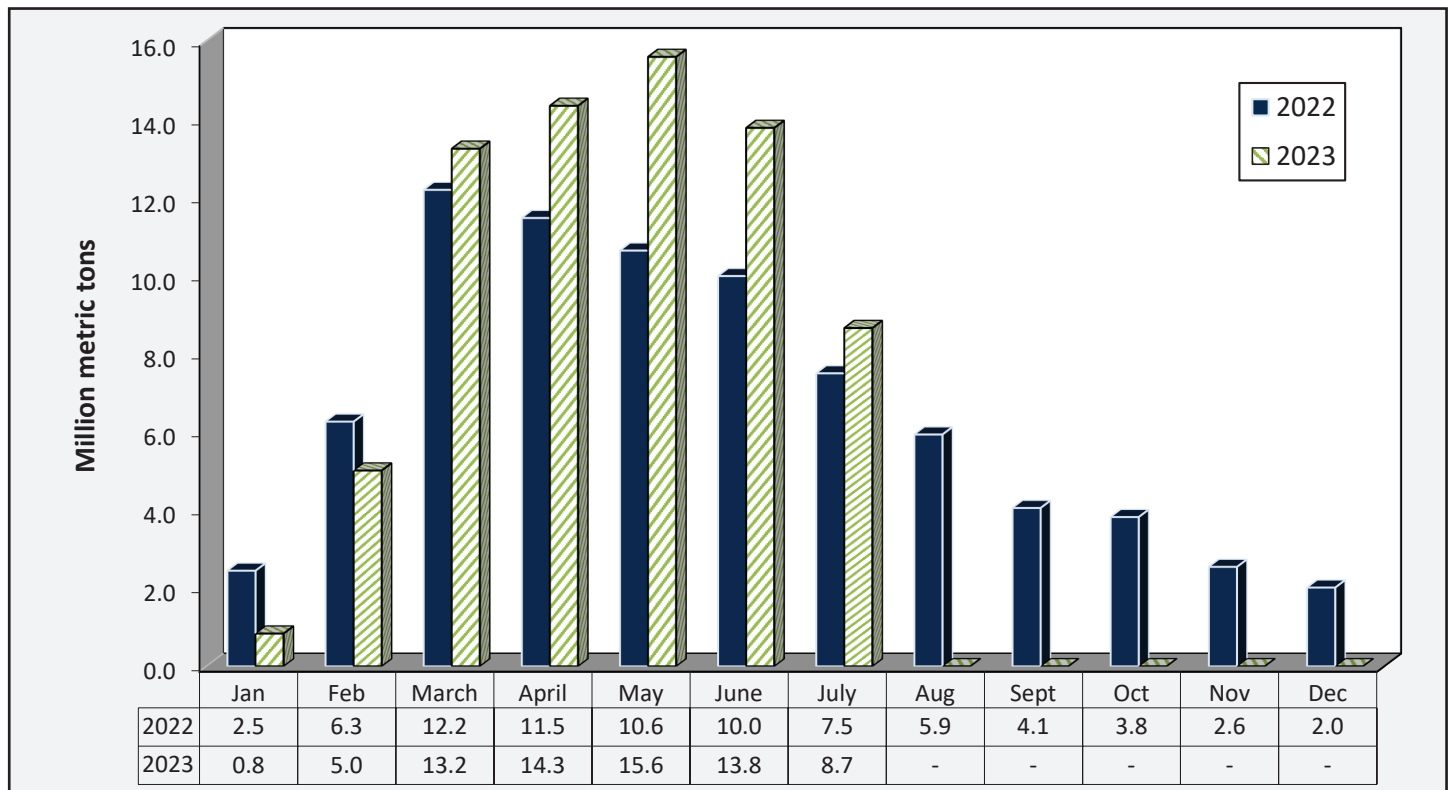


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Record Exports and Transportation Cost

In the first 6 months of 2023, Brazil exported a record 62.8 million metric tons (mmt) of soybeans, valued at \$38.1 billion (fig. 1) ([Comex Stat](#), [Ministério da Economia](#)).¹ From second quarter 2022 to second quarter 2023 (year to year), Brazil’s soybean transportation costs declined mostly because of a significant drop in ocean rates (tables 1a, 1b, 2a, 2b, and 9). Because of a growing vessel supply (from April to May), ocean shipping rates declined, boosting capacity during the peak of the Brazil soybean export season ([Grain Transportation Report \(GTR\)](#), July 27). Truck rates varied by region, but overall, the cost of shipping a metric ton (mt) of soybeans 100 miles by truck rose 6 percent—from \$8.90 per mt to \$9.41 per mt (table 8). For the route to Shanghai, China, from Sorriso, Mato Grosso (the largest Brazilian soybean-producing State), via Santos, soybean transportation costs, represented 25-26 percent of the total landed costs during the second quarter 2023, versus 34 percent in 2008 and 45 percent in 2006. Year to year, soybean transportation costs to Shanghai, China—as a share of total landed costs—rose 14-21 percent for the routes from northern Mato Grosso to Santos, Santarém, and Barcarena.

Figure 1. Brazil average monthly soybean exports, 2022-23



Note: Hyphens designate data were unavailable.

Source: Comex Stat, Ministério da Economia.

1 In this report, the source of Brazil export data is the Comex Stat, Ministério da Economia.



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The average soybean export price per metric ton (mt) in second quarter 2023 (\$518.94) fell 15 percent from second quarter 2022's average (\$612.96) and fell 12 percent from the average for all of 2022 (\$591.37). Because soybeans are priced in U.S. dollars but paid in reais, Brazilian farmers continue to benefit from the real's relative weakness against the U.S. dollar. Year to year, the Brazilian real slightly depreciated against the U.S. dollar—from R\$4.93 per U.S. dollar to R\$4.95 per U.S. dollar ([Brazil Central Bank](#)). Brazil's average farm gate prices for soybeans fell 30 percent, because of abundant local soybean supplies. Measured in U.S. dollars, that decline was from \$591.59/mt to \$413.76/mt—and in reais, from R\$2,909.69/mt to R\$2,048.41/mt ([CONAB](#)).

From January to June 2023, Brazil exported 43.6 mmt of soybeans to China, valued at \$23.1 billion—nearly 24 percent more than the total of 35.2 mmt from January to June 2022. The next highest shares of Brazil's soybean exports (in declining order) went to Argentina, Spain, Thailand, and Turkey. The southern ports of Santos, Rio Grande, Paranaguá, and São Francisco do Sul still dominate the soybean trade to China, accounting for 68 percent of Brazil's soybean exports to China. Also, in the first 6 months of 2023, the northeastern ports of São Luís, Vitória, Salvador, and Barcarena accounted for nearly 32 percent of soybean exports to China. The Amazon River port of Manaus exported a small amount to China. The ocean freight spread (or cost difference) between the routes to Shanghai, China, from the northeastern port of São Luís (\$40.00/mt) and the port of Santos (\$35.20/mt) was \$4.80/mt (table 9).

