

Brazil Soybean Transportation

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2020 Overview
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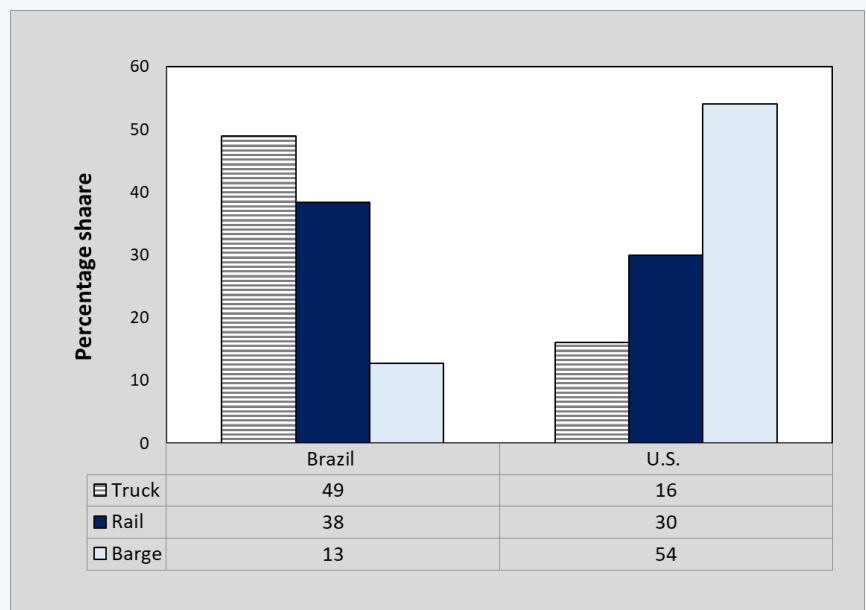
Overview of Brazilian Soybean Transportation in 2020

In 2020, Brazil exported nearly 83 million metric tons (mmt) of soybeans, 12 percent more than 2019's total of 74.1 mmt—an increase that also raised transportation demand ([Comex Stat, Ministério da Economia](#)).¹ The cost of shipping a metric ton (mt) of soybeans 100 miles by truck decreased from \$7.19 per mt in 2019 to \$5.49 per mt in 2020 (table 8). This 24-percent drop was mostly due to the Brazilian real's (R\$) steep depreciation against the U.S. dollar—31 percent year to year, from R\$3.94 per U.S. dollar to R\$5.15 per U.S. dollar ([Brazil Central Bank](#)). Truck rates also declined because of the completion of the paving of BR 163 highway, connecting Sorriso, Mato Grosso, to the Port of Miritituba, Pará, on the Tapajos River. With this improved route, the time to complete the trip shrank, along with the costs of fuel and truck maintenance. According to the [Companhia Nacional de Abastecimento \(CONAB\)](#), exporting grain and oilseeds via the BR 163 highway to the “Northern Arc” ports is no longer considered just an alternative to Brazil's southern ports. Rather, the BR 163 route has become key to accommodating central Brazil's ever-expanding grain and oilseed production. Still, Brazil continues to depend heavily on trucks to transport grain to major destinations. This dependence is ensured for some time, because of the long distances between major production regions and terminals for barge and rail, as well as limited rail and inland waterway infrastructure capacity ([ESALQ/USP](#)).²

U.S.-Brazil soybeans modal share, 2019, percent*

Mode	Brazil	United States
Total		
Truck	67	47
Rail	24	23
Barge	9	29
Exports		
Truck	49	16
Rail	38	30
Barge	13	54
Domestic		
Truck	97	81
Rail	1	16
Barge	2	3

Figure 1. U.S.-Brazil soybeans modal share for exports, 2019, percent*



Note: Brazil data compiled from the National Land Transport Agency (ANTT); National Land Transport Agency (ANTAQ), Comex-Vis, Ministry of Economy, and National Supply Company (CONAB). U.S. 2016 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.

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

2 In Brazil, short-haul movements' average distance is about 440 miles (707 kilometers (km)) from the farm to rail and barge terminals ([ESALQ/USP](#)). In the United States, the average distance from farm to inland elevators grain elevators terminals is about 25-100 miles ([GATOR](#)).



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Figure 1 shows that of Brazil's soybeans shipped to major export facilities in 2019, the largest share (49 percent) went by truck, followed by rail (38 percent) and barge (13 percent). Broken down by shares shipped from the farm to major destinations in 2019, most of Brazil's soybeans (67 percent of total movements) again went by truck, followed by rail (24 percent) and barge (9 percent). In contrast, in the United States, barges shipped most soybeans to major export facilities, representing 54 percent of total soybeans exported in 2016, followed by rail (30 percent), and truck (16 percent) ([USDA/AMS](#)).

In the State of Mato Grosso, 2020 truck rates in reais increased 1 percent from Sorriso to Rondonópolis (rail terminal), while rates to the northern river port of Miritituba (barge terminal) decreased nearly 12 percent. Rail rates in reais from Rondonópolis to the southern port of Santos increased 4 percent. On average, ocean rates were relatively stable, declining 1-2 percent. However, from the southern ports of Santos and Paranaguá, 2020 ocean rates declined nearly 7 and 5 percent, respectively (tables 1a, 1b, 2a, 2b, and 9). The decrease in ocean rates resulted partly from the widening global impact of the COVID-19 pandemic and related restrictions in South Asia that discouraged shipyards from scrapping. The reduced demolition of older ships increased the vessel supply and further softened rates (*Grain Transportation Report* ([GTR, January 21, 2021](#))).

