

Brazil Soybean Transportation

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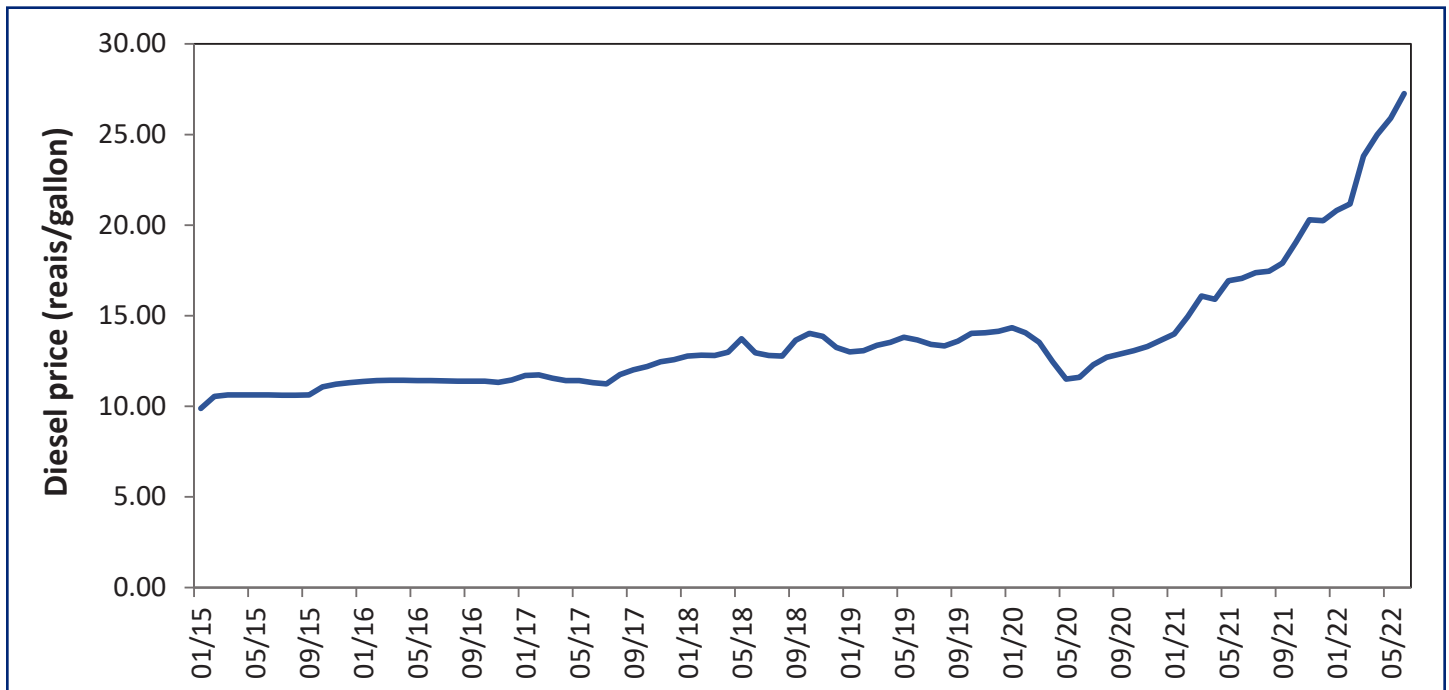


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Surge in Diesel Prices Raises Truck Rates

Despite lower exports, Brazil’s soybean transportation costs increased from second quarter 2021 to second quarter 2022 (year to year). The increase was mostly due to a significant rise in truck rates (tables 1a, 1b, 2a, 2b, and 8). Year to year, the cost of shipping a metric ton (mt) of soybeans 100 miles by truck rose nearly 50 percent—from \$5.94 per mt to \$8.90 per mt (table 8 and fig. 5). Over the same period, Brazil’s soybean exports declined from 42.1 million metric tons (mmt) to 32.1 mmt. Typically, soybean truck rates peak in April and then fall from May to June, as the flow of exports slows down. However, this year, second-quarter truck rates have remained high because of the continual rise in diesel prices (fig. 1a). Brazil’s domestic average diesel prices rose nearly 57 percent from second quarter 2021 to second quarter 2022. In second quarter 2022, diesel prices represented 34 percent of the Brazilian soybean export truck index (fig. 1b).