Infrastructure Update

The North-South (EF-151) Railroad (FSN): Porto Nacional, Tocantins-Estrela d'Oeste, São Paulo. Stretching for 1,402 miles (2,257 km), this new railroad represents a major connection in Brazil's rail network. The North-South Railroad links the northeastern port of Itaquí-São Luis, Maranhão, with the southern port of Santos-São Paulo. The four States receiving new access are Tocantins, Goiás, Minas Gerais, and São Paulo. Since 2019, Rumo S.A. has signed the 30-year concession contract for Ferrovia Norte-Sul (North-South Railway) from Estrela d'Oeste to Porto Nacional.

Current status: The railroad's construction, which began 35 years ago, was completed in June 2023 with the inauguration of Rumo's rail terminal in Rio Verde (Goiás). The facility will handle 11 million metric tons of grain and soybean meal per year to serve Goiás and eastern Mato Grosso. Despite being 124 miles (200 km) from São Simão, the terminal is now the closest one to the southwest Goiás producers. These infrastructure investments facilitate the production flow from the largest agribusiness region in the country to the southern Port of Santos, bringing fertilizers in as backhaul. Offering an alternative route to Center-West producers, shipping via this rail expansion currently costs 15-20 percent less than by trucking (according to [Rumo](#)) and it offers even greater savings over barge through the Tietê-Paraná waterway. Also, the new railroad will be used to transport containers from Maranhão to the Southeast region. Currently, Rumo focuses on transporting grain and oilseeds, such as soybeans, corn, and soybean meal. However, there is potential for other cargoes. In July 2023, Rumo joined a new partnership with an American company, Central Harvest States (CHS), to build and operate a multimodal grain terminal in Alvorada, southern Tocantins, in north-central Brazil. The terminal will handle 1.5 mmt of grain annually, destined for the Port of Santos. It will link into the newly completed North-South Railroad. The terminal will handle grain volumes (soybeans and corn) from CHS and other interested parties in the region. Construction is scheduled to begin during the second half of 2023 with the first grain shipments in mid-2024 ([Soybean & Corn Advisor](#)). Since 2021, Rumo and CHS have had a fertilizer terminal in Rio Verde through Andali—a joint venture of BR Fertil with CHS. The plant offers structures for cargo transportation and fertilizer mixing.

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Table 1a. Quarterly costs of transporting Brazilian soybeans from the southern ports to Shanghai, China

	North MT ¹ - Santos ² by truck			Northwest RS ¹ - Rio Grande ²		
	—US\$/mt—		% Change	—US\$/mt—		% Change
	2nd qtr. 2022	2nd qtr. 2023	2022-23	2nd qtr. 2022	2nd qtr. 2023	2022-23
Truck	102.44	100.36	-2.0	32.57	33.70	3.5
Ocean	65.75	35.20	-46.5	66.50	35.70	-46.3
Total transportation	168.19	135.56	-19.4	99.07	69.40	-30.0
Farm gate price ³	566.29	384.93	-32.0	617.87	437.80	-29.1
Landed cost	734.48	520.49	-29.1	716.94	507.20	-29.3
Transport % of landed cost	22.9	26.0	13.7	13.8	13.7	-1.0
	North MT ¹ - Santos ² by rail			North MT ¹ - Paranaguá ²		
	—US\$/mt—		% Change	—US\$/mt—		% Change
	2nd qtr. 2022	2nd qtr. 2023	2022-23	2nd qtr. 2022	2nd qtr. 2023	2022-23
Truck	34.83	35.89	3.0	101.50	98.90	-2.6
Rail ⁴	45.54	54.47	19.6	-	-	-
Ocean	65.75	35.20	-46.5	67.75	36.70	-45.8
Total transportation	146.12	125.56	-14.1	169.25	135.60	-19.9
Farm gate price ³	566.29	384.93	-32.0	566.29	384.93	-32.0
Landed cost	712.41	510.49	-28.3	735.55	520.53	-29.2
Transport % of landed cost	20.5	24.6	19.9	23.0	26.1	13.2

¹Producing regions: MT= Mato Grosso and RS = Rio Grande do Sul.

²Export port.

³The source of the farm gate price is the Brazilian Government, Companhia Nacional de Abastecimento (CONAB).

⁴In Brazil, there are no published rail tariff rates. Rail rates can be up to 30 percent lower than truck rates, depending on volumes hauled and the terms of contracts signed between the railroad company and shippers.

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

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



Brazil Soybean Transportation

Table 1b. Quarterly costs of transporting Brazilian soybeans from the northern and northeastern ports to Shanghai, China

	North MT ¹ - Santarém ²			South MA ¹ - São Luís ²		
	—US\$/mt—		% Change	—US\$/mt—		% Change
	2nd qtr. 2022	2nd qtr. 2023	2022-23	2nd qtr. 2022	2nd qtr. 2023	2022-23
Truck	64.82	68.56	5.8	46.68	41.07	-12.0
Ocean	69.90	39.40	-43.6	70.00	40.00	-42.9
Total transportation	134.72	107.96	-19.9	116.68	81.07	-30.5
Farm gate price ³	566.29	384.93	-32.0	591.24	420.39	-28.9
Landed cost	701.01	492.89	-29.7	707.92	501.46	-29.2
Transport % of landed cost	19.2	21.9	14.0	16.5	16.2	-1.9
	Southwest PI ¹ - São Luís ²			North MT ¹ - Barcarena ²		
	—US\$/mt—		% Change	—US\$/mt—		% Change
	2nd qtr. 2022	2nd qtr. 2023	2022-23	2nd qtr. 2022	2nd qtr. 2023	2022-23
Truck	51.28	46.41	-9.5	52.63	58.45	11.1
Barge ⁴	-	-	-	19.93	27.47	37.8
Ocean	70.00	40.00	-42.9	72.00	40.20	-44.2
Total transportation	121.28	86.41	-28.8	144.56	126.12	-12.8
Farm gate price ³	585.80	406.67	-30.6	566.29	384.93	-32.0
Landed cost	707.08	493.08	-30.3	710.86	511.05	-28.1
Transport % of landed cost	17.2	17.5	2.2	20.3	24.7	21.3

¹Producing regions: MT= Mato Grosso, PI = Piauí, and MA = Maranhão.

