

Brazil Soybean Transportation



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2018 Overview
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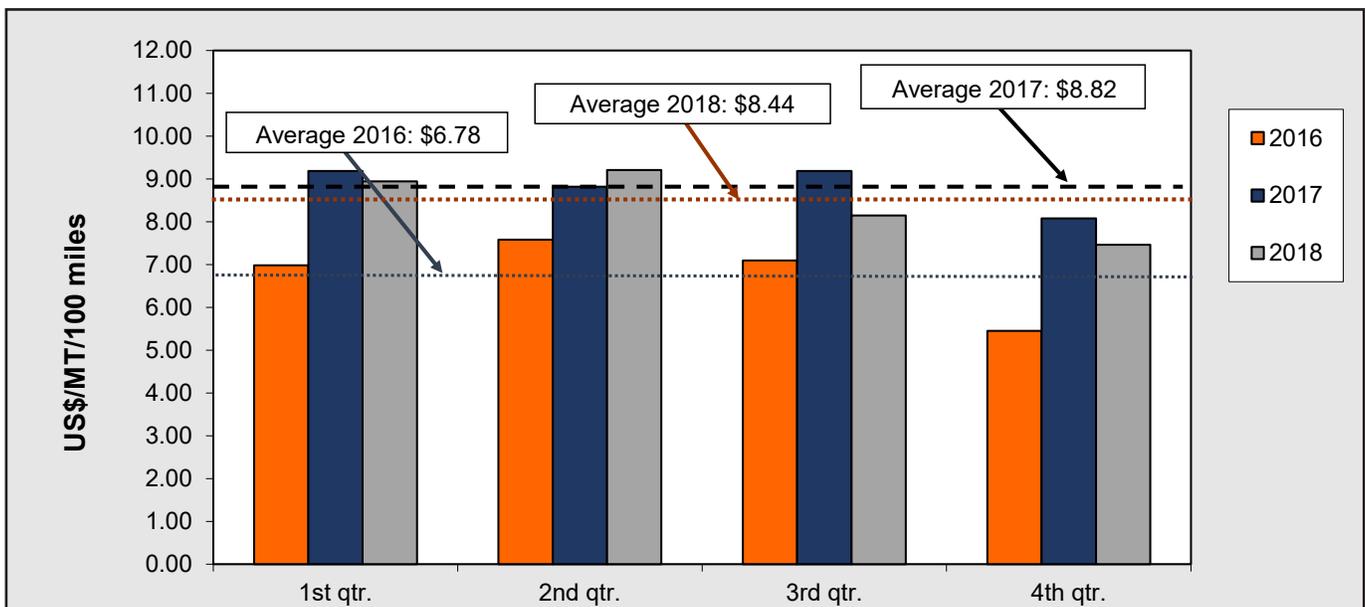
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Overview of Brazilian Soybean Transportation in 2018

The cost of shipping a metric ton (mt) of soybeans, 100 miles by truck, decreased from \$8.82 in 2017 to \$8.44 in 2018 (figure 1, 5, and table 8). However, truck rates measured in reais (R\$) saw proportionately higher transportation costs than those estimated in U.S. dollars, due to the depreciation of the Brazilian Real (R\$) against the U.S. dollar. For example, truck rates from Cruz Alta, Rio Grande do Sul (RS) to Rio Grande increased 8 percent. Truck rates from Sorriso, North Mato Grosso (MT) to Santos and Paranaguá increased 12-15 percent, respectively (for route information, see figure 2 and table 7). In 2018, the Brazilian Real (R\$) depreciated nearly 16 percent against the U.S. dollar, compared to 2017, when it fell from R\$3.19 per U.S. dollar to R\$3.69. Higher Chinese demand for Brazilian soybeans, along with weaker currency and higher farm gate prices softened the impact of the new minimum rates set by the National Land Transport Agency, ([ANTT](http://www.ants.gov.br)) on August 6, 2018, for trucking freight in Brazil (figure 1 and 1a).