Figure 1a. Brazil monthly diesel prices, 2015-22, reais per gallon



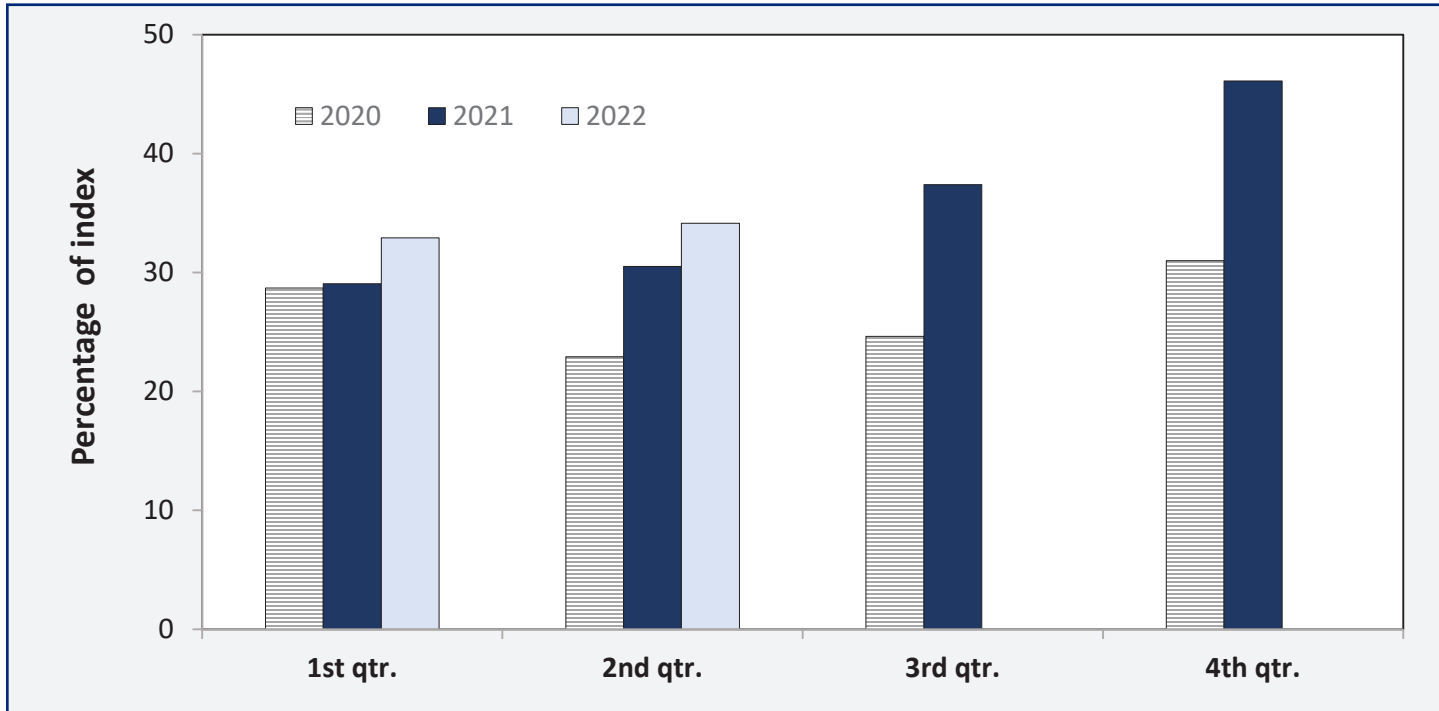
Source: Brazilian National Agency of Petroleum, Natural Gas and Biofuels.

For the route from Sorriso, Mato Grosso (the largest Brazilian soybean-producing State) to Santos, second-quarter 2022 soybean transportation costs to Shanghai, China, represented 20-23 percent of the total landed costs. For comparison, soybean transportation costs were 34 percent of total landed costs in 2008 and 45 percent in 2006. Year to year, soybean transportation costs to Shanghai, China—as a share of total landed costs—rose 18-20 percent for the route from northern Mato Grosso to Santos and rose 13-17 percent from Santarém and Barcarena.



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Figure 1b. Diesel prices as a percentage of the quarterly Brazilian soybean export truck index, 2020-22



Note: qtr. = quarter.

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

Year to year, average Brazilian soybean export prices rose 39 percent, from \$440.06 per mt to \$612.21 per mt. Despite this quarter’s appreciation of the real, Brazilian farmers are still benefiting from the real’s relative weakness against the U.S. dollar. They benefit because soybeans are priced in U.S. dollars but paid in reais. Year to year, the Brazilian real appreciated against the U.S. dollar, from R\$5.29 per U.S. dollar to R\$4.93 per U.S. dollar ([Brazil Central Bank](#)). Measured in U.S. dollars, soybean average farm gate prices increased nearly 18 percent, from \$501.85/mt to \$591.59/mt year to year. On average, in reais, second-quarter 2022 farm gate prices increased about 10 percent, from R\$2,656.20/mt to R\$2,909.69/mt ([CONAB](#)).

In second quarter 2022, Brazil exported 20.5 mmt of soybeans to China, 29 percent less than the second quarter 2021 total of 28.8 mmt. The next highest shares of Brazil’s soybean exports (in declining order) went to Spain, the Netherlands, 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 73 percent of Brazil’s soybean exports to China. Also, in second quarter of 2022, the northeastern ports of São Luís, Vitória, Salvador, and Barcarena accounted for 26 percent of soybean exports to China. The Amazon River port of Manaus exported a small amount to China. For more information, contact Delmy L. Salin at delmy.salin@usda.gov.