²Export port.

³The source of the farm gate price is the Brazilian Government, Companhia Nacional de Abastecimento (CONAB).

⁴In Brazil, there are no published barge rates. Barge rates can be up to 60 percent lower than truck rates, depending on 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. 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.



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Table 2a. Quarterly costs of transporting Brazilian soybeans from the southern ports to Hamburg, Germany

	North MT ¹ - Santos ² by truck			Northwest RS ¹ - Rio Grande ²		
	—US\$/mt—		% Change	—US\$/mt—		% Change
	2nd qtr. 2022	2nd qtr. 2023	2022-23	2nd qtr. 2022	2nd qtr. 2023	2022-23
Truck	102.44	100.36	-2.0	32.57	33.70	3.5
Ocean	55.85	33.20	-40.6	57.20	34.20	-40.2
Total transportation	158.29	133.56	-15.6	89.77	67.90	-24.4
Farm gate price ³	566.29	384.93	-32.0	617.87	437.80	-29.1
Landed cost	724.58	518.49	-28.4	707.64	505.70	-28.5
Transport % of landed cost	21.8	25.8	17.9	12.7	13.4	5.8
	North MT ¹ - Santos ² by rail			North MT ¹ - Paranaguá ²		
	—US\$/mt—		% Change	—US\$/mt—		% Change
	2022 1st qtr.	2023 1st qtr.	2022-23	2022 1st qtr.	2023 1st qtr.	2022-23
Truck	34.83	35.89	3.0	101.50	98.90	-2.6
Rail ⁴	45.54	54.47	19.6	-	-	-
Ocean	55.85	33.20	-40.6	54.60	32.50	-40.5
Total transportation	136.22	123.56	-9.3	156.10	131.40	-15.8
Farm gate price ³	566.29	384.93	-32.0	566.29	384.93	-32.0
Landed cost	702.51	508.49	-27.6	722.40	516.33	-28.5
Transport % of landed cost	19.4	19.4	0.0	21.6	25.4	17.8

¹Producing regions: MT= Mato Grosso and RS = Rio Grande Do Sul.

²Export port.

³The source of the farm gate price is the Brazilian Government, Companhia Nacional de Abastecimento (CONAB).

⁴In Brazil, there are no published rail tariff rates. Rail rates can be up to 30 percent lower than truck rates, depending on volumes hauled and the terms of contracts signed between the railroad company and shippers.

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

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



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Table 2b. Quarterly costs of transporting Brazilian soybeans from the northern and northeastern ports to Hamburg, Germany

	North MT ¹ - Santarém ²			South MA ¹ - São Luís ²		
	—US\$/mt—		% Change	—US\$/mt—		% Change
	2022 1st qtr.	2023 1st qtr.	2022-23	2022 1st qtr.	2023 1st qtr.	2022-23
Truck	64.82	68.56	5.8	46.68	41.07	-12.0
Ocean	52.00	31.50	-39.4	60.00	36.30	-39.5
Total transportation	116.82	100.06	-14.3	106.68	77.37	-27.5
Farm gate price ³	566.29	384.93	-32.0	591.24	420.39	-28.9
Landed cost	683.11	484.99	-29.0	697.92	497.76	-28.7
Transport % of landed cost	17.1	20.6	20.6	15.3	15.5	1.7
	Southwest PI ¹ - São Luís ²			North MT ¹ - Barcarena ²		
	—US\$/mt—		% Change	—US\$/mt—		% Change
	2nd qtr. 2022	2nd qtr. 2023	2022-23	2nd qtr. 2022	2nd qtr. 2023	2022-23
Truck	51.28	46.41	-9.5	52.63	58.45	11.1
Barge ⁴	-	-	-	19.93	27.47	37.8
Ocean	60.00	36.30	-39.5	50.80	31.00	-39.0
Total transportation	111.28	82.71	-25.7	123.36	116.92	-5.2
Farm gate price ³	585.80	406.67	-30.6	566.29	384.93	-32.0
Landed cost	697.08	489.38	-29.8	689.66	501.85	-27.2
Transport % of landed cost	16.0	16.9	5.9	17.9	23.3	30.2

¹Producing regions: MT= Mato Grosso, PI = Piauí, and MA = Maranhão.

²Export port.

³The source of the farm gate price is the Brazilian Government, Companhia Nacional de Abastecimento (CONAB).

⁴In Brazil, there are no published barge rates. Barge rates can be up to 60 percent lower than truck rates, depending on 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. A hyphen in an otherwise empty cell denotes that the data are not available.

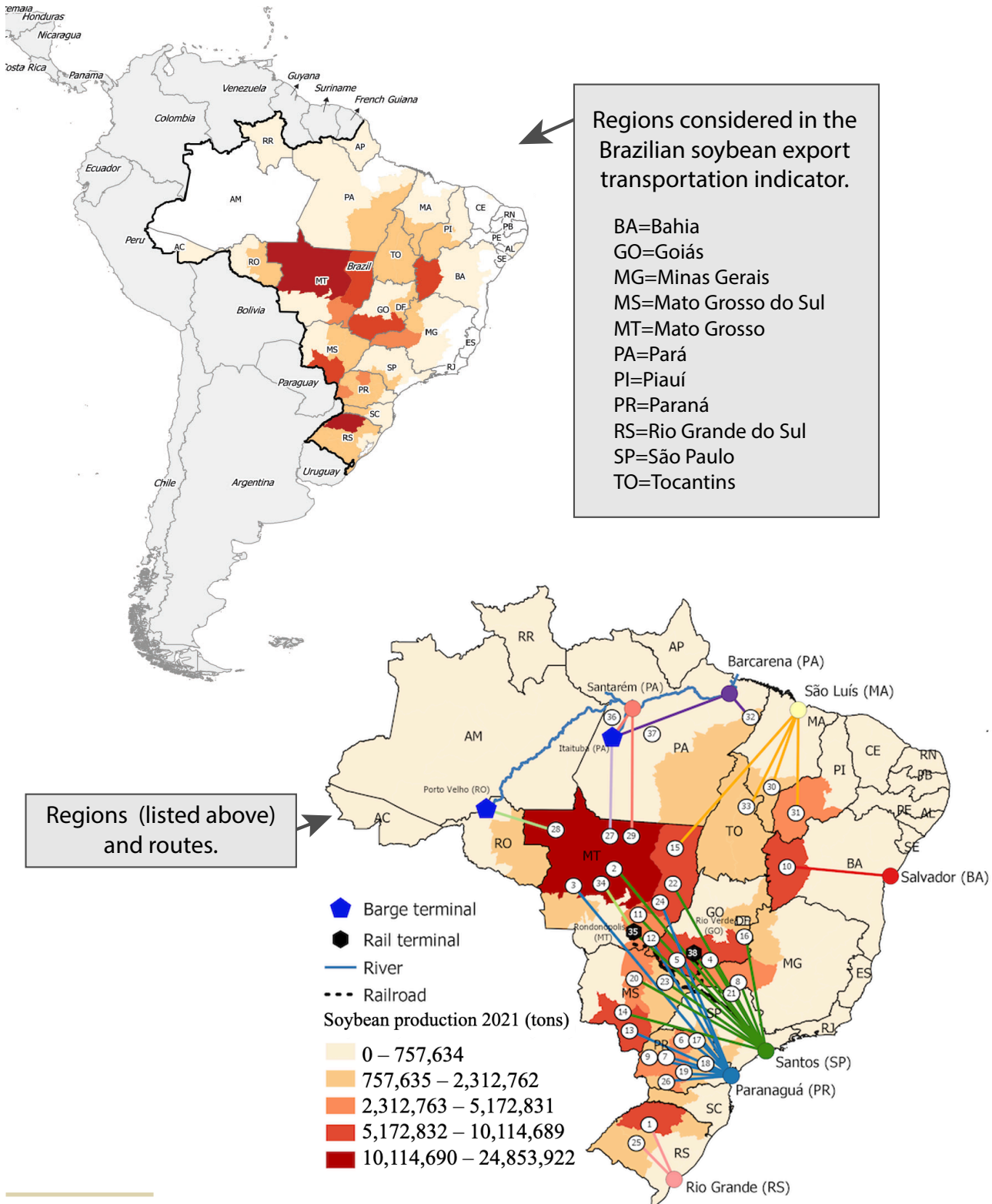
Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/ USP) and USDA, Agricultural Marketing Service.