From 2019-20, lower transportation costs and higher farm prices led to a lower cost of transporting Brazilian soybeans to Shanghai, China. As a share of total landed costs, the cost decreased 25 percent for the route from northern Mato Grosso to the ports of Santos and Santarém (table 1a and 1b) and by 26 percent from Barcarena (table 1b). In Mato Grosso, Brazil's largest soybean-producing State, 2020 transportation costs from Sorriso represented 20-21 percent of the total landed costs of shipping soybeans to Shanghai through the Port of Santos (table 1a), compared with 34 percent in 2008 and 45 percent in 2006 ([Soybean Transportation Guide: Brazil 2019](#)).

Year to year, average Brazilian soybean export prices declined 2 percent, from \$352 per mt to \$344 per mt. Brazilian farmers have benefitted from the real's depreciation against the U.S. dollar, because exported soybeans are priced in U.S. dollars but producers are paid in reais. Measured in U.S. dollars, average soybean farm gate prices in 2020 increased 16 percent, from \$297.97/mt to \$346.55/mt year to year. The depreciation of the real also led to higher domestic prices. On average, in reais, 2020 farm gate prices increased 53 percent, from R\$1,175.84/mt to R\$1,796.88 ([CONAB](#)). Typically, Brazilian soybean exports peak in May and decline through the end of the year.

In 2020, Brazil exported 60.6 mmt of soybeans to China, valued at \$20.9 billion, nearly 5 percent more than 2019's total (58 mmt), accounting for 73 percent of Brazil's total exports (83 mmt). The next highest shares of Brazil's soybean exports (in declining order) went to the Netherlands, Spain, Thailand, and Turkey.

Santos was the largest Brazilian soybean export port, followed by Paranaguá, Rio Grande, São Luís, Barcarena, and São Francisco do Sul. These six ports accounted for nearly 81 percent of Brazil's total exports.

The southern ports of Santos, Rio Grande, Paranaguá, and São Francisco do Sul still dominate the soybean trade to China, accounting for 74 percent of Brazil's soybean exports to China. The northeastern ports of São Luís, Vitória, Salvador, and Barcarena accounted for nearly 25 percent of soybean exports to China. The Amazon River ports of Manaus and Santarém accounted for 0.2 percent of soybean exports to China in 2020.



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Historically, the U.S. Gulf ports have lost less time from loading delays and vessel backups than Brazilian ports. However, during the 2019 peak harvest season, loading delays and vessel backups were similar in Brazilian ports and the U.S. Gulf, averaging 3-10 days—narrowing the edge the U.S. Gulf had over Brazilian ports in total shipping time. Seasonally, Brazil’s northern ports had lower loading delays and vessel backups than the southern ports of Santos and Paranaguá. Barcarena had vessel loading delays of 3-4 days, compared with the ports of Santos and Paranaguá, which nearly offset the roughly 3-days-longer voyage distance to Shanghai. In 2020, the ocean freight spread was about \$3-\$4/mt for routes from the northeastern ports of Barcarena (\$34.96/mt) and São Luís (\$34.02/mt) to Shanghai and the route from the Port of Santos (\$31.40) to Shanghai. Ocean freight spread is the cost difference between two vessel routes to the same destination. For more information, contact Delmy L. Salin at delmy.salin@usda.gov.

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

	2019	2020	% Change 2019-20	2019	2020	% Change 2019-20
	North MT¹ - Santos² by truck —US\$/mt—			Northwest RS¹ - Rio Grande² —US\$/mt—		
Truck	79.28	60.65	-23.5	25.06	19.24	-23.2
Ocean	33.65	31.40	-6.7	33.94	32.90	-3.1
Total transportation	112.92	92.04	-18.5	58.99	52.13	-11.6
Farm gate price ³	285.35	357.23	25.2	305.56	354.57	16.0
Landed cost	398.28	449.27	12.8	364.56	406.70	11.6
Transport % of landed cost	28.4	21.2	-25.2	16.2	13.1	-18.7
	North MT¹ - Santos² by rail —US\$/mt—			South GO¹ - Santos² —US\$/mt—		
Truck	27.62	21.47	-22.3	37.34	28.48	-23.7
Rail ⁴	39.98	32.13	-19.6	-	-	-
Ocean	33.65	31.40	-6.7	33.65	31.40	-6.7
Total transportation	101.25	85.00	-16.1	70.98	59.88	-15.6
Farm gate price ³	285.35	357.23	25.2	291.46	331.01	13.6
Landed cost	386.60	442.22	14.4	362.45	390.88	7.8
Transport % of landed cost	26.2	19.9	-23.8	19.6	15.8	-19.3

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

²Export port.

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

⁴In Brazil, there are no public/official 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: 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 1b. Costs of transporting Brazilian soybeans from the northern and northeastern ports to Shanghai, China

	2019	2020	% Change 2019-20	2019	2020	% Change 2019-20
	North MT¹ - Santarém² —US\$/mt—			South MA¹ - São Luís² —US\$/mt—		
Truck	52.04	39.20	-24.7	32.99	26.83	-18.7
Ocean	35.06	33.66	-4.0	34.81	34.02	-2.3
Total transportation	87.10	72.86	-16.4	67.80	60.85	-10.2
Farm gate price ³	285.35	357.23	25.2	297.05	353.30	18.9
Landed cost	372.45	430.08	15.5	364.85	414.15	13.5
Transport % of landed cost	23.4	17.6	-24.9	18.6	15.0	-19.1
	Southwest PI¹ - São Luís² —US\$/mt—			North MT¹ - Barcarena² —US\$/mt—		
Truck	39.34	29.81	-24.2	46.64	31.72	-32.0
Barge ⁴	-	-	-	15.33	11.94	-22.1
Ocean	34.81	34.02	-2.3	34.96	34.96	0.0
Total transportation	74.15	63.83	-13.9	96.93	78.61	-18.9
Farm gate price ³	295.87	342.39	15.7	285.35	357.23	25.2
Landed cost	370.02	406.23	9.8	382.29	435.84	14.0
Transport % of landed cost	20.9	16.0	-23.2	25.4	18.7	-26.2