Figure 1. Brazilian soybean export truck cost index





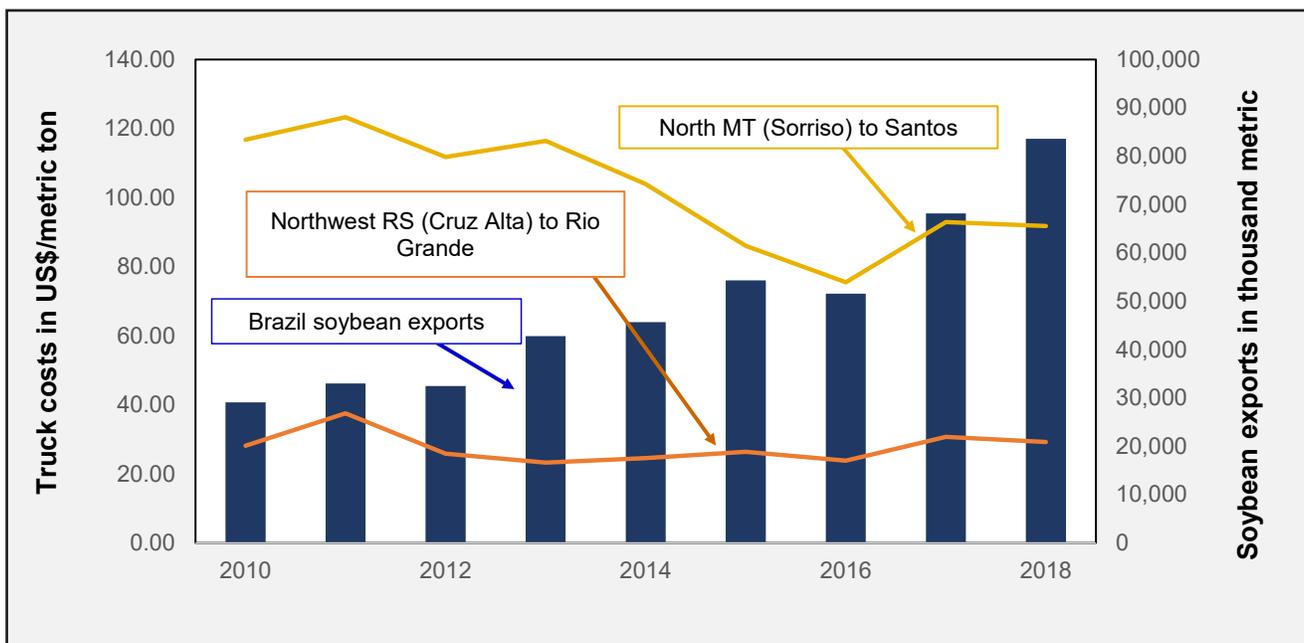
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In 2018, Brazilian soybean transportation costs to Shanghai, China, as a percentage of total landed costs from the routes of North Mato Grosso (MT) and South Goiás (GO) to Santos, decreased 0.4-1.8 percent due to lower truck rates and higher farm prices, compared with 2017 (table 1). In Sorriso, North MT—the largest Brazilian soybean-producing State—transportation costs represented nearly 29 percent of the total landed costs of shipping soybeans to Shanghai through Santos, compared with 34 percent in 2008, and 45 percent in 2006. Ocean rates from the southern Brazilian ports increased 3 percent to Hamburg and 9-14 percent to China because of higher grain exports and strong iron ore trade ([O’Neil Commodity Consulting, Grain Transportation Report \(GTR\) 2019](#), tables 1, 2, and 9). The increased Chinese demand for Brazilian soybeans is mostly due to U.S.-China trade tensions, and the implementation of a 25 percent duty on U.S. soybeans, that started on July 6, 2018 ([USDA, Foreign Agricultural Service \(FAS\), Gain Report: BR1816](#)).

Brazilian farmers also benefit from the fall in value of the Brazilian Real (R\$), against the U.S. dollar, since soybeans are priced in U.S. dollars but paid in Reais. Soybean farm gate prices—measured in U.S. dollars—increased 3 percent, to \$323.42/mt from \$314.41/mt, in 2017. Average farm gate prices in 2018—in Brazilian Real (R\$)—increased 14 percent, to R\$1,148.12 from R\$1,003.62/mt ([Brazil Central Bank](#) and [Companhia Nacional de Abastecimento \(CONAB\)](#)).

In 2018, the volume of soybean exports increased to 83.6 million metric tons (mmt), 23 percent more than last year’s total of 68.1 mmt (figure 1a) ([Secretariat of Foreign Trade \(SECEX\)](#)). China is Brazil’s major soybean buyer, accounting for 82 percent of total exports (83.6 mmt), followed by Spain, Netherlands, Turkey, and Iran ([SECEX](#)). Exports to China increased 28 percent, from 53.8 mmt to 68.3 mmt (valued at US\$27.3 billion), in 2018. The increased Chinese demand for Brazilian soybeans is mostly due to U.S.-China trade tensions, and the implementation of a 25 percent duty on U.S. soybeans, that started on July 6, 2018 ([USDA, Foreign Agricultural Service \(FAS\), Gain Report: BR1816](#)). Mato Grosso, the largest soybean Brazilian exporting State, accounted for about 24 percent of total Brazilian soybean exports, followed by Paraná, Rio Grande Do Sul, Goiás, Mato Grosso Do Sul, Minas Gerais, and São Paulo. Mato Grosso was also the top soybean exporter to China.

Figure 1a. Brazilian soybean export and truck cost for selected routes



Source: ESALQ/ USP (University of São Paulo, Brazil) and USDA/AMS. Secretariat of Foreign Trade (SECEX), MDIC



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Average Brazilian soybean export prices increased 7 percent, from \$381 per mt to \$408 per mt, from the same time last year ([SECEX](#)). In 2018, Santos was the largest Brazilian soybean export port, followed by Paranaguá, Rio Grande, São Luís, São Francisco do Sul, and Barcarena. These six ports accounted for nearly 82 percent of Brazil's total exports. Looking at the split from a different north/south perspective, the southern ports of Santos, Rio Grande, Paranaguá, and São Francisco do Sul dominate the soybean trade to China, accounting for about 73 percent of Brazil's soybean exports to China. While the northeastern ports of São Luís, Vitória, Salvador, and Barcarena accounted for nearly 22 percent of exports to China (figure 1a). The Amazon River ports of Manaus and Santarém exported less than one percent to China ([SECEX](#)).