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Indicators

Figure 2. Routes² and regions considered in the Brazilian soybean export transportation indicator³



² Table defining routes by number is shown on page 12.

³ Regions comprised about 79 percent of Brazilian soybean production, 2021 (Brazilian Institute of Geography and Statistics—Produção Agrícola Municipal).

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



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Table 3. Quarterly costs of transporting Brazilian soybeans from the southern ports to Shanghai, China, 2023

	North MT ¹ - Santos ² by truck —US\$/mt—					North MT ¹ - Paranaguá ² —US\$/mt—				
	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.
Truck	96.25	100.36			98.30	95.66	98.90			97.28
Ocean	33.50	35.20			34.35	35.00	36.70			35.85
Total transportation	129.75	135.56			132.65	130.66	135.60			133.13
Farm gate price ³	472.04	384.93			428.48	472.04	384.93			428.48
Landed cost	601.78	520.49			561.14	602.70	520.53			561.61
Transport % of landed cost	21.6	26.0			23.8	21.7	26.1			23.9
	North MT ¹ - Santos ² by rail —US\$/mt—					Northwest RS ¹ - Rio Grande ² —US\$/mt—				
	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.
Truck	34.85	35.89			35.37	33.02	33.70			33.36
Rail ⁴	49.62	54.47			52.04	-	-			-
Ocean	33.50	35.20			34.35	34.00	35.70			34.85
Total transportation	117.97	125.56			121.76	67.02	69.40			68.21
Farm gate price ³	472.04	384.93			428.48	525.80	437.80			481.80
Landed cost	590.00	510.49			550.25	592.81	507.20			550.01
Transport % of landed cost	20.0	24.6			22.3	11.3	13.7			12.5

¹Producing regions: RS = Rio Grande Do Sul and MT= Mato Grosso.

²Export port.

³The source of the farm gate price is the Brazilian Government, Companhia Nacional de Abastecimento (CONAB).

⁴In, Brazil, there are no published rail tariff rates. Rail rates can be up to 30 percent lower than truck rates, depending on volumes hauled and the terms of contracts signed between the railroad company and shippers.

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

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



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Table 4. Quarterly costs of transporting Brazilian soybeans from the southern ports to Hamburg, Germany, 2023

	North MT ¹ - Santos ² by truck —US\$/mt—					North MT ¹ - Paranaguá ² —US\$/mt—				
	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.
Truck	96.25	100.36			98.30	95.66	98.90			97.28
Ocean	31.65	33.20			32.43	31.00	32.50			31.75
Total transportation	127.90	133.56			130.73	126.66	131.40			129.03
Farm gate price ³	472.04	384.93			428.48	472.04	384.93			428.48
Landed cost	599.93	518.49			559.21	598.70	516.33			557.51
Transport % of landed cost	21.3	25.8			23.5	21.2	21.6			21.4
	North MT ¹ - Santos ² by rail —US\$/mt—					Northwest RS ¹ - Rio Grande ² —US\$/mt—				
	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.
Truck	34.85	35.89			35.37	33.02	33.70			33.36
Rail ⁴	49.62	54.47			52.04	-	-	-	-	-
Ocean	31.65	33.20			32.43	32.50	34.20			33.35
Total transportation	116.12	123.56			119.84	65.52	67.90			66.71
Farm gate price ³	472.04	384.93			428.48	525.80	437.80			481.80
Landed cost	588.15	508.49			548.32	591.31	505.70			548.51
Transport % of landed cost	19.7	19.4			19.6	11.1	13.4			12.3

¹Producing regions: RS = Rio Grande do Sul and MT= Mato Grosso.

²Export port.

³The source of the farm gate price is the Brazilian Government, Companhia Nacional de Abastecimento (CONAB).

⁴In, Brazil, there are no published rail tariff rates. Rail rates can be up to 30 percent lower than truck rates, depending on volumes hauled and the terms of contracts signed between the railroad company and shippers.

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

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



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Table 5. Quarterly costs of transporting Brazilian soybeans from the northern and northeastern ports to Shanghai, China, 2023

	North MT ¹ - Santarém ² —US\$/mt—					South MA ¹ - São Luís ² —US\$/mt—				
	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.
Truck	62.23	68.56			65.39	41.03	41.07			41.05
Ocean	37.50	39.40			38.45	38.00	40.00			39.00
Total transportation	99.73	107.96			103.84	79.03	81.07			80.05
Farm gate price ³	472.04	384.93			428.48	508.13	420.39			464.26
Landed cost	571.76	492.89			532.33	587.16	501.46			544.31
Transport % of landed cost	17.4	21.9			19.7	13.5	16.2			14.8
	Southwest PI ¹ - São Luís ² —US\$/mt—					North MT ¹ - Barcarena ² —US\$/mt—				
	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.
Truck	46.93	46.41			46.67	53.34	58.45			55.89
Barge ⁴	-	-			-	21.24	27.47			24.35
Ocean	38.00	40.00			39.00	38.25	40.20			39.23
Total transportation	84.93	86.41			85.67	112.83	126.12			119.47
Farm gate price ³	499.05	406.67			452.86	472.04	384.93			428.48
Landed cost	583.97	493.08			538.53	584.86	511.05			547.96
Transport % of landed cost	14.5	17.5			16.0	19.3	24.7			22.0

¹Producing regions: MT= Mato Grosso, PI = Piauí, and MA = Maranhão.