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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
	2021 2nd qtr.	2022 2nd qtr.	2021-22	2021 2nd qtr.	2022 2nd qtr.	2021-22
Truck	66.24	102.44	54.6	21.09	32.57	54.4
Ocean	50.60	65.75	29.9	51.00	66.50	30.4
Total transportation	116.84	168.19	43.9	72.09	99.07	37.4
Farm gate price ³	495.57	566.29	14.3	505.86	617.87	22.1
Landed cost	612.41	734.48	19.9	577.95	716.94	24.0
Transport % of landed cost	19.1	22.9	20.0	12.5	13.8	10.8
	North MT ¹ - Santos ² by rail			North MT ¹ - Paranaguá ²		
	—US\$/mt—		% Change	—US\$/mt—		% Change
	2021 2nd qtr.	2022 2nd qtr.	2021-22	2021 2nd qtr.	2022 2nd qtr.	2021-22
Truck	23.05	34.83	51.1	65.99	101.50	53.8
Rail ⁴	30.44	45.54	49.6	-	-	-
Ocean	50.60	65.75	29.9	52.40	67.75	29.3
Total transportation	104.10	146.12	40.4	118.39	169.25	43.0
Farm gate price ³	495.57	566.29	14.3	495.57	566.29	14.3
Landed cost	599.67	712.41	18.8	613.96	735.55	19.8
Transport % of landed cost	17.4	20.5	18.2	19.3	23.0	19.3

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.

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
	2021 2nd qtr.	2022 2nd qtr.	2021-22	2021 2nd qtr.	2022 2nd qtr.	2021-22
Truck	42.08	64.82	54.0	28.77	46.68	62.3
Ocean	55.60	69.90	25.7	56.60	70.00	23.7
Total transportation	97.68	134.72	37.9	85.37	116.68	36.7
Farm gate price ³	495.57	566.29	14.3	503.18	591.24	17.5
Landed cost	593.25	701.01	18.2	588.55	707.92	20.3
Transport % of landed cost	16.5	19.2	16.7	14.5	16.5	13.6
	Southwest PI ¹ - São Luís ²			North MT ¹ - Barcarena ²		
	—US\$/mt—		% Change	—US\$/mt—		% Change
	2021 2nd qtr.	2022 2nd qtr.	2021-22	2021 2nd qtr.	2022 2nd qtr.	2021-22
Truck	34.77	51.28	47.5	38.44	52.63	36.9
Barge ⁴	-	-	-	15.79	24.51	55.2
Ocean	56.60	70.00	23.7	58.20	72.00	23.7
Total transportation	91.37	121.28	32.7	112.44	149.14	32.6
Farm gate price ³	489.79	585.80	19.6	495.57	566.29	14.3
Landed cost	581.17	707.08	21.7	608.01	715.43	17.7
Transport % of landed cost	15.7	17.2	9.1	18.5	20.8	12.7

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.

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
	2021 2nd qtr.	2022 2nd qtr.	2021-22	2021 2nd qtr.	2022 2nd qtr.	2021-22
Truck	66.24	102.44	54.6	21.09	32.57	54.4
Ocean	42.70	55.85	30.8	43.80	57.20	30.6
Total transportation	108.94	158.29	45.3	64.89	89.77	38.3
Farm gate price ³	495.57	566.29	14.3	505.86	617.87	22.1
Landed cost	604.51	724.58	19.9	570.75	707.64	24.0
Transport % of landed cost	18.0	21.8	21.2	11.4	12.7	11.6
	North MT ¹ - Santos ² by rail			North MT ¹ - Paranaguá ²		
	—US\$/mt—		% Change	—US\$/mt—		% Change
	2021 2nd qtr.	2022 2nd qtr.	2021-22	2021 2nd qtr.	2022 2nd qtr.	2021-22
Truck	23.05	34.83	51.1	65.99	101.50	53.8
Rail ⁴	30.44	45.54	49.6	-	-	-
Ocean	42.70	55.85	30.8	41.90	54.60	30.3
Total transportation	96.20	136.22	41.6	107.89	156.10	44.7
Farm gate price ³	495.57	566.29	14.3	495.57	566.29	14.3
Landed cost	591.77	702.51	18.7	603.46	722.40	19.7
Transport % of landed cost	16.3	19.4	19.3	17.9	21.6	20.9

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.

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
	2021 2nd qtr.	2022 2nd qtr.	2021-22	2021 2nd qtr.	2022 2nd qtr.	2021-22
Truck	42.08	64.82	54.0	28.77	46.68	62.3
Ocean	40.00	52.00	30.0	45.90	60.00	30.7
Total transportation	82.08	116.82	42.3	74.67	106.68	42.9
Farm gate price ³	495.57	566.29	14.3	503.18	591.24	17.5
Landed cost	577.65	683.11	18.3	577.85	697.92	20.8
Transport % of landed cost	14.2	17.1	20.4	12.9	15.3	18.3
	Southwest PI ¹ - São Luís ²			North MT ¹ - Barcarena ²		
	—US\$/mt—		% Change	—US\$/mt—		% Change
	2021 2nd qtr.	2022 2nd qtr.	2021-22	2021 2nd qtr.	2022 2nd qtr.	2021-22
Truck	34.77	51.28	47.5	38.44	52.63	36.9
Barge ⁴	-	-	-	15.79	24.51	55.2
Ocean	45.90	60.00	30.7	38.90	50.80	30.6
Total transportation	80.67	111.28	37.9	93.14	127.94	37.4
Farm gate price ³	489.79	585.80	19.6	495.57	566.29	14.3
Landed cost	570.47	697.08	22.2	588.71	694.23	17.9
Transport % of landed cost	14.1	16.0	12.9	15.8	18.4	16.5

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.