Brazilian Minimum Freight Rates Law

On February 7, 2019, the Brazilian Supreme Court reinstated the National Land Transportation Agency's (ANTT) authority to issue fines for anyone who does not pay the mandatory minimum freight rate. The fines will remain in place until the Supreme Court issues its ruling on the constitutionality of the law [13.703/18](#) of August 9, 2018. There is no indication when the ruling will be made ([Argus 2019](#) and [Folha de S. Paulo](#)). The law allows the ANTT to set minimum rates, for trucking freight across the country, reflecting total transportation operating costs across the country based on fuel costs, distances, tolls, and other factors ([Confederação Nacional do Transporte \(CNT\)](#) and [AgriCensus](#)). The minimum rates include a charge on return trips, even if the truck is empty. Truckers are forbidden to negotiate contracts below the ANTT minimum. The law requires truck freight prices to be equal to, or above, minimum prices set by the ANTT. Rates are published twice a year, on January 20 and July 20.¹

Recently, the ANTT contracted the Escola Superior de Agricultura "Luiz de Queiroz" ([ESALQ-LOG](#)) to update the methodology and the minimum freight rate table, and to analyze the economic and regulatory impacts of the law.² By April, ANTT plans to publish a freight table version for consultation and public hearing. In July 2019, the new version of the minimum freight table will be published.

The ruling came after organizations, opposing these minimum mandatory rates, challenged the constitutionality of the law, to Brazil's Supreme Court. The minimum freight rates policy was implemented in June 2018, by the former President Michel Temer's Administration, as a concession to the trucking industry to end an 11-day nationwide strike in late May.

Trucker's Strike: On May 21, 2018, hundreds of thousands of Brazil's nearly 2 million truck drivers began an 11-day strike to protest high diesel prices. The strike slowed Brazil's economy, crippled transportation dependent industries, and caused estimated losses of US\$ 1.75 billion to Brazil's agricultural sector. The swine and pork industries were hit especially hard ([USDA, FAS, Gain Report BR1810](#)). Shortages of fuel and animal feed affected farms and feedlots; and slaughterhouses idled their production lines when transportation to the ports was cut off and their refrigerated warehouses reached full capacity ([USDA, FAS, Gain Report BR1810](#)). Soybean exports were not significantly affected for the limited duration of the strike. On day eight of the strike, most export terminals ran out of soybeans for shipment. On the ninth day of the strike, the Brazilian government agreed to reduce diesel prices by 0.46 reais per liter, hold prices stable for 60 days, reduce tolls for large trucks, and suspend or eliminate some taxes to coax drivers back to the roads. The measures largely worked, with most truckers returning to the road. Deliveries of food, fuel, and medicine also began to flow again, albeit at a

¹ The frequency with which rates will be published will change if the price of diesel fluctuates more than 10 percent from the set minimum price ([USDA, FAS, Gain Report BR1812](#)). If the rates are not published within the identified timeframe, the previous period's truck freight rates—updated by IPCA (wide consumer price index)—will be valid.

² On January 1, 2019, the [ANTT](#) and a Fundação de Estudos Agrários Luiz de Queiroz – FEALQ signed a 21 months contract to update the methodology and the minimum freight rate table.



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slower, more unreliable pace ([USDA, FAS, Gain Report BR1810](#)). On August 9, 2018, the Brazilian government published in the Official Gazette, the new law [13.703/18](#) that allows the National Transport Agency (ANTT) to set minimum rates, for trucking freight across the country.

Investment Partnership Program (PPI) Status: selected infrastructure project priorities that facilitate exports of agricultural products

On February 1, 2019, the Brazilian government announced the infrastructure priorities for President Bolsonaro's Administration ([ANTT](#) and [CNT](#)):

1. **The North-South (EF-151) Railroad:** Porto National, Tocantins (TO)-Estela D'Oeste, São Paulo (SP). This railroad integrates four States: TO, Goiás (GO), Minas Gerais (MG), and SP with access to the northeastern port of Itaqui-São Luis, Maranhão (MA). This is a work in progress with more than 90 percent of infrastructure finished.

Current status: nothing to report.

2. **The West-East Integration (FIOL) Railroad (EF-334):** Ilhéus (BA) to Figueirópolis (TO).

Current Status: nothing to report.

3. **Ferrogrão Railroad (EF-170) Railroad:** The purpose is to consolidate the new Brazilian export rail corridor of the "Arco Norte" by connecting the grain-producing region of the Midwest to the State of Pará, ending at Miritituba Port. The EF-170 is expected to increase transport capacity and competitiveness within the corridor and alleviate traffic conditions on highway BR-163 by serving as an alternative route for soybean and corn exports. The estimated cost of the project is \$3.76 billion (R\$ 14 billion).³ The concession is for 65 years. Public hearings and technical studies are complete.