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 public/official 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: 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. Costs of transporting Brazilian soybeans from the southern ports to Hamburg, Germany

	2019	2020	% Change 2019-20	2019	2020	% Change 2019-20
	North MT¹ - Santos² by truck —US\$/mt—			Northwest RS¹ - Rio Grande² —US\$/mt—		
Truck	79.28	60.65	-23.5	25.06	19.24	-23.2
Ocean	25.63	24.75	-3.4	25.63	25.13	-2.0
Total transportation	104.90	85.40	-18.6	50.68	44.36	-12.5
Farm gate price ³	285.35	357.23	25.2	305.56	354.57	16.0
Landed cost	390.25	442.62	13.4	356.25	398.93	12.0
Transport % of landed cost	26.9	20.0	-25.5	14.2	11.4	-19.7
	North MT¹ - Santos² by rail —US\$/mt—			South GO¹ - Santos² —US\$/mt—		
Truck	27.62	21.47	-22.3	37.34	28.48	-23.7
Rail ⁴	39.98	32.13	-19.6	-	-	-
Ocean	25.63	24.75	-3.4	25.63	24.75	-3.4
Total transportation	93.23	78.35	-16.0	62.96	53.23	-15.5
Farm gate price ³	285.35	357.23	25.2	291.46	331.01	13.6
Landed cost	378.58	435.58	15.1	354.42	384.24	8.4
Transport % of landed cost	24.6	18.7	-24.0	17.8	14.3	-19.3

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

²Export port.

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

⁴In Brazil, there are no public/official 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: 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 2b. Costs of transporting Brazilian soybeans from the northern and northeastern ports to Hamburg, Germany

	2019	2020	% Change 2019-20	2019	2020	% Change 2019-20
	North MT¹ - Santarém² —US\$/mt—			South MA¹ - São Luís² —US\$/mt—		
Truck	52.04	39.20	-24.7	32.99	26.83	-18.7
Ocean	23.42	20.94	-10.6	20.34	22.76	11.9
Total transportation	75.45	60.14	-20.3	53.33	49.59	-7.0
Farm gate price ³	285.35	357.23	25.2	297.05	353.30	18.9
Landed cost	360.81	417.37	15.7	350.38	402.89	15.0
Transport % of landed cost	20.9	15.0	-28.3	15.2	12.6	-17.4
	Southwest PI¹ - São Luís² —US\$/mt—			North MT¹ - Barcarena² --US\$/mt--		
Truck	39.34	29.81	-24.2	46.64	31.72	-32.0
Barge ⁴	-	-	-	15.33	11.94	-22.1
Ocean	20.34	22.76	11.9	21.16	20.31	-4.0
Total transportation	59.68	52.58	-11.9	83.13	63.97	-23.0
Farm gate price ³	295.87	342.39	15.7	285.35	357.23	25.2
Landed cost	355.55	394.97	11.1	368.48	421.19	14.3
Transport % of landed cost	16.8	13.6	-19.3	22.6	15.2	-32.7

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 public/official 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: mt = metric ton.

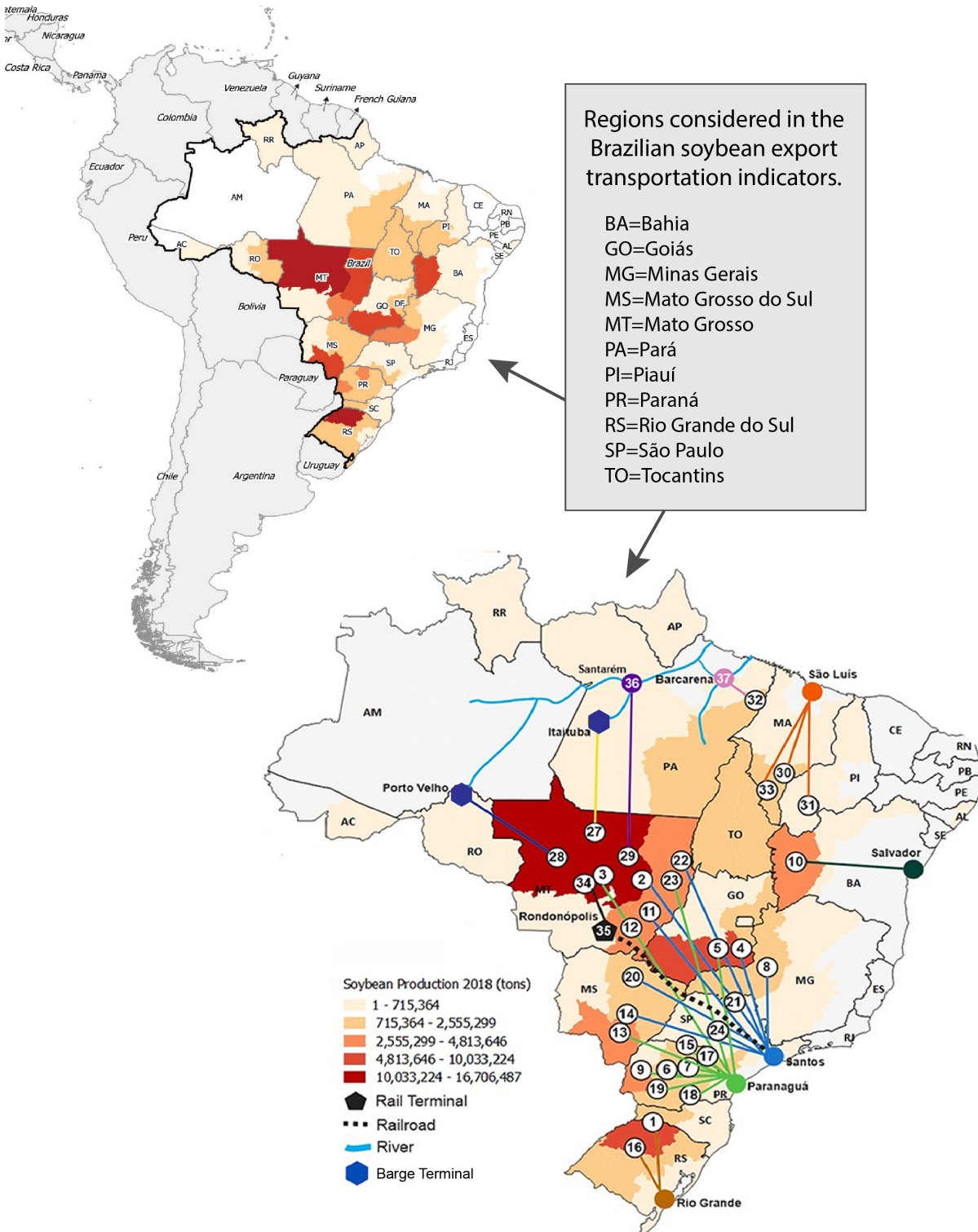
Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/ USP) and USDA, Agricultural Marketing Service.