²Export port.

³The source of the farm gate price is the Brazilian Government, Companhia Nacional de Abastecimento (CONAB).

⁴In Brazil, there are no published barge rates. Barge rates can be up to 60 percent lower than truck rates, depending on 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.



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Table 6. Quarterly costs of transporting Brazilian soybeans from the northern and northeastern ports to Hamburg, Germany, 2023

	North MT ¹ - Santarém ² —US\$/mt—					South MA ¹ - São Luís ² —US\$/mt—				
	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.
Truck	62.23	68.56			65.39	41.03	41.07			41.05
Ocean	30.00	31.50			30.75	34.50	36.30			35.40
Total transportation	92.23	100.06			96.14	75.53	77.37			76.45
Farm gate price ³	472.04	384.93			428.48	508.13	420.39			464.26
Landed cost	564.26	484.99			524.63	583.66	497.76			540.71
Transport % of landed cost	16.3	20.6			18.5	12.9	15.5			14.2
	Southwest PI ¹ - São Luís ² —US\$/mt—					North MT ¹ - Barcarena ² —US\$/mt—				
	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.
Truck	46.93	46.41			46.67	53.34	58.45			55.89
Barge ⁴	-	-			-	26.11	27.47			26.79
Ocean	34.50	36.30			35.40	29.40	31.00			30.20
Total transportation	81.43	82.71			82.07	108.85	116.92			112.89
Farm gate price ³	499.05	406.67			452.86	472.04	566.29			519.16
Landed cost	580.47	489.38			534.93	580.89	683.21			632.05
Transport % of landed cost	14.0	16.9			15.5	18.7	17.1			17.9

¹Producing regions: MT= Mato Grosso, PI = Piauí, and MA = Maranhão.

²Export port.

³The source of the farm gate price is the Brazilian Government, Companhia Nacional de Abastecimento (CONAB).

⁴In Brazil, there are no published barge rates. Barge rates can be up to 60 percent lower than truck rates, depending on 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.



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Table 7. Quarterly truck rates for selected Brazilian soybean export transportation routes, 2023

Route #	Origin ¹ (reference city)	Destination	Distance (miles) ²	Share (%) ³	Freight price (US\$/mt/100 miles) ⁴				
					1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.
1	Northwest RS ⁵ (Cruz Alta)	Rio Grande	288	10.2	11.46	11.70			11.58
2	North MT (Sorriso)	Santos	1,190	2.9	8.09	8.43			8.26
3	North MT (Sorriso)	Paranaguá	1,262	2.7	7.58	7.84			7.71
4	South GO (Rio Verde)	Santos	587	5.0	7.77	8.38			8.08
5	South GO (Rio Verde)	Paranaguá	726	4.0	7.96	8.19			8.07
6	North Central PR (Londrina)	Paranaguá	268	2.8	11.40	11.96			11.68
7	Western Central PR (Mamborê)	Paranaguá	311	2.2	10.59	10.82			10.70
8	Triangle MG (Uberaba)	Santos	339	3.3	10.77	11.57			11.17
9	West PR (Assis Chateaubriand)	Paranaguá	377	3.1	9.50	9.73			9.61
10	West Extreme BA (São Desidério)	Salvador	535	6.4	8.61	9.39			9.00
11	Southeast MT (Primavera do Leste)	Santos	901	2.4	7.37	7.92			7.65
12	Southeast MT (Primavera do Leste)	Paranaguá	975	2.2	7.17	7.52			7.35
13	Southwest MS (Maracaju)	Paranaguá	612	3.7	8.47	9.02			8.75
14	Southwest MS (Maracaju)	Santos	652	3.5	8.46	9.16			8.81
15	Northeast MT (Canarana)	São Luís	1,177	2.0	6.96	7.31			7.14
16	East GO (Cristalina)	Santos	585	2.0	8.98	9.58			9.28
17	North PR (Cornélio Procópio)	Paranaguá	306	1.7	9.28	9.68			9.48
18	Eastern Central PR (Castro)	Paranaguá	130	1.8	14.81	16.09			15.45
19	South Central PR (Guarapuava)	Paranaguá	204	2.2	13.16	14.28			13.72
20	North Central MS (São Gabriel do Oeste)	Santos	720	2.7	7.26	8.02			7.64
21	Ribeirão Preto SP (Guairá)	Santos	314	0.4	9.15	9.43			9.29
22	Northeast MT (Canarana)	Santos	950	2.4	7.87	8.46			8.16
23	East MS (Chapadão do Sul)	Santos	607	1.4	7.23	7.76			7.49

¹The main city in the regions is considered as a reference to establish the freight price.

²Distance from the main city of the considered region to the mentioned ports.

³Share of exports in total production (percentage).

⁴Average monthly exchange rate from “Banco Central do Brasil” was used to convert Brazilian reais to the U.S. dollars.

⁵RS=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.

⁶In 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.

⁷In 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.



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Route #	Origin ¹ (reference city)	Destination	Distance (miles) ²	Share (%) ³	Freight price (US\$/mt/100 miles) ⁴				
					1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.
24	Northeast MT (Canarana)	Paranaguá	1,075	2.1	7.41	7.78			7.59
25	Western Central RS (Tupanciretã)	Rio Grande	273	2.7	10.01	10.58			10.30
26	Southwest PR(Chopinzinho)	Paranaguá	291	1.6	10.33	10.98			10.65
27	North MT (Sorriso)	Itaituba	672	5.2	7.94	8.70			8.32
28	North MT (Sorriso)	Porto Velho	632	5.5	7.46	7.75			7.61
29	North MT (Sorriso)	Santarém	876	4.0	7.10	7.82			7.46
30	South MA (Balsas)	São Luís	482	2.0	8.52	8.53			8.52
31	Southwest PI (Bom Jesus)	São Luís	606	2.5	7.75	7.66			7.70
32	Southeast PA (Paragominas)	Barcarena	249	1.6	10.50	10.16			10.33
33	East TO (Campos Lindos)	São Luís	842	1.8	7.06	7.26			7.16
	Weighted average		587	100.0	8.92	9.41			9.17
34	North MT (Sorriso)	Rondonópolis (Rail terminal)	382		9.12	9.39			9.26
35	Rondonópolis MT (Rail terminal) ⁶	Santos	1,019		4.87	5.35			5.11
36	Itaituba PA (Barge terminal) ⁷	Santarém	153		7.93				7.93
37	Itaituba PA (Barge terminal) ⁷	Barcarena	600		3.54				3.54
38	South GO (Rio Verde) (Rail terminal) ⁶	Santos	546		5.96	6.72			6.34

¹The main city in the regions is considered as a reference to establish the freight price.