Current status: The Brazilian government plans to announce the tender offer, requesting bids for the concession, during the first quarter of 2019 with the auction to follow during the second quarter.

4. **BR-163:** The distance by truck from Sorriso, North MT, (Brazil's largest grain producer) to Miritituba is 663 miles (1,067 km), via BR-163. Currently, it takes 3 days to ship grain to Miritituba because of the poor condition of the last unpaved miles of BR-163, connecting Sorriso to Miritituba.

Current status: The Army Engineer Construction Battalion (BEC) will complete paving of the last 32 miles (51 kilometers) of BR-163, connecting Sorriso to Miritituba, by the end of 2019. The estimated cost: \$672,575 (R\$ 2.5 billion) ([CNT](#)).

While the construction on BR-163 continues, the Brazilian government will conduct daily inspections and maintenance of unpaved trouble spots on BR-163, within the state of Pará (Operation Radar II). In this way, the new Bolsonaro Administration reaffirmed its commitment to facilitating the flow of grain exports from Mato Grosso (mt) to the Amazon ports. For more information contact Delmy L. Salin at delmy.salin@ams.usda.gov.

³ Exchange rate of 3.72256 real per U.S. dollar, February 19, 2019.



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

	2017	2018	% Change 2017-2018	2017	2018	% Change 2017-2018
	North MT¹ - Santos² —US\$/mt—			Northwest RS¹ - Rio Grande² —US\$/mt—		
Truck	92.95	91.76	-1.3	30.72	29.20	-4.9
Ocean	26.88	30.31	12.8	27.30	31.06	13.8
Total transportation	119.82	122.08	1.9	58.02	60.27	3.9
Farm gate price ³	293.60	306.03	4.2	322.30	333.21	3.4
Landed cost	413.43	428.11	3.6	380.32	393.48	3.5
Transport % of landed cost	29.0	28.5	-1.8	15.3	15.3	0.0
	North MT¹ - Santos² BY RAIL —US\$/mt—			South GO¹ - Santos² —US\$/mt—		
Truck	-	33.49	-	44.22	43.25	-2.2
Rail ⁴ - Santos	-	43.29	-	-	-	-
Ocean	-	30.31	-	26.88	30.31	12.8
Total transportation	-	107.10	-	71.09	73.56	3.5
Farm gate price ³	-	306.03	-	301.99	312.31	3.4
Landed cost	-	413.13	-	373.08	385.88	3.4
Transport % of landed cost	-	25.9	-	19.1	19.1	-0.4

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

²Export ports

³Source: Companhia Nacional de Abastecimento (CONAB) www.conab.gov.br

⁴Note: In Brazil there are no public/official rail tariff rates. Rail rates can be approximately 30 percent lower than truck rates, depending on volumes hauled and the terms of contracts signed between the railroad company and shippers (Source: ESALQ-LOG, 2018).

Source: ESALQ/ USP (University of São Paulo, Brazil) and USDA/AMS



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

	2017	2018	% Change 2017-2018	2017	2018	% Change 2017-2018
	North MT¹ - Santarém² —US\$/mt—			South MA¹ - São Luís² —US\$/mt—		
Truck	55.08	58.86	6.9	37.69	37.60	-0.2
Ocean	30.75	34.81	13.2	29.56	33.89	14.6
Total transportation	85.83	93.67	9.1	67.25	71.48	6.3
Farm gate price ³	293.60	306.03	4.2	343.39	333.03	-3.0
Landed cost	379.43	399.70	5.3	410.64	404.51	-1.5
Transport % of landed cost	22.7	23.4	3.3	16.4	17.7	7.9
	Southwest PI¹ - São Luís² —US\$/mt—					
Truck	44.44	46.52	4.7			
Ocean	29.56	33.89	14.6			
Total transportation	74.00	80.41	8.7			
Farm gate price ³	283.05	306.26	8.2			
Landed cost	357.05	386.67	8.3			
Transport % of landed cost	21.0	20.8	-0.9			

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

²Export ports

³Source: Companhia Nacional de Abastecimento (CONAB) www.conab.gov.br

Source: ESALQ/ USP (University of São Paulo, Brazil) and USDA/AMS



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

	2017	2018	% Change 2017-2018	2017	2018	% Change 2017-2018
	North MT¹ - Santos² —US\$/mt—			Northwest RS¹ - Rio Grande² —US\$/mt—		
Truck	92.95	91.76	-1.3	30.72	29.20	-4.9
Ocean	24.50	25.25	3.1	25.50	26.25	2.9
Total transportation	117.45	117.01	-0.4	56.22	55.45	-1.4
Farm gate price ³	293.60	306.03	4.2	322.30	333.21	3.4
Landed cost	411.05	423.05	2.9	378.52	388.66	2.7
Transport % of landed cost	28.6	27.6	-3.4	14.9	14.3	-4.2
	North MT¹ - Santos² BY RAIL —US\$/mt—			South GO¹ - Santos² —US\$/mt—		
Truck	-	33.49	-	44.22	43.25	-2.2
Rail ⁴ - Santos	-	43.29	-	-	-	-
Ocean	-	25.25	-	24.50	25.25	3.1
Total transportation	-	102.03	-	68.72	68.50	-0.3
Farm gate price ³	-	306.03	-	301.99	312.31	3.4
Landed cost	-	408.07	-	370.71	380.81	2.7
Transport % of landed cost	-	25.0	-	18.6	18.0	-3.3