Brazil Soybean Transportation

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 81 percent of Brazilian soybean production, 2018 (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

	—2020—									
	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.
	North MT¹ - Santos² by truck —US\$/mt—					North MT¹ - Paranaguá² —US\$/mt—				
Truck	68.33	59.53	60.52	54.20	60.65	67.48	58.03	60.22	53.74	59.87
Ocean	35.50	27.08	31.33	31.67	31.40	37.25	28.83	33.08	33.42	33.15
Total transportation	103.83	86.61	91.85	85.87	92.04	104.73	86.86	93.30	87.16	93.01
Farm gate price ³	282.59	287.53	367.89	490.89	357.23	282.59	287.53	367.89	490.89	357.23
Landed cost	386.43	374.13	459.74	576.76	449.27	387.32	374.39	461.19	578.05	450.24
Transport % of landed cost	26.9	23.1	20.0	14.9	21.2	27.0	23.2	20.2	15.1	21.4
	North MT¹ - Santos² by rail —US\$/mt—					Northwest RS¹ - Rio Grande² —US\$/mt—				
Truck	24.79	21.82	21.47	17.80	21.47	22.92	19.03	18.84	16.16	19.24
Rail ⁴	37.73	30.58	31.02	29.20	32.13	-	-	-	-	-
Ocean	35.50	27.08	31.33	31.67	31.40	37.00	28.58	32.83	33.17	32.90
Total transportation	98.02	79.48	83.82	78.67	85.00	59.92	47.61	51.67	49.33	52.13
Farm gate price ³	282.59	287.53	367.89	490.89	357.23	300.04	297.17	367.58	453.49	354.57
Landed cost	380.61	367.00	451.71	569.57	442.22	359.97	344.78	419.26	502.82	406.70
Transport % of landed cost	25.8	21.7	18.6	13.8	19.9	16.6	13.8	12.3	9.8	13.1

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 public/official 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.



Brazil Soybean Transportation

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

	—2020—									
	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.
	North MT¹ - Santos² by truck —US\$/mt—					North MT¹ - Paranaguá² —US\$/mt—				
Truck	68.33	59.53	60.52	54.20	60.65	67.48	58.03	60.22	53.74	59.87
Ocean	29.25	20.50	24.00	25.25	24.75	30.00	21.50	25.00	25.35	25.46
Total transportation	97.58	80.03	84.52	79.45	85.40	97.48	79.53	85.22	79.09	85.33
Farm gate price ³	282.59	287.53	367.89	490.89	357.23	282.59	287.53	367.89	490.89	357.23
Landed cost	380.18	367.55	452.41	570.34	442.62	380.07	367.06	453.11	569.98	442.56
Transport % of landed cost	25.7	21.8	18.7	13.9	20.0	25.6	21.7	18.8	13.9	20.0
	North MT¹ - Santos² by rail —US\$/mt—					Northwest RS¹ - Rio Grande² —US\$/mt—				
Truck	24.79	21.82	21.47	17.80	21.47	22.92	19.03	18.84	16.16	19.24
Rail ⁴	37.73	30.58	31.02	29.20	32.13	-	-	-	-	-
Ocean	29.25	20.50	24.00	25.25	24.75	29.50	20.75	24.50	25.75	25.13
Total transportation	91.77	72.90	76.49	72.25	78.35	52.42	39.78	43.34	41.91	44.36
Farm gate price ³	282.59	287.53	367.89	490.89	357.23	300.04	297.17	367.58	453.49	354.57
Landed cost	374.36	360.42	444.38	563.15	435.58	352.47	336.95	410.93	495.40	398.93
Transport % of landed cost	24.5	20.2	17.2	12.8	18.7	14.9	11.8	10.5	8.5	11.4

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 public/official 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