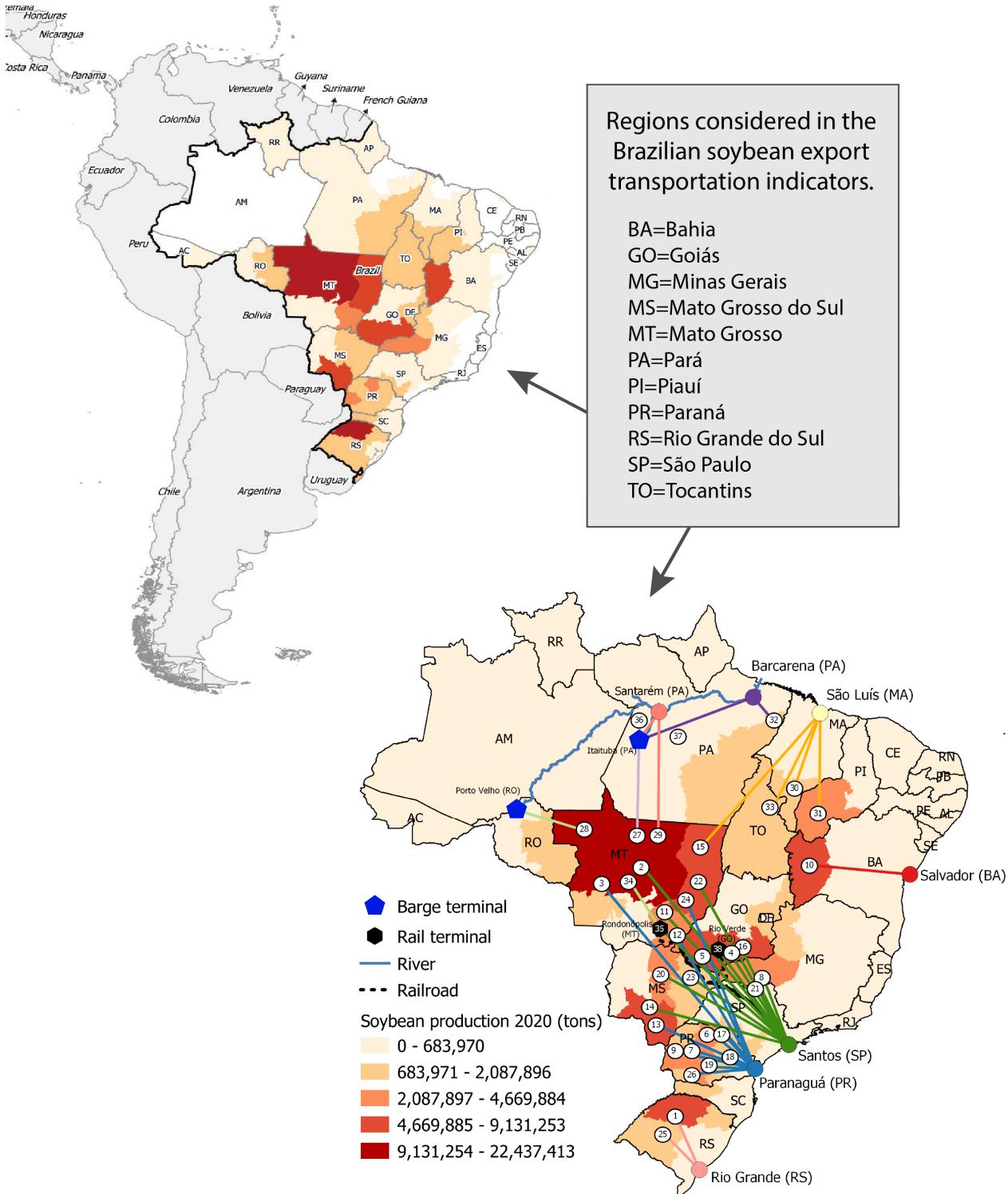
Source: University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz,” Brazil (ESALQ/ USP) and USDA, Agricultural Marketing Service.



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Indicators

Figure 2. Routes¹ and regions considered in the Brazilian soybean export transportation indicator²



¹Table defining routes by number is shown on page 12.

²Regions comprised about 79 percent of Brazilian soybean production, 2020 (Brazilian Institute of Geography and Statistics—Produção Agrícola Municipal).



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Table 3. Quarterly costs of transporting Brazilian soybeans from the southern ports to Shanghai, China, 2022

	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	83.64	102.44			93.04	82.88	101.50			92.19
Ocean	62.00	65.75			63.88	64.00	67.75			65.88
Total transportation	145.64	168.19			156.91	146.88	169.25			158.07
Farm gate price ³	550.71	566.29			558.50	550.71	566.29			558.50
Landed cost	696.34	734.48			715.41	697.58	735.55			716.56
Transport % of landed cost	20.9	22.9			21.9	21.1	23.0			22.0
	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	27.91	34.83			31.37	27.55	32.57			30.06
Rail ⁴	37.69	45.54			41.62	-	-			-
Ocean	62.00	65.75			63.88	62.75	66.50			64.63
Total transportation	127.60	146.12			136.86	90.30	99.07			94.68
Farm gate price ³	550.71	566.29			558.50	604.37	617.87			611.12
Landed cost	678.31	712.41			695.36	694.66	716.94			705.80
Transport % of landed cost	18.8	20.5			19.7	13.0	13.8			13.4