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

²Export ports

³Source: Companhia Nacional de Abastecimento (CONAB) www.conab.gov.br

⁴Note: In Brazil there are no public/official rail tariff rates. Rail rates can be approximately 30 percent lower than truck rates, depending on volumes hauled and the terms of contracts signed between the railroad company and shippers (Source: ESALQ-LOG, 2018).

Source: ESALQ/ USP (University of São Paulo, Brazil) and USDA/AMS



Brazil Soybean Transportation

Table 2a. Costs of transporting Brazilian soybeans from the northern and northeastern ports to Hamburg, Germany

	2017	2018	% Change 2017-2018	2017	2018	% Change 2017-2018
	North MT¹ - Santarém² —US\$/mt—			South MA¹ - São Luís² —US\$/mt—		
Truck	55.08	58.86	6.9	37.69	37.60	-0.2
Ocean	23.90	23.35	-2.3	20.20	19.40	-4.0
Total transportation	78.98	82.21	4.1	57.89	57.00	-1.5
Farm gate price ³	293.60	306.03	4.2	343.39	333.03	-3.0
Landed cost	372.58	388.24	4.2	401.28	390.02	-2.8
Transport % of landed cost	21.2	21.2	-0.3	14.4	14.6	1.4
	Southwest PI¹ - São Luís² —US\$/mt—					
Truck	44.44	46.52	4.7			
Ocean	20.20	19.40	-4.0			
Total transportation	64.64	65.92	2.0			
Farm gate price ³	283.05	306.26	8.2			
Landed cost	347.68	372.18	7.0			
Transport % of landed cost	18.9	17.7	-6.1			

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

²Export ports

³Source: Companhia Nacional de Abastecimento (CONAB) www.conab.gov.br

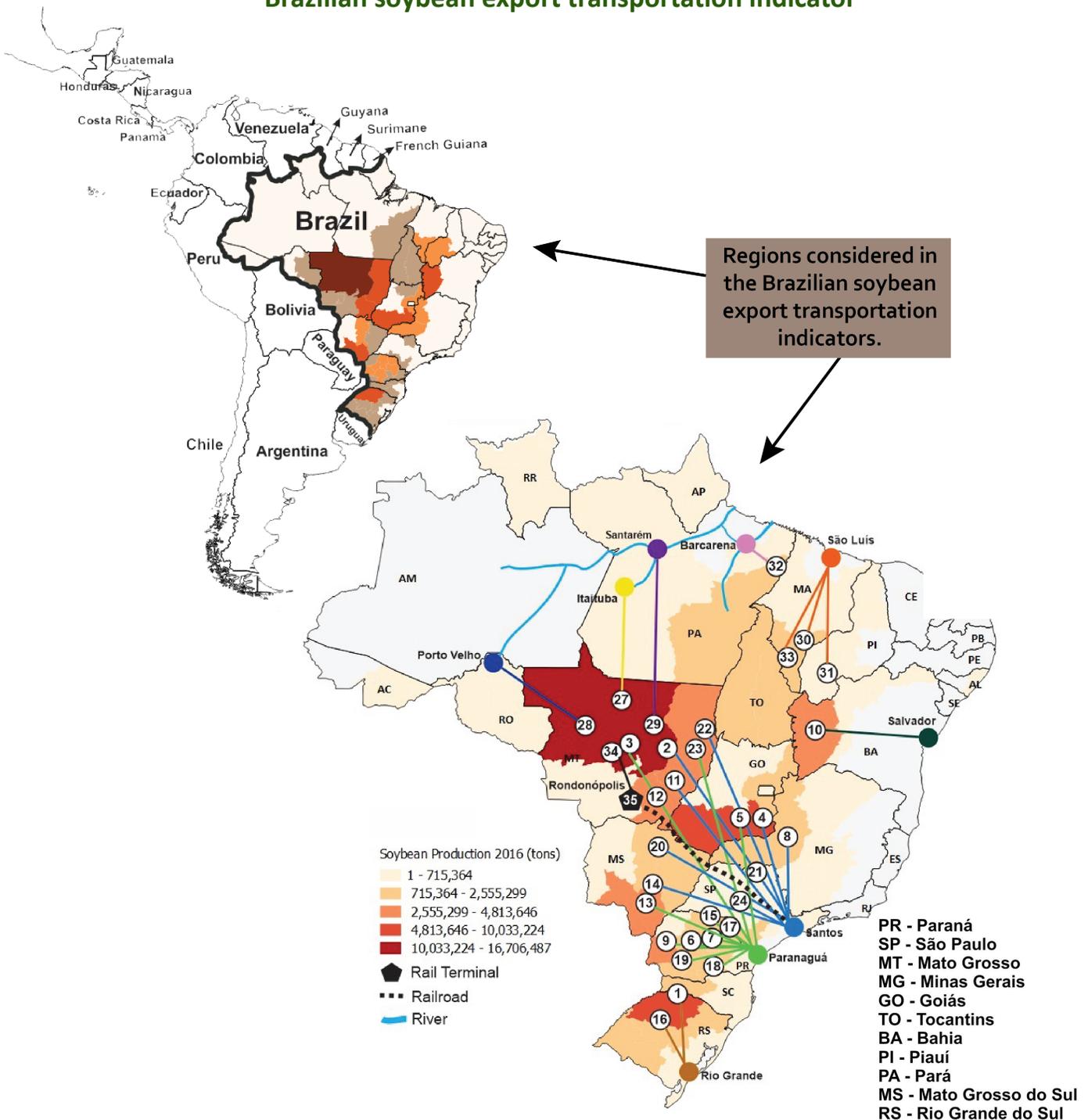
Source: ESALQ/ USP (University of São Paulo, Brazil) and USDA/AMS