²Distance from the main city of the considered region to the mentioned ports.

³Share of exports in total production (percentage).

⁴Average monthly exchange rate from “Banco Central do Brasil” was used to convert Brazilian reais to the U.S. dollars.

⁵RS=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.

⁶In 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.

⁷In 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.



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Table 8. Monthly Brazilian soybean export truck transportation cost index

Month	Freight price (US\$/mt/100 miles)	Index variation (%) (Base: prior month)	Index value (Base: Jan-05=100)	Month	Freight price (US\$/mt/100 miles)	Index variation (%) (Base: prior month)	Index value (Base: Jan-05=100)
Jan-16	6.42	-5.1	110.63	Jan-20	6.03	1.7	103.90
Feb-16	6.73	4.8	115.98	Feb-20	6.76	12.2	116.52
Mar-16	7.79	15.8	134.33	Mar-20	6.20	-8.2	106.95
Apr-16	8.30	6.5	143.05	Apr-20	5.86	-5.5	101.09
May-16	7.28	-12.3	125.43	May-20	5.26	-10.4	90.58
Jun-16	7.16	-1.5	123.51	Jun-20	5.45	3.7	93.95
Jul-16	7.46	4.2	128.64	Jul-20	5.44	-0.2	93.74
Aug-16	7.33	-1.7	126.41	Aug-20	5.41	-0.4	93.34
Sep-16	6.35	-13.3	109.53	Sep-20	5.58	3.0	96.14
Oct-16	5.88	-7.5	101.35	Oct-20	4.97	-10.8	85.71
Nov-16	5.00	-14.9	86.21	Nov-20	4.58	-7.9	78.95
Dec-16	5.47	9.4	94.32	Dec-20	4.32	-5.8	74.39
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				
Aug-19	7.85	-5.8	135.23				
Sep-19	7.09	-9.7	122.17				
Oct-19	6.57	-7.4	113.19				
Nov-19	6.41	-2.3	110.54				
Dec-19	5.93	-7.5	102.21				

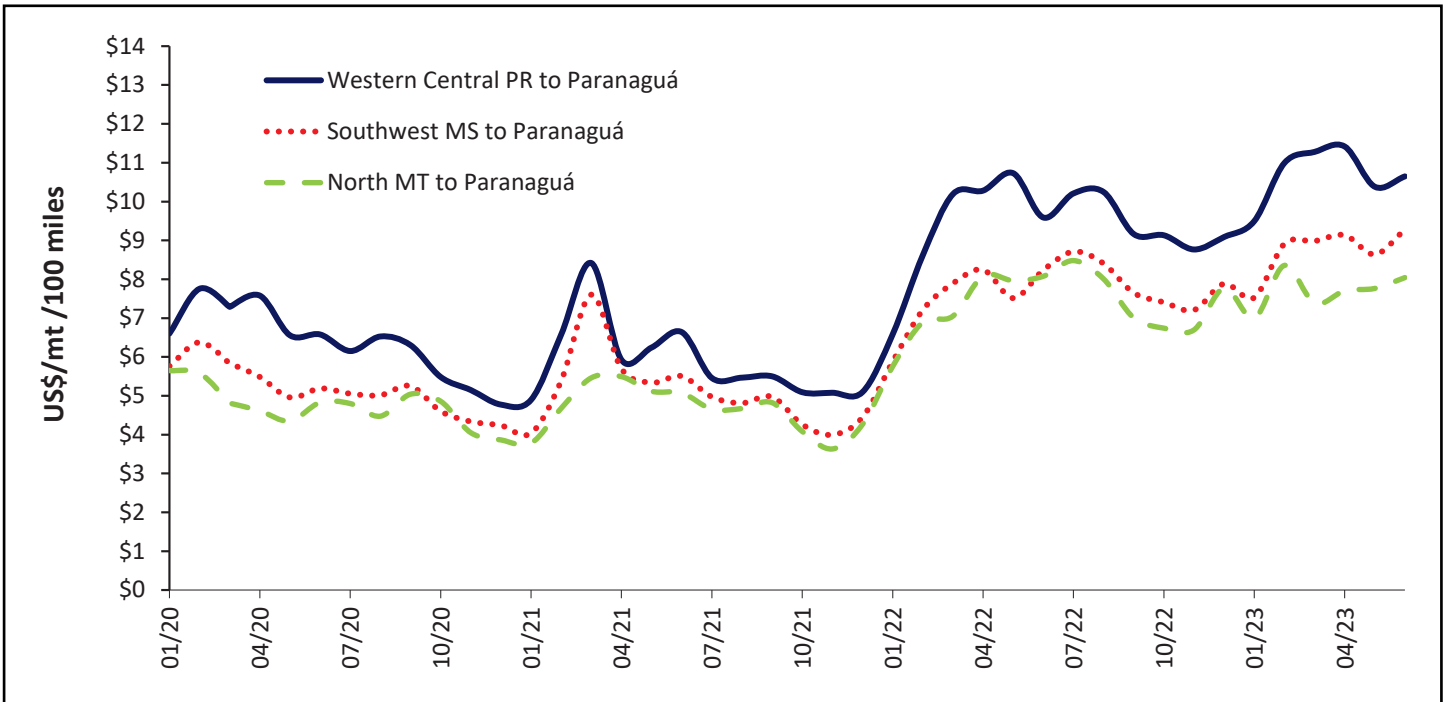
*Weighted average is calculated from production-based shares to weigh high-volume routes more heavily than low-volume routes. The share associated with each route is used to define the weight of a given route's freight price in the composition of the monthly weighted export truck freight index.