	—2020—									
	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.
	North MT¹ - Santarém² —US\$/mt—					South MA¹ - São Luís² —US\$/mt—				
Truck	44.10	38.23	41.03	33.44	39.20	28.86	27.02	27.62	23.82	26.83
Ocean	36.50	28.08	34.83	35.21	33.66	36.75	28.33	35.33	35.67	34.02
Total transportation	80.60	66.31	75.86	68.65	72.86	65.61	55.35	62.95	59.49	60.85
Farm gate price ³	282.59	287.53	367.89	490.89	357.23	300.23	294.95	359.63	458.37	353.30
Landed cost	363.20	353.84	443.75	559.54	430.08	365.83	350.31	422.58	517.86	414.15
Transport % of landed cost	22.2	18.7	17.1	12.3	17.6	17.9	15.8	14.9	11.5	15.0
	Southwest PI¹ - São Luís² —US\$/mt—					North MT¹ - Barcarena² —US\$/mt—				
Truck	32.49	29.98	31.84	24.94	29.81	37.11	33.27	30.89	25.60	31.72
Barge ⁴	-	-	-	-	-	13.35	11.68	11.75	10.97	11.94
Ocean	36.75	28.33	35.33	35.67	34.02	38.50	28.33	36.33	36.67	34.96
Total transportation	69.24	58.31	67.17	60.61	63.83	88.96	73.28	78.97	73.24	78.61
Farm gate price ³	302.03	286.59	344.92	436.03	342.39	282.59	287.53	367.89	490.89	357.23
Landed cost	371.27	344.90	412.10	496.64	406.23	371.56	360.80	446.86	564.14	435.84
Transport % of landed cost	18.6	16.9	16.3	12.2	16.0	23.9	20.3	17.7	13.0	18.7

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 public/official 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.



Brazil Soybean Transportation

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

	—2020—									
	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	Avg.
	North MT¹ - Santarém² —US\$/mt—					South MA¹ - São Luís² —US\$/mt—				
Truck	44.10	38.23	41.03	33.44	39.20	28.86	27.02	27.62	23.82	26.83
Ocean	25.00	16.00	20.75	22.00	20.94	22.25	17.50	25.00	26.30	22.76
Total transportation	69.10	54.23	61.78	55.44	60.14	51.11	44.52	52.62	50.12	49.59
Farm gate price ³	282.59	287.53	367.89	490.89	357.23	300.23	294.95	359.63	458.37	353.30
Landed cost	351.70	341.76	429.67	546.33	417.37	351.33	339.48	412.25	508.49	402.89
Transport % of landed cost	19.6	15.9	14.4	10.1	15.0	14.5	13.1	12.8	9.9	12.6
	Southwest PI¹ - São Luís² —US\$/mt—					North MT¹ - Barcarena² --US\$/mt-				
Truck	32.49	29.98	31.84	24.94	29.81	37.11	33.27	30.89	25.60	31.72
Barge ⁴	-	-	-	-	-	13.35	11.68	11.75	10.97	11.94
Ocean	22.25	17.50	25.00	26.30	22.76	24.00	15.00	20.50	21.75	20.31
Total transportation	54.74	47.48	56.84	51.24	52.58	74.46	59.95	63.14	58.32	63.97
Farm gate price ³	302.03	286.59	344.92	436.03	342.39	282.59	287.53	367.89	490.89	357.23
Landed cost	356.77	334.07	401.77	487.27	394.97	357.06	347.47	431.03	549.22	421.19
Transport % of landed cost	15.3	14.2	14.1	10.5	13.6	20.9	17.3	14.6	10.6	15.8

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 public/official 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.



Brazil Soybean Transportation

Table 7. Quarterly truck rates for selected Brazilian soybean export transportation routes, 2020

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	11.3	7.96	6.61	6.54	5.61	6.68
2	North MT (Sorriso)	Santos	1,190	3.0	5.74	5.00	5.09	4.55	5.10
3	North MT (Sorriso)	Paranaguá	1,262	2.9	5.35	4.60	4.77	4.26	4.74
4	South GO (Rio Verde)	Santos	587	4.8	5.54	5.07	4.78	4.02	4.85
5	South GO (Rio Verde)	Paranaguá	726	3.9	5.60	4.87	4.90	4.25	4.91
6	North Central PR (Londrina)	Paranaguá	268	3.2	8.00	6.90	6.70	5.45	6.76
7	Western Central PR (Mamborê)	Paranaguá	311	2.4	7.22	6.37	6.33	5.14	6.26
8	Triangle MG (Uberaba)	Santos	339	3.0	7.66	6.90	6.43	5.30	6.57
9	West PR (Assis Chateaubriand)	Paranaguá	377	2.3	6.71	5.75	5.71	4.69	5.71
10	West Extreme BA (São Desidério)	Salvador	535	6.6	5.97	5.62	5.69	4.92	5.55
11	Southeast MT (Primavera do Leste)	Santos	901	2.4	5.26	4.64	4.58	3.97	4.61
12	Southeast MT (Primavera do Leste)	Paranaguá	975	2.2	5.05	4.36	4.54	3.96	4.48
13	Southwest MS (Maracaju)	Paranaguá	612	3.5	5.99	5.21	5.11	4.39	5.18
14	Southwest MS (Maracaju)	Santos	652	3.2	5.82	5.10	5.04	4.33	5.07
15	West PR (Assis Chateaubriand)	Santos	550	1.6	5.94	5.11	5.07	4.38	5.12
16	East GO (Cristalina)	Santos	585	1.9	6.35	5.73	5.60	4.76	5.61
17	North PR (Cornélio Procópio)	Paranaguá	306	1.8	6.46	5.56	5.64	4.35	5.50
18	Eastern Central PR (Castro)	Paranaguá	130	2.0	10.54	8.84	8.49	6.68	8.64
19	South Central PR (Guarapuava)	Paranaguá	204	2.3	9.63	8.21	8.06	6.49	8.10
20	North Central MS (São Gabriel do Oeste)	Santos	720	2.4	5.06	4.38	4.43	3.79	4.42
21	Ribeirão Preto SP (Guairá)	Santos	314	0.0	6.40	5.50	5.23	4.24	5.34
22	Northeast MT (Canarana)	Santos	950	3.3	5.55	4.80	4.60	4.10	4.76
23	East MS (Chapadão do Sul)	Santos	607	0.0	5.08	4.48	4.45	3.72	4.43

¹The main city in the region 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 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.