Brazil Soybean Transportation

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 14

²Regions comprised about 80 percent of Brazilian soybean production, 2016

Source: ESALQ/ USP (University of São Paulo, Brazil) and USDA/AMS



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

	—2018—									
	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg
	North MT ¹ - Santos ² BY TRUCK —US\$/mt—					North MT ¹ - Paranaguá ² —US\$/mt—				
Truck	93.44	101.44	92.79	79.37	91.76	92.46	99.91	91.43	77.02	90.20
Ocean	32.50	31.00	27.75	30.00	30.31	32.00	32.00	28.75	31.00	30.94
Total transportation	125.94	132.44	120.54	109.37	122.08	124.46	131.91	120.18	108.02	121.14
Farm gate price ³	305.85	323.46	301.39	293.43	306.03	305.85	323.46	301.39	293.43	306.03
Landed cost	431.80	455.90	421.93	402.80	428.11	430.31	455.37	421.57	401.45	427.18
Transport % of landed cost	29.2	29.1	28.6	27.2	28.5	28.9	29.0	28.5	26.9	28.3
	North MT ¹ - Santos ² BY RAIL —US\$/mt—					Northwest RS ¹ - Rio Grande ² —US\$/mt—				
Truck	39.07	32.93	32.31	29.65	33.49	31.51	31.29	27.79	26.22	29.20
Rai ⁴ - Santos	46.94	43.89	42.77	39.56	43.29	-	-	-	-	-
Ocean	32.50	31.00	27.75	30.00	30.31	33.00	31.50	28.25	31.50	31.06
Total transportation	118.51	107.82	102.84	99.22	107.10	64.51	62.79	56.04	57.72	60.27
Farm gate price ³	305.85	323.46	301.39	293.43	306.03	334.43	343.90	326.13	328.39	333.21
Landed cost	424.36	431.28	404.23	392.65	413.13	398.94	406.68	382.17	386.12	393.48
Transport % of landed cost	27.9	25.0	25.4	25.3	25.9	16.2	15.4	14.7	15.0	15.3

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

²Export ports

³Source: Companhia Nacional de Abastecimento (CONAB) www.conab.gov.br

⁴Note: In Brazil, there are no public/official rail tariff rates. Rail rates can be approximately 30 percent lower than truck rates, depending on volumes hauled and the terms of contracts signed between the railroad company and shippers (Source: ESALQ-LOG, 2018).

Source: ESALQ/ USP (University of São Paulo, Brazil) and USDA/AMS



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

	—2018—									
	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	93.44	101.44	92.79	79.37	91.76	92.46	99.91	91.43	77.02	90.20
Ocean	27.00	25.00	24.00	25.00	25.25	28.00	26.00	25.00	26.00	26.25
Total transportation	120.44	126.44	116.79	104.37	117.01	120.46	125.91	116.43	103.02	116.45
Farm gate price ³	305.85	323.46	301.39	293.43	306.03	305.85	323.46	301.39	293.43	306.03
Landed cost	426.30	449.90	418.18	397.80	423.05	426.31	449.37	417.82	396.45	422.49
Transport % of landed cost	28.3	28.1	27.9	26.2	27.6	28.3	28.0	27.9	26.0	27.5
	North MT¹ - Santos² BY RAIL —US\$/mt—					Northwest RS¹ - Rio Grande² —US\$/mt—				
Truck	39.07	32.93	32.31	29.65	33.49	31.51	31.29	27.79	26.22	29.20
Rai ⁴ - Santos	46.94	43.89	42.77	39.56	43.29	-	-	-	-	-
Ocean	27.00	25.00	24.00	25.00	25.25	28.00	26.00	25.00	26.00	26.25
Total transportation	113.01	101.82	99.09	94.22	102.03	59.51	57.29	52.79	52.22	55.45
Farm gate price ³	305.85	323.46	301.39	293.43	306.03	334.43	343.90	326.13	328.39	333.21
Landed cost	418.86	425.28	400.48	387.65	408.07	393.94	401.18	378.92	380.62	388.66
Transport % of landed cost	27.0	23.9	24.7	24.3	25.0	15.1	14.3	13.9	13.7	14.3

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

²Export ports

³Source: Companhia Nacional de Abastecimento (CONAB) www.conab.gov.br

⁴Note: In Brazil there are no public/official rail tariff rates. Rail rates can be approximately 30 percent lower than truck rates, depending on volumes hauled and the terms of contracts signed between the railroad company and shippers (Source: ESALQ-LOG, 2018).