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



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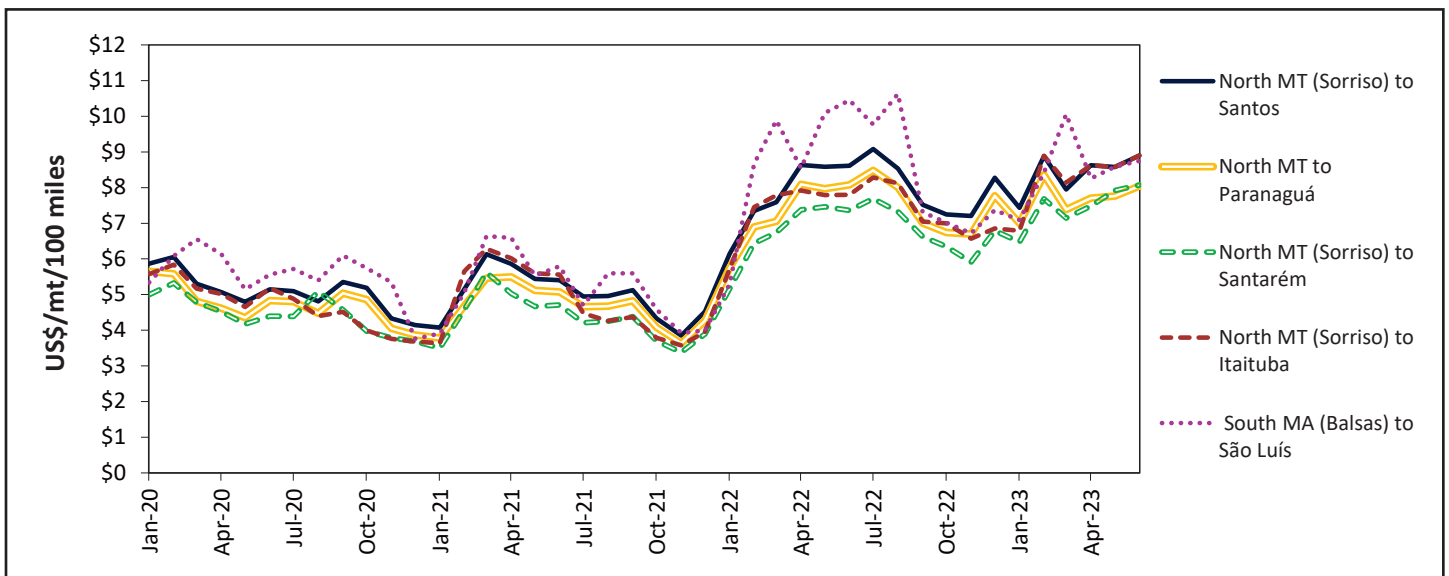
Figure 3. Truck rates for selected southern Brazilian soybean export transportation routes, 2020-23



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 4. Truck rates for selected north, south, and northeastern Brazilian soybean export transportation routes, 2020-23



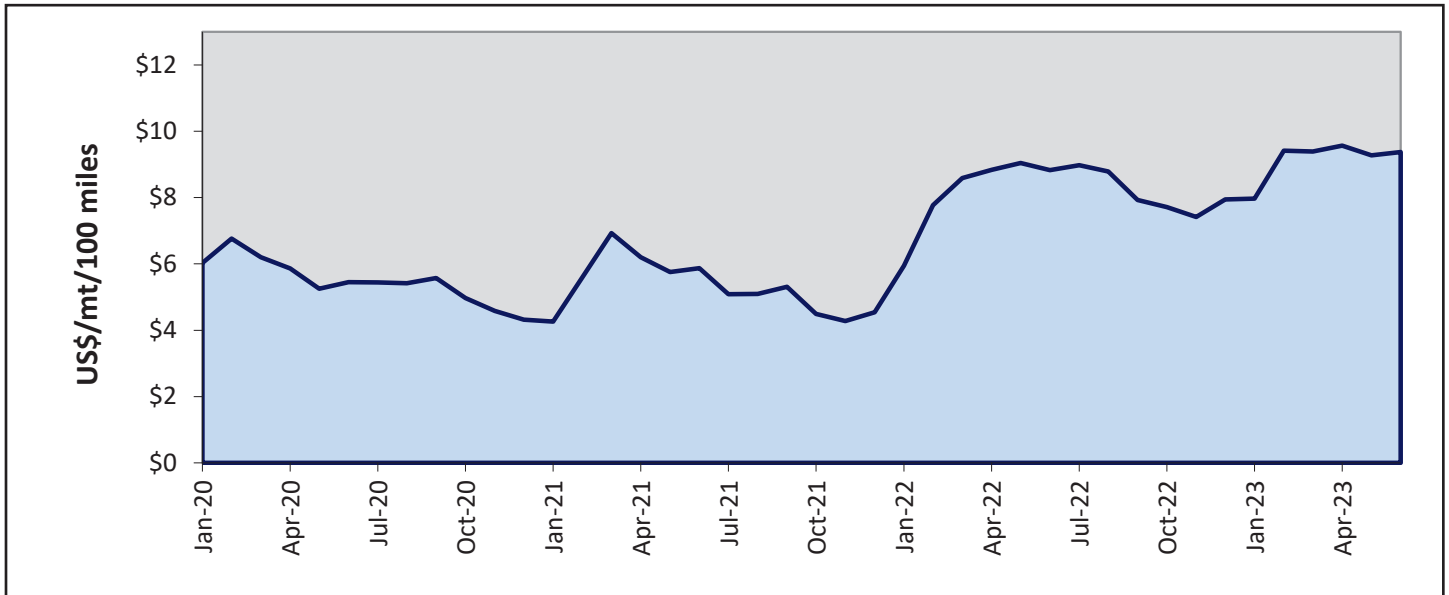
Note: mt = metric ton. MT= Mato Grosso and MA = Maranhão.

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



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Figure 5. Brazilian soybean export truck transportation weighted average prices, 2020-23



Note: mt = metric ton.