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

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, 2022

	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	83.64	102.44			93.04	82.88	101.50			92.19
Ocean	52.70	55.85			54.28	51.50	54.60			53.05
Total transportation	136.34	158.29			147.31	134.38	156.10			145.24
Farm gate price ³	550.71	566.29			558.50	550.71	566.29			558.50
Landed cost	687.04	724.58			705.81	685.08	722.40			703.74
Transport % of landed cost	19.8	21.8			20.8	19.6	21.6			20.6
	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	27.91	34.83			31.37	27.55	32.57			30.06
Rail ⁴	37.69	45.54			41.62	-	-			-
Ocean	52.70	55.85			54.28	54.00	57.20			55.60
Total transportation	118.30	136.22			127.26	81.55	89.77			85.66
Farm gate price ³	550.71	566.29			558.50	604.37	617.87			611.12
Landed cost	669.01	702.51			685.76	685.91	707.64			696.78
Transport % of landed cost	17.7	19.4			18.5	11.9	12.7			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, 2022

	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	53.57	64.82			59.19	38.28	46.68			42.48
Ocean	66.00	69.90			67.95	66.20	70.00			68.10
Total transportation	119.57	134.72			127.14	104.48	116.68			110.58
Farm gate price ³	550.71	566.29			558.50	558.85	591.24			575.04
Landed cost	670.27	701.01			685.64	663.33	707.92			685.63
Transport % of landed cost	17.8	19.2			18.5	15.8	16.5			16.1
	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	38.32	51.28			44.80	46.94	52.63			49.78
Barge ⁴	-	-			-	20.01	24.51			22.26
Ocean	66.20	70.00			68.10	68.00	72.00			70.00
Total transportation	104.52	121.28			112.90	134.95	149.14			142.04
Farm gate price ³	543.56	585.80			564.68	550.71	566.29			558.50
Landed cost	648.08	707.08			677.58	685.66	715.43			700.54
Transport % of landed cost	16.1	17.2			16.6	19.7	20.8			20.3

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. 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 6. Quarterly costs of transporting Brazilian soybeans from the northern and northeastern ports to Hamburg, Germany, 2022

	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	53.57	64.82			59.19	38.28	46.68			42.48
Ocean	49.10	52.00			50.55	56.50	60.00			58.25
Total transportation	102.67	116.82			109.74	94.78	106.68			100.73
Farm gate price ³	550.71	566.29			558.50	558.85	591.24			575.04
Landed cost	653.37	683.11			668.24	653.63	697.92			675.78
Transport % of landed cost	15.7	17.1			16.4	14.5	15.3			14.9
	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	38.32	51.28			44.80	46.94	52.63			49.78
Barge ⁴	-	-			-	20.01	24.51			22.26
Ocean	56.50	60.00			58.25	48.00	50.80			49.40
Total transportation	94.82	111.28			103.05	114.95	127.94			121.44
Farm gate price ³	543.56	585.80			564.68	550.71	566.29			558.50
Landed cost	638.38	697.08			667.73	665.66	694.23			679.94
Transport % of landed cost	14.9	16.0			15.4	17.3	18.4			17.8

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.

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, 2022

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	6.7	9.56	11.31			10.44
2	North MT (Sorriso)	Santos	1,190	3.3	7.03	8.61			7.82
3	North MT (Sorriso)	Paranaguá	1,262	3.1	6.57	8.04			7.31
4	South GO (Rio Verde)	Santos	587	5.1	6.65	8.15			7.40
5	South GO (Rio Verde)	Paranaguá	726	4.1	6.79	8.18			7.48
6	North Central PR (Londrina)	Paranaguá	268	3.4	9.14	10.88			10.01
7	Western Central PR (Mamborê)	Paranaguá	311	2.5	8.46	10.20			9.33
8	Triangle MG (Uberaba)	Santos	339	3.3	9.03	10.94			9.99
9	West PR (Assis Chateaubriand)	Paranaguá	377	4.1	7.91	9.46			8.69
10	West Extreme BA (São Desidério)	Salvador	535	6.1	7.25	8.61			7.93
11	Southeast MT (Primavera do Leste)	Santos	901	2.5	6.30	7.87			7.09
12	Southeast MT (Primavera do Leste)	Paranaguá	975	2.3	6.08	7.45			6.77
13	Southwest MS (Maracaju)	Paranaguá	612	3.6	6.99	8.00			7.49
14	Southwest MS (Maracaju)	Santos	652	3.4	6.97	8.41			7.69
15	Northeast MT (Canarana)	São Luís	1,177	2.0	7.23	7.47			7.35
16	East GO (Cristalina)	Santos	585	2.1	7.71	9.39			8.55
17	North PR (Cornélio Procópio)	Paranaguá	306	1.8	7.46	8.86			8.16
18	Eastern Central PR (Castro)	Paranaguá	130	2.1	11.07	13.55			12.31
19	South Central PR (Guarapuava)	Paranaguá	204	2.5	10.42	12.38			11.40
20	North Central MS (São Gabriel do Oeste)	Santos	720	2.6	6.11	7.37			6.74
21	Ribeirão Preto SP (Guairá)	Santos	314	0.5	7.41	8.71			8.06
22	Northeast MT (Canarana)	Santos	950	2.5	6.47	7.85			7.16
23	East MS (Chapadão do Sul)	Santos	607	1.3	6.15	7.35			6.75

¹Although each origin region comprises several cities, the main city is considered as a reference to establish the freight price; na = not available.