⁷In 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.

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.



Brazil Soybean Transportation

Table 7. Quarterly truck rates for selected Brazilian soybean export transportation routes, 2020

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	2.9	5.34	4.61	4.56	4.08	4.65
25	Western Central RS (Tupanciretã)	Rio Grande	273	2.5	7.10	5.85	5.97	4.83	5.94
26	Southwest PR(Chopinzinho)	Paranaguá	291	1.7	7.57	6.65	6.63	5.59	6.61
27	North MT (Sorriso)	Itaituba	672	5.4	5.52	4.95	4.60	3.81	4.72
28	North MT (Sorriso)	Porto Velho	632	5.7	5.22	4.45	4.54	3.91	4.53
29	North MT (Sorriso)	Santarém	876	4.1	5.03	4.36	4.68	3.82	4.47
30	South MA (Balsas)	São Luís	482	2.1	5.99	5.61	5.74	4.95	5.57
31	Southwest PI (Bom Jesus)	São Luís	606	2.6	5.36	4.95	5.26	4.12	4.92
32	Southeast PA (Paragominas)	Barcarena	249	1.5	7.17	6.61	5.90	4.80	6.12
33	East TO (Campos Lindos)	São Luís	842	1.6	5.04	4.40	4.69	3.79	4.48
	Weighted average		587	100.0	6.33	5.52	5.48	4.62	5.49
34	North MT (Sorriso)	Rondonópolis (Rail terminal)	382		6.49	5.71	5.62	4.66	5.62
35	Rondonópolis MT (Rail terminal) ⁶	Santos	1,019		3.70	3.00	3.04	2.87	3.15
36	Itaituba PA (Barge terminal) ⁷	Santarém	153		4.73	4.23	3.92	3.47	4.09
37	Itaituba PA (Barge terminal) ⁷	Barcarena	600		2.23	1.95	1.96	1.83	1.99

¹The main city in the region 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 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.

⁷In 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.

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-13	10.11	3.9	174.31	Jan-17	7.32	33.8	126.20
Feb-13	10.79	6.7	185.96	Feb-17	9.85	34.6	169.85
Mar-13	11.14	3.3	192.04	Mar-17	10.38	5.3	178.90
Apr-13	10.95	-1.7	188.71	Apr-17	9.52	-8.3	164.05
May-13	10.40	-5.0	179.31	May-17	8.75	-8.0	150.90
Jun-13	9.49	-8.8	163.61	Jun-17	8.18	-6.5	141.04
Jul-13	9.65	1.7	166.41	Jul-17	8.74	6.8	150.66
Aug-13	9.80	1.5	168.95	Aug-17	9.85	12.7	169.76
Sep-13	10.21	4.2	176.02	Sep-17	8.97	-9.0	154.55
Oct-13	10.17	-0.4	175.28	Oct-17	8.64	-3.6	148.93
Nov-13	9.29	-8.6	160.18	Nov-17	8.36	-3.2	144.11
Dec-13	8.91	-4.1	153.63	Dec-17	7.23	-13.5	124.63
Jan-14	8.86	-0.6	152.73	Jan-18	7.59	5.0	130.90
Feb-14	10.34	16.7	178.24	Feb-18	8.65	13.9	149.04
Mar-14	11.61	12.3	200.13	Mar-18	10.59	22.5	182.61
Apr-14	11.35	-2.2	195.65	Apr-18	9.78	-7.7	168.59
May-14	10.90	-4.0	187.89	May-18	8.96	-8.4	154.45
Jun-14	10.34	-5.1	178.24	Jun-18	8.89	-0.8	153.24
Jul-14	10.16	-1.7	175.21	Jul-18	8.97	0.9	154.58
Aug-14	10.10	-0.6	174.08	Aug-18	8.24	-8.1	142.00
Sep-14	9.66	-4.3	166.54	Sep-18	7.24	-12.1	124.78
Oct-14	8.77	-9.3	151.13	Oct-18	7.69	6.2	132.55
Nov-14	8.36	-4.6	144.16	Nov-18	7.51	-2.3	129.44
Dec-14	7.96	-4.9	137.15	Dec-18	7.19	-4.3	123.87
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