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



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Table 9. Quarterly ocean freight rates for shipping soybeans from selected Brazilian ports to Germany and China (US\$/metric ton)*

Port	Destination	1st qtr. 2018	2nd qtr. 2018	3rd qtr. 2018	4th qtr. 2018
Santos	Germany (Hamburg)	27.00	25.00	24.00	25.00
Paranaguá	Germany (Hamburg)	28.00	26.00	25.00	26.00
Rio Grande	Germany (Hamburg)	28.00	26.00	25.00	26.00
Santarém	Germany (Hamburg)	25.00	22.90	22.50	23.00
São Luís	Germany (Hamburg)	21.00	19.10	18.50	19.00
Barcarena	Germany (Hamburg)	23.00	20.90	20.20	20.00
Santos	China (Shanghai)	32.50	31.00	27.75	30.00
Paranagua	China (Shanghai)	32.00	32.00	28.75	31.00
Rio Grande	China (Shanghai)	33.00	31.50	28.25	31.50
Santarém	China (Shanghai)	38.50	35.50	31.25	34.00
São Luís	China (Shanghai)	37.00	34.80	30.75	33.00
Barcarena	China (Shanghai)	37.50	33.80	32.25	35.00
Port	Destination	1st qtr. 2019	2nd qtr. 2019	3rd qtr. 2019	4th qtr. 2019
Santos	Germany (Hamburg)	23.00	21.50	27.00	31.00
Paranaguá	Germany (Hamburg)	23.00	21.25	27.00	30.75
Rio Grande	Germany (Hamburg)	23.00	21.25	27.00	31.25
Santarém	Germany (Hamburg)	21.00	20.25	25.92	26.50
São Luís	Germany (Hamburg)	18.00	17.10	22.77	23.50
Barcarena	Germany (Hamburg)	19.00	17.85	23.52	24.25
Santos	China (Shanghai)	32.25	30.92	33.25	38.17
Paranagua	China (Shanghai)	33.75	31.42	34.75	39.50
Rio Grande	China (Shanghai)	31.58	30.25	34.25	39.67
Santarém	China (Shanghai)	32.25	30.58	38.25	39.17
São Luís	China (Shanghai)	31.00	30.58	38.25	39.42
Barcarena	China (Shanghai)	32.25	29.92	38.25	39.42
Port	Destination	1st qtr. 2020	2nd qtr. 2020	3rd qtr. 2020	4th qtr. 2020
Santos	Germany (Hamburg)	29.25	20.50	24.00	25.25
Paranaguá	Germany (Hamburg)	30.00	21.50	25.00	25.35
Rio Grande	Germany (Hamburg)	29.50	20.75	24.50	25.75
Santarém	Germany (Hamburg)	25.00	16.00	20.75	22.00
São Luís	Germany (Hamburg)	22.25	17.50	25.00	26.30
Barcarena	Germany (Hamburg)	24.00	15.00	20.50	21.75
Santos	China (Shanghai)	35.50	27.08	31.33	31.67
Paranagua	China (Shanghai)	37.25	28.83	33.08	33.42
Rio Grande	China (Shanghai)	37.00	28.58	32.83	33.17
Santarém	China (Shanghai)	36.50	28.08	34.83	35.21
São Luís	China (Shanghai)	36.75	28.33	35.33	35.67
Barcarena	China (Shanghai)	38.50	28.33	36.33	36.67

-continued on page 18-



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Port	Destination	1st qtr. 2021	2nd qtr. 2021	3rd qtr. 2021	4th qtr. 2021
Santos	Germany (Hamburg)	31.25	42.70	54.00	52.50
Paranaguá	Germany (Hamburg)	31.00	41.90	53.00	51.50
Rio Grande	Germany (Hamburg)	32.00	43.80	55.50	53.80
Santarém	Germany (Hamburg)	28.65	40.00	50.60	49.10
São Luís	Germany (Hamburg)	33.25	45.90	58.00	56.30
Barcarena	Germany (Hamburg)	28.10	38.90	49.20	47.80
Santos	China (Shanghai)	37.00	50.60	64.00	62.00
Paranagua	China (Shanghai)	38.75	52.40	66.00	64.00
Rio Grande	China (Shanghai)	37.25	51.00	64.75	62.75
Santarém	China (Shanghai)	40.54	55.60	67.50	65.60
São Luís	China (Shanghai)	41.00	56.60	68.00	66.00
Barcarena	China (Shanghai)	42.00	58.20	70.00	68.00
Port	Destination	1st qtr. 2022	2nd qtr. 2022	3rd qtr. 2022	4th qtr. 2022
Santos	Germany (Hamburg)	52.70	55.85	42.60	42.20
Paranaguá	Germany (Hamburg)	51.50	54.60	41.60	41.20
Rio Grande	Germany (Hamburg)	54.00	57.20	43.60	43.10
Santarém	Germany (Hamburg)	49.10	52.00	46.00	39.60
São Luís	Germany (Hamburg)	56.50	60.00	40.00	39.80
Barcarena	Germany (Hamburg)	48.00	50.80	39.70	39.20
Santos	China (Shanghai)	62.00	65.75	48.70	47.70
Paranagua	China (Shanghai)	64.00	67.75	49.00	48.60
Rio Grande	China (Shanghai)	62.75	66.50	49.00	48.40
Santarém	China (Shanghai)	66.00	69.90	56.00	54.80
São Luís	China (Shanghai)	66.20	70.00	56.00	55.00
Barcarena	China (Shanghai)	68.00	72.00	55.40	55.50
Port	Destination	1st qtr. 2023	2nd qtr. 2023	3rd qtr. 2023	4th qtr. 2023
Santos	Germany (Hamburg)	31.65	33.20		
Paranaguá	Germany (Hamburg)	31.00	32.50		
Rio Grande	Germany (Hamburg)	32.50	34.20		
Santarém	Germany (Hamburg)	30.00	31.50		
São Luís	Germany (Hamburg)	34.50	36.30		
Barcarena	Germany (Hamburg)	29.40	31.00		
Santos	China (Shanghai)	33.50	35.20		
Paranagua	China (Shanghai)	35.00	36.70		
Rio Grande	China (Shanghai)	34.00	35.70		
Santarém	China (Shanghai)	37.50	39.40		
São Luís	China (Shanghai)	38.00	40.00		
Barcarena	China (Shanghai)	38.25	40.20		

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

Note: qtr. = quarter.

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



Brazil Soybean Transportation

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Data Sets (XLS files):

- [Figure 3. Truck rates for selected southern Brazilian soybean export transportation routes, 2020-23](#)
- [Figure 4. Truck rates for selected north, south, and northeastern Brazilian soybean export transportation routes, 2020-23](#)
- [Figure 5. Brazilian soybean export truck transportation weighted average prices, 2020-23](#)
- [Table 1a. Quarterly costs of transporting Brazilian soybeans from the southern ports to Shanghai, China](#)
- [Table 1b. Quarterly costs of transporting Brazilian soybeans from the northern and northeastern ports to Shanghai, China](#)
- [Table 2a. Quarterly costs of transporting Brazilian soybeans from the southern ports to Hamburg, Germany](#)
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- [Table 3. Quarterly costs of transporting Brazilian soybeans from the southern ports to Shanghai, China, 2023](#)
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- [Table 9. Quarterly ocean freight rates for shipping soybeans from selected Brazilian ports to Germany and China \(US\\$/metric ton\)](#)

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