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

³Share is measured as a percentage of total production.

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	2.2	6.42	7.66			7.04
25	Western Central RS (Tupanciretã)	Rio Grande	273	1.4	8.51	9.92			9.21
26	Southwest PR(Chopinzinho)	Paranaguá	291	1.8	7.70	10.19			8.94
27	North MT (Sorriso)	Itaituba	672	5.8	6.99	7.84			7.41
28	North MT (Sorriso)	Porto Velho	632	6.1	6.43	7.62			7.03
29	North MT (Sorriso)	Santarém	876	4.4	6.11	7.40			6.76
30	South MA (Balsas)	São Luís	482	2.1	7.95	9.69			8.82
31	Southwest PI (Bom Jesus)	São Luís	606	2.4	6.33	8.46			7.40
32	Southeast PA (Paragominas)	Barcarena	249	1.6	8.42	9.77			9.09
33	East TO (Campos Lindos)	São Luís	842	1.4	6.05	7.32			6.69
	Weighted average		587	100.0	7.43	8.90			8.17
34	North MT (Sorriso)	Rondonópolis (Rail terminal)	382		7.31	9.12			8.21
35	Rondonópolis MT (Rail terminal) ⁶	Santos	1,019		3.70	4.47			4.08
36	Itaituba PA (Barge terminal) ⁷	Santarém	224		4.95	6.63			5.79
37	Itaituba PA (Barge terminal) ⁷	Barcarena	738		2.71	3.32			3.02
38	South GO (Rio Verde)	São Luís	546		4.97	6.59			5.78

¹Although each origin region comprises several cities, the main city is considered as a reference to establish the freight price; na = not available.

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

³Share is measured as a percentage of total production.

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-15	8.01	0.7	138.15	Jan-19	7.72	7.5	133.13
Feb-15	8.02	0.1	138.29	Feb-19	8.19	6.0	141.15
Mar-15	8.32	3.7	143.44	Mar-19	7.34	-10.3	126.61
Apr-15	9.00	8.2	155.13	Apr-19	7.16	-2.6	123.35
May-15	8.39	-6.8	144.58	May-19	6.73	-5.9	116.02
Jun-15	8.01	-4.5	138.12	Jun-19	6.94	3.1	119.56
Jul-15	7.56	-5.7	130.25	Jul-19	8.33	20.1	143.60
Aug-15	7.38	-2.4	127.15	Aug-19	7.85	-5.8	135.23
Sep-15	6.60	-10.5	113.78	Sep-19	7.09	-9.7	122.17
Oct-15	6.70	1.5	115.43	Oct-19	6.57	-7.4	113.19
Nov-15	7.08	5.8	122.08	Nov-19	6.41	-2.3	110.54
Dec-15	6.76	-4.5	116.56	Dec-19	5.93	-7.5	102.21
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				
Aug-18	8.24	-8.1	142.00				
Sep-18	7.24	-12.1	124.78				
Oct-18	7.69	6.2	132.55				
Nov-18	7.51	-2.3	129.44				
Dec-18	7.19	-4.3	123.87				

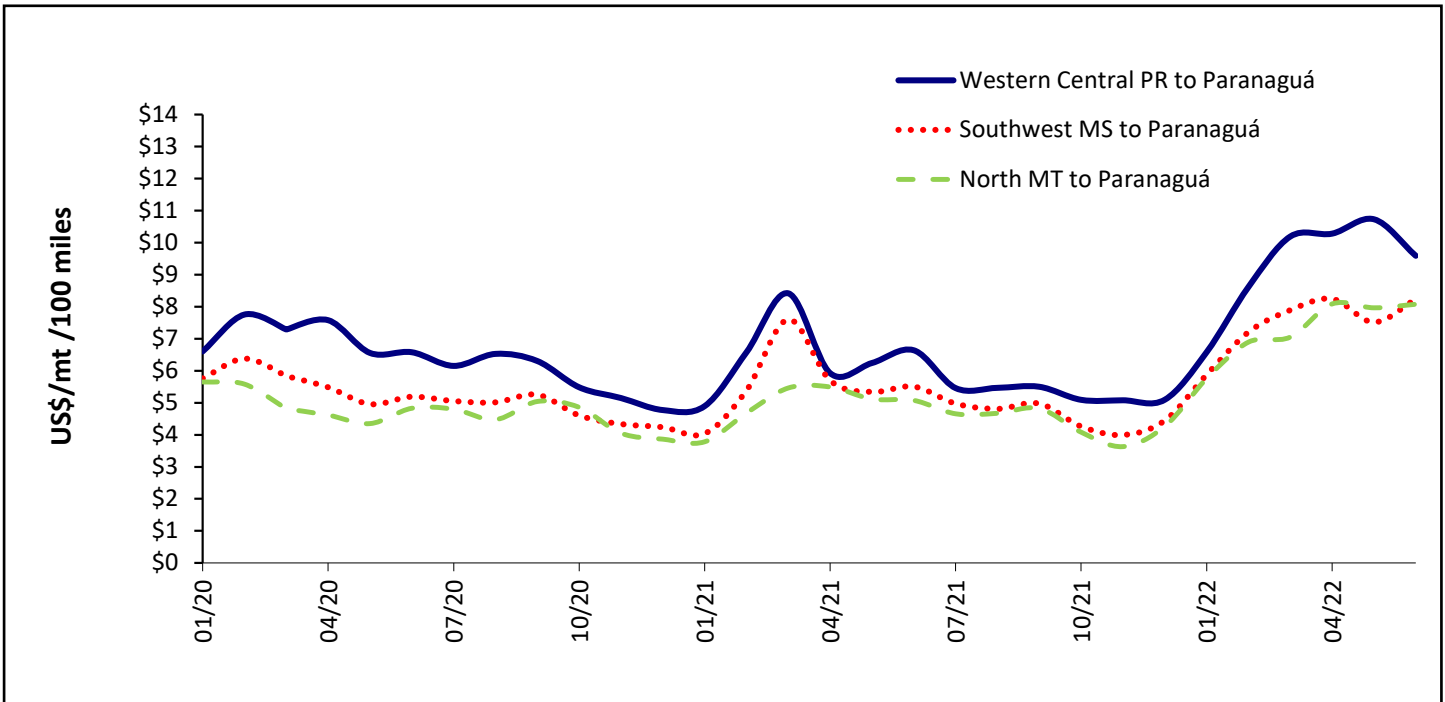
*Weighted average is calculated from production-based shares to weigh high-volume routes more heavily than low-volume routes. The share associated with each route is used to define the weight of a given route's freight price in the composition of the monthly weighted export truck freight index.