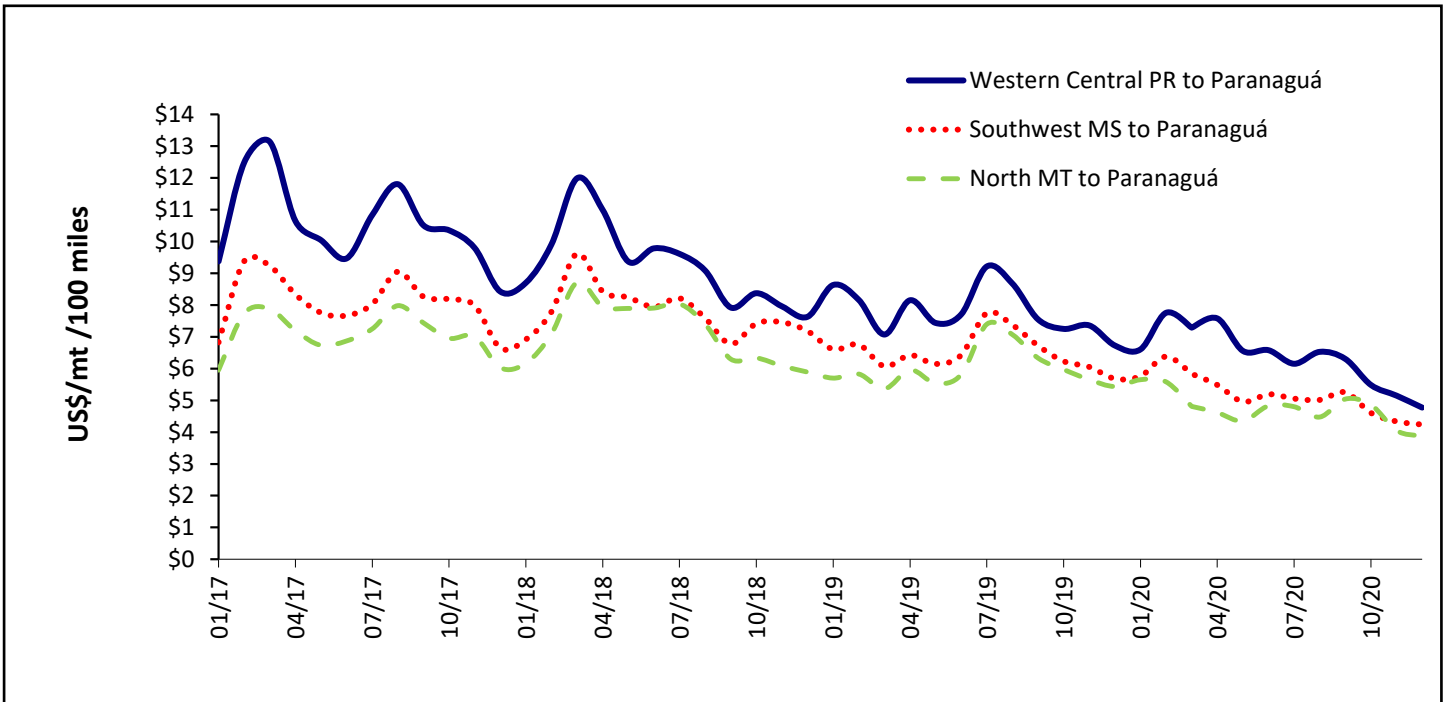
*Weighted average.

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



Brazil Soybean Transportation

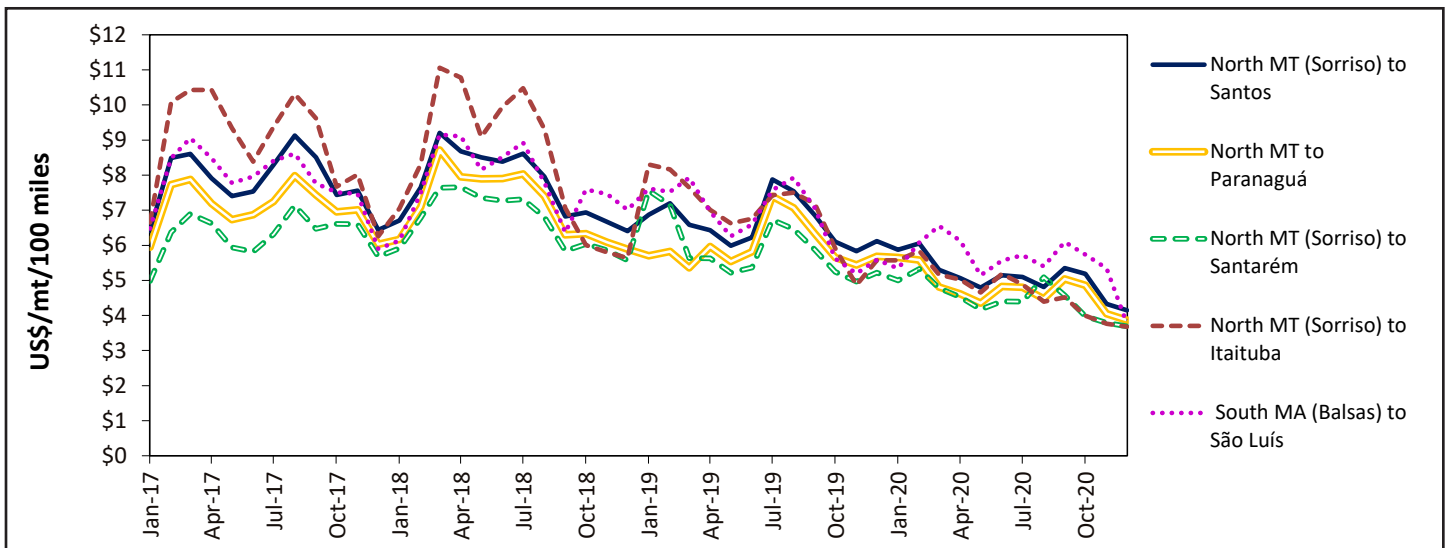
Figure 3. Truck rates for selected southern Brazilian soybean export transportation routes, 2017-20