Source: ESALQ/ USP (University of São Paulo, Brazil) and USDA/AMS



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

	—2018—									
	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg
	North MT ¹ - Santarém ² —US\$/mt—					South MA ¹ - São Luís ² —US\$/mt—				
Truck	61.09	65.07	58.29	50.98	58.86	36.57	41.36	37.04	35.40	37.60
Ocean	38.50	35.50	31.25	34.00	34.81	37.00	34.80	30.75	33.00	33.89
Total transportation	99.59	100.57	89.54	84.98	93.67	73.57	76.16	67.79	68.40	71.48
Farm gate price ³	305.85	323.46	301.39	293.43	306.03	357.97	342.78	305.07	326.30	333.03
Landed cost	405.44	424.03	390.93	378.41	399.70	431.54	418.94	372.86	394.70	404.51
Transport % of landed cost	24.6	23.7	22.9	22.5	23.4	17.0	18.2	18.2	17.3	17.7
	Southwest PI ¹ - São Luís ² —US\$/mt—									
Truck	44.28	50.61	44.56	46.63	46.52					
Ocean	37.00	34.80	30.75	33.00	33.89					
Total transportation	81.28	85.41	75.31	79.63	80.41					
Farm gate price ³	321.69	320.70	290.62	292.04	306.26					
Landed cost	402.97	406.11	365.93	371.67	386.67					
Transport % of landed cost	20.2	21.0	20.6	21.4	20.8					

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

²Export ports

³Source: Companhia Nacional de Abastecimento (CONAB) www.conab.gov.br

Source: ESALQ/ USP (University of São Paulo, Brazil) and USDA/AMS



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

	—2018—									
	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg	1st qtr	2nd qtr	3rd qtr	4th qtr	Avg
	North MT ¹ - Santarém ² —US\$/mt—					South MA ¹ - São Luís ² —US\$/mt—				
Truck	61.09	65.07	58.29	50.98	58.86	36.57	41.36	37.04	35.40	37.60
Ocean	25.00	22.90	22.50	23.00	23.35	21.00	19.10	18.50	19.00	19.40
Total transportation	86.09	87.97	80.79	73.98	82.21	57.57	60.46	55.54	54.40	57.00
Farm gate price ³	305.85	323.46	301.39	293.43	306.03	357.97	342.78	305.07	326.30	333.03
Landed cost	391.94	411.43	382.18	367.41	388.24	415.54	403.24	360.61	380.70	390.02
Transport % of landed cost	22.0	21.4	21.1	20.1	21.2	13.9	15.0	15.4	14.3	14.6
	Southwest PI ¹ - São Luís ² —US\$/mt—									
Truck	44.28	50.61	44.56	46.63	46.52					
Ocean	21.00	19.10	18.50	19.00	19.40					
Total transportation	65.28	69.71	63.06	65.63	65.92					
Farm gate price ³	321.69	320.70	290.62	292.04	306.26					
Landed cost	386.97	390.41	353.68	357.67	372.18					
Transport % of landed cost	16.9	17.9	17.8	18.3	17.7					

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

²Export ports

³Source: Companhia Nacional de Abastecimento (CONAB) www.conab.gov.br; na: not available

Source: ESALQ/ USP (University of São Paulo, Brazil) and USDA/AMS



Brazil Soybean Transportation

Table 7. Truck rates for selected Brazilian soybean export transportation routes, 2018

Route #	Origin ¹ (reference city)	Destination	Distance (miles) ²	Share (%) ³	Freight Price (US\$)				
					1st qtr	2nd qtr	3rd qtr	4th qtr	Avg
					— (per 100 miles) ⁴ —				
1	Northwest RS ⁵ (Cruz Alta)	Rio Grande	288	13.0	10.94	10.86	9.65	9.11	10.14
2	North MT (Sorriso)	Santos	1,190	3.1	7.85	8.52	7.80	6.67	7.71
3	North MT (Sorriso)	Paranaguá	1,262	2.9	7.33	7.92	7.24	6.10	7.15
4	South GO (Rio Verde)	Santos	587	5.5	7.70	8.08	7.01	6.68	7.37
5	South GO (Rio Verde)	Paranaguá	726	4.5	7.73	8.25	7.25	7.12	7.59
6	North Central PR (Londrina)	Paranaguá	268	3.0	11.06	11.03	9.54	9.00	10.16
7	Western Central PR (Mamborê)	Paranaguá	311	2.8	10.20	10.05	8.87	7.99	9.28
8	Triangle MG (Uberaba)	Santos	339	3.3	10.43	10.77	9.37	8.85	9.85
9	West PR (Assis Chateaubriand)	Paranaguá	377	2.8	9.19	9.28	8.22	7.80	8.62
10	West Extreme BA (São Desidério)	Salvador	535	4.2	8.17	8.78	7.78	7.68	8.10
11	Southeast MT (Primavera do Leste)	Santos	901	2.7	7.21	7.51	6.84	6.04	6.90
12	Southeast MT (Primavera do Leste)	Paranaguá	975	2.5	6.85	7.12	6.63	5.94	6.63
13	Southwest MS (Maracaju)	Paranaguá	612	3.2	8.11	8.20	7.53	7.35	7.80
14	Southwest MS (Maracaju)	Santos	652	3.0	7.98	8.40	7.40	7.20	7.74
15	West PR (Assis Chateaubriand)	Santos	550	1.9	8.15	8.59	7.57	7.23	7.89
16	East GO (Cristalina)	Santos	585	2.0	8.82	9.51	8.23	7.95	8.63
17	North PR (Cornélio Procópio)	Paranaguá	306	1.9	8.98	8.76	7.55	7.10	8.10
18	Eastern Central PR (Castro)	Paranaguá	130	2.3	15.03	13.65	11.25	10.34	12.57
19	South Central PR (Guarapuava)	Paranaguá	204	2.6	13.26	13.21	11.12	10.47	12.02
20	North Central MS (São Gabriel do Oeste)	Santos	720	2.1	6.97	7.40	6.51	6.43	6.83
21	Ribeirão Preto SP (Guairá)	Santos	314	0.0	8.79	8.96	7.42	6.93	8.02
22	Northeast MT (Canarana)	Santos	950	3.2	7.67	8.12	7.14	6.16	7.27
23	East MS (Chapadão do Sul)	Santos	607	0.0	7.07	7.42	6.45	6.25	6.80
24	Northeast MT (Canarana)	Paranaguá	1,075	2.8	7.32	7.82	6.96	6.06	7.04

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.

⁴US\$ per metric ton (average monthly exchange rate from “Banco Central do Brasil” was used to convert Brazilian reais to the U.S. dollar)

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, TO=Tocantins

⁶Note: In Brazil there are no public/official rail tariff rates. Rail rates can be approximately 30 percent lower than truck rates, depending on volumes hauled and the terms of contracts signed between the railroad company and shippers (Source: ESALQ-LOG, 2018).

Source: ESALQ/ USP (University of São Paulo, Brazil) and USDA/AMS

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Brazil Soybean Transportation

Table 7. Truck rates for selected Brazilian soybean export transportation routes, 2018

Route #	Origin ¹ (reference city)	Destination	Distance (miles) ²	Share (%) ³	Freight Price (US\$)				
					1st qtr	2nd qtr	3rd qtr	4th qtr	Avg
					— (per 100 miles) ⁴ —				
25	Western Central RS (Tupanciretã)	Rio Grande	273	2.7	9.68	9.23	8.16	7.87	8.73
26	Southwest PR(Chopinzinho)	Paranaguá	291	2.1	12.93	13.45	11.91	11.04	12.33
27	North MT (Sorriso)	Itaituba	672	5.5	8.81	9.94	8.95	5.81	8.38
28	North MT (Sorriso)	Porto Velho	632	5.8	7.23	7.36	6.64	6.09	6.83
29	North MT (Sorriso)	Santarém	876	4.2	6.97	7.43	6.65	5.82	6.72
30	South MA (Balsas)	São Luís	482	1.1	7.59	8.59	7.69	7.35	7.81
31	Southwest PI (Bom Jesus)	São Luís	606	0.8	7.31	8.35	7.36	7.70	7.68
32	Southeast PA (Paragominas)	Barcarena	249	1.4	10.17	9.58	8.60	7.69	9.01
33	East TO (Campos Lindos)	São Luís	842	1.2	6.81	7.37	6.57	6.30	6.76
34	North MT(Sorriso)	Rondonópolis (Rail terminal)	382		10.23	8.62	8.46	7.76	8.77
35	Rondonópolis MT (Rail terminal) ⁶	Santos	1,019		4.61	4.31	4.20	3.88	4.25
	Average		587	100.0	8.94	9.21	8.15	7.46	8.44

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.

⁴US\$ per metric ton (average monthly exchange rate from “Banco Central do Brasil” was used to convert Brazilian reais to the U.S. dollar)

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, TO=Tocantins

⁶Note: In Brazil there are no public/official rail tariff rates. Rail rates can be approximately 30 percent lower than truck rates, depending on volumes hauled and the terms of contracts signed between the railroad company and shippers (Source: ESALQ-LOG, 2018).

Source: ESALQ/ USP (University of São Paulo, Brazil) and USDA/AMS



Brazil Soybean Transportation

Table 8. Monthly