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



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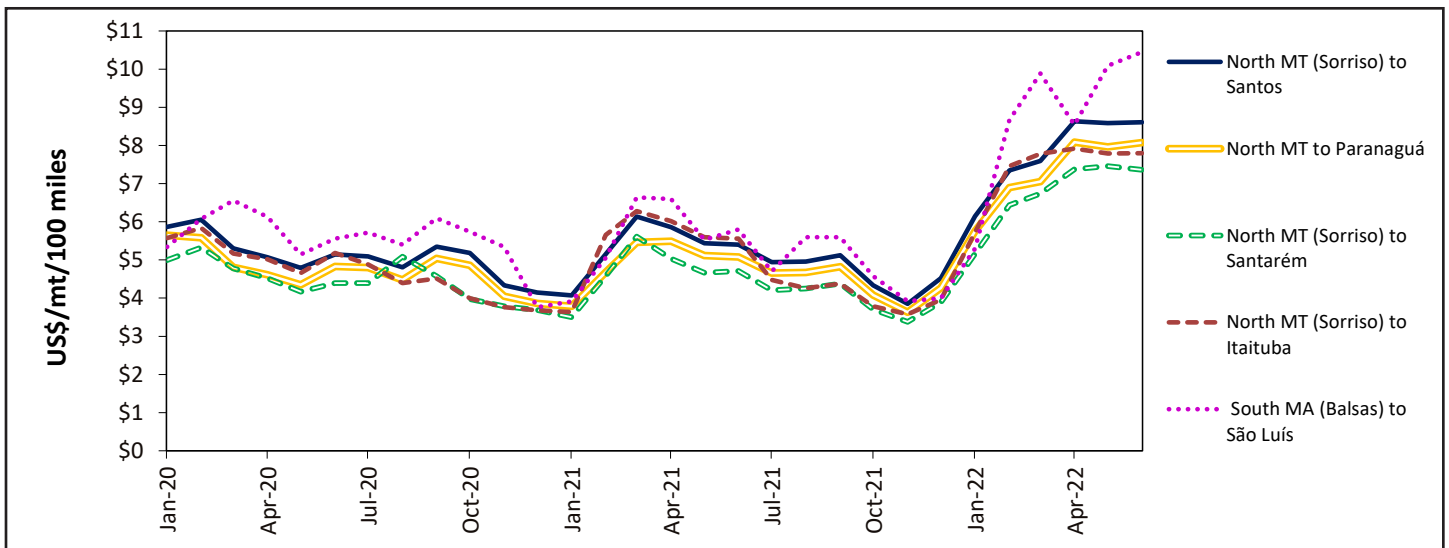
Figure 3. Truck rates for selected southern Brazilian soybean export transportation routes, 2020-22