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, 2017-20



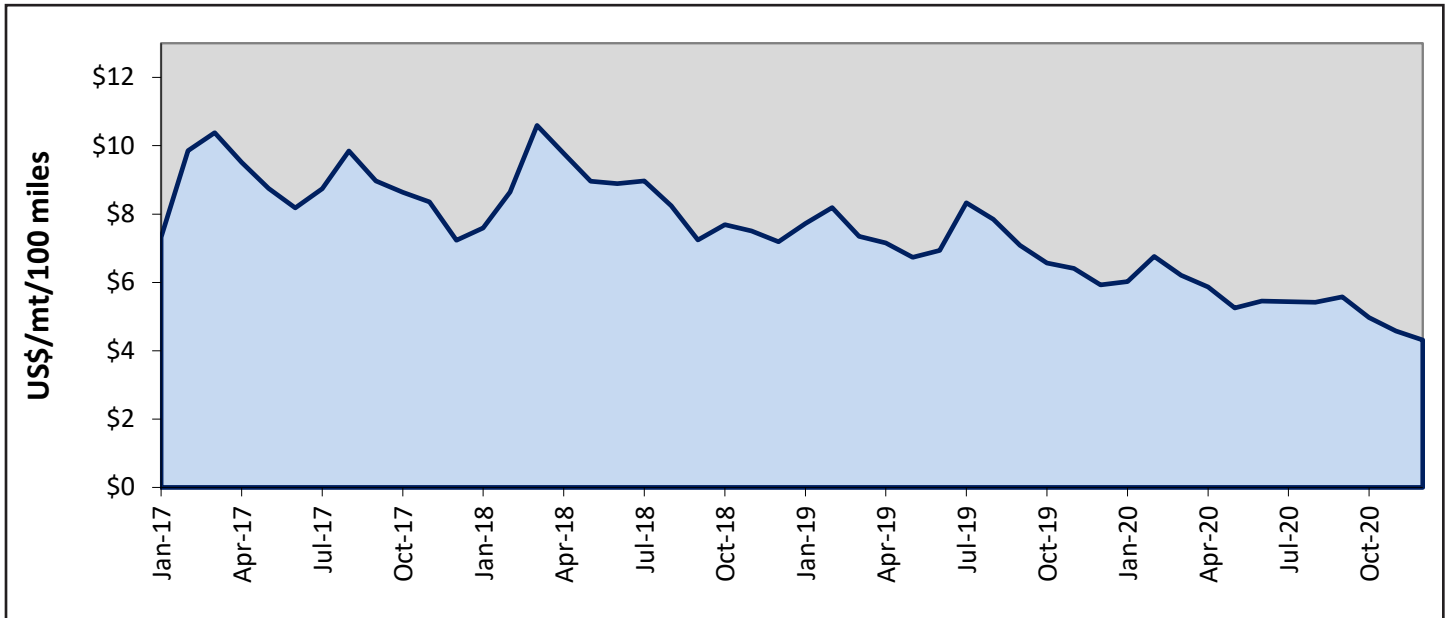
Note: mt = metric ton. MT= Mato Grosso and MA = Maranhão.

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



Brazil Soybean Transportation

Figure 5. Brazilian soybean export truck transportation weighted average prices, 2017-20



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

Port	Destination	1st qtr. 2015	2nd qtr. 2015	3rd qtr. 2015	4th qtr. 2015
Santos	Germany (Hamburg)	22.00	21.00	19.00	17.00
Paranaguá	Germany (Hamburg)	22.00	21.00	19.00	17.00
Rio Grande	Germany (Hamburg)	22.00	21.00	19.00	17.00
Santarém	Germany (Hamburg)	20.00	14.50	13.50	20.00
São Luís	Germany (Hamburg)	20.00	18.25	16.38	20.50
Barcarena	Germany (Hamburg)	20.00	16.00	15.20	21.00
Santos	China (Shanghai)	29.50	22.50	23.25	20.00
Paranagua	China (Shanghai)	31.50	23.50	24.18	20.50
Rio Grande	China (Shanghai)	29.50	25.00	25.75	21.00
Santarém	China (Shanghai)	32.00	25.00	25.75	23.50
São Luís	China (Shanghai)	32.00	25.00	25.75	23.50
Barcarena	China (Shanghai)	32.00	25.00	25.75	23.50
Port	Destination	1st qtr. 2016	2nd qtr. 2016	3rd qtr. 2016	4th qtr. 2016
Santos	Germany (Hamburg)	16.00	17.00	16.50	23.00
Paranaguá	Germany (Hamburg)	16.00	17.00	16.50	24.00
Rio Grande	Germany (Hamburg)	16.00	17.00	16.50	23.00
Santarém	Germany (Hamburg)	11.03	14.13	15.00	19.80
São Luís	Germany (Hamburg)	8.25	11.00	11.80	15.80
Barcarena	Germany (Hamburg)	9.60	12.45	13.20	17.35
Santos	China (Shanghai)	17.50	16.50	12.50	20.00
Paranagua	China (Shanghai)	18.00	18.50	14.50	21.50
Rio Grande	China (Shanghai)	18.50	17.00	13.00	20.50
Santarém	China (Shanghai)	22.00	21.00	19.40	23.75
São Luís	China (Shanghai)	20.00	18.40	17.50	22.00
Barcarena	China (Shanghai)	22.50	21.50	20.00	23.75
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

*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.

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Brazil Soybean Transportation

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

*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, 2017-20](#)
- [Figure 4. Truck rates for selected north, south, and northeastern Brazilian soybean export transportation routes, 2017-20](#)
- [Figure 5. Brazilian soybean export truck transportation weighted average prices, 2017-20](#)
- [Table 1a. Costs of transporting Brazilian soybeans from the southern ports to Shanghai, China](#)
- [Table 1b. Costs of transporting Brazilian soybeans from the northern and northeastern ports to Shanghai, China](#)
- [Table 2a. Costs of transporting Brazilian soybeans from the southern ports to Hamburg, Germany](#)
- [Table 2b. 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](#)
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