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, 2020-22



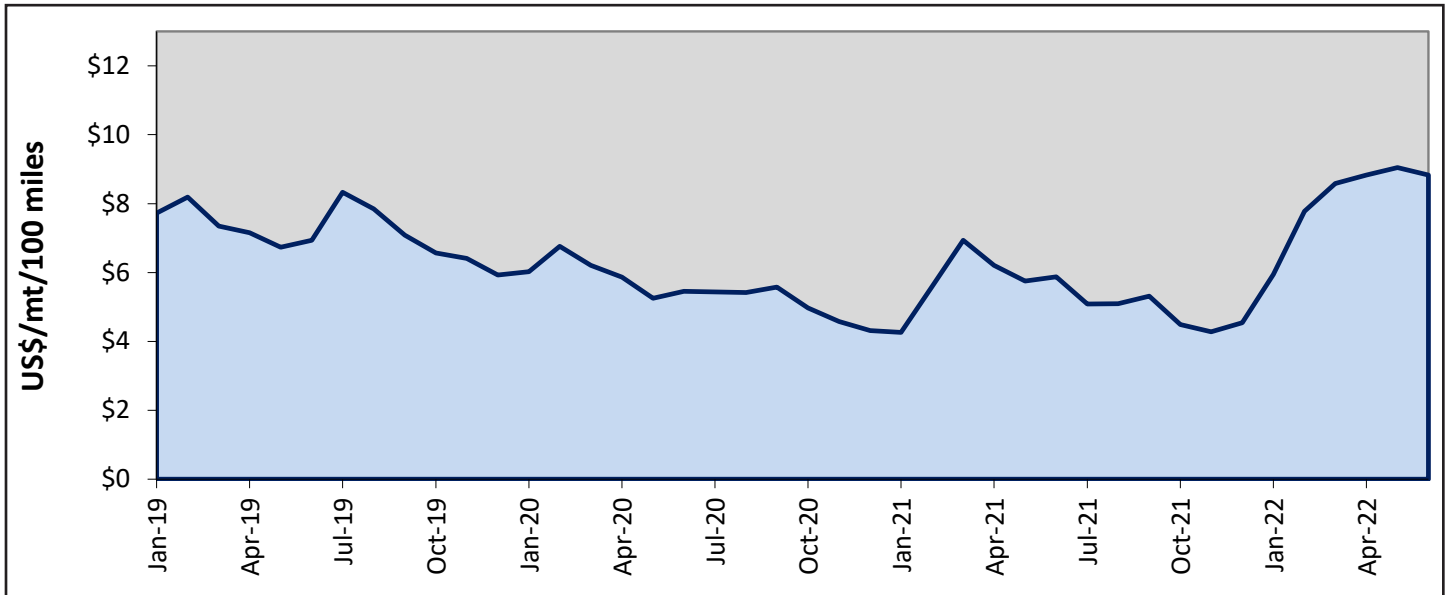
Note: mt = metric ton. MT= Mato Grosso and MA = Maranhão.

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, 2019-22



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. 2017	2nd qtr. 2017	3rd qtr. 2017	4th qtr. 2017
Santos	Germany (Hamburg)	21.00	24.00	26.00	27.00
Paranaguá	Germany (Hamburg)	22.00	25.00	27.00	28.00
Rio Grande	Germany (Hamburg)	22.00	25.00	27.00	28.00
Santarém	Germany (Hamburg)	21.00	23.60	25.00	26.00
São Luís	Germany (Hamburg)	17.60	20.00	21.20	22.00
Barcarena	Germany (Hamburg)	18.00	20.60	21.80	22.70
Santos	China (Shanghai)	18.50	29.00	30.00	30.00
Paranagua	China (Shanghai)	20.50	30.50	31.00	31.50
Rio Grande	China (Shanghai)	18.00	29.50	31.00	30.70
Santarém	China (Shanghai)	24.00	33.50	31.00	34.50
São Luís	China (Shanghai)	23.50	30.25	31.00	33.50
Barcarena	China (Shanghai)	24.00	33.50	31.00	34.50
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

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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
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		
Paranaguá	Germany (Hamburg)	51.50	54.60		
Rio Grande	Germany (Hamburg)	54.00	57.20		
Santarém	Germany (Hamburg)	49.10	52.00		
São Luís	Germany (Hamburg)	56.50	60.00		
Barcarena	Germany (Hamburg)	48.00	50.80		
Santos	China (Shanghai)	62.00	65.75		
Paranagua	China (Shanghai)	64.00	67.75		
Rio Grande	China (Shanghai)	62.75	66.50		
Santarém	China (Shanghai)	66.00	69.90		
São Luís	China (Shanghai)	66.20	70.00		
Barcarena	China (Shanghai)	68.00	72.00		

*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, 2020-22](#)
- [Figure 4. Truck rates for selected north, south, and northeastern Brazilian soybean export transportation routes, 2020-22](#)
- [Figure 5. Brazilian soybean export truck transportation weighted average prices, 2019-22](#)
- [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](#)
- [Table 2b. Quarterly costs of transporting Brazilian soybeans from the northern and northeastern ports to Hamburg, Germany](#)
- [Table 3. Quarterly costs of transporting Brazilian soybeans from the southern ports to Shanghai, China, 2022](#)
- [Table 4. Quarterly costs of transporting Brazilian soybeans from the southern ports to Hamburg, Germany, 2022](#)
- [Table 5. Quarterly costs of transporting Brazilian soybeans from the northern and northeastern ports to Shanghai, China, 2022](#)
- [Table 6. Quarterly costs of transporting Brazilian soybeans from the northern and northeastern ports to Hamburg, Germany, 2022](#)
- [Table 7. Quarterly truck rates for selected Brazilian soybean export transportation routes, 2022](#)
- [Table 8. Monthly Brazilian soybean export truck transportation cost index](#)
- [Table 9. Quarterly ocean freight rates for shipping soybeans from selected Brazilian ports to Germany and China \(US\\$/metric ton\)](#)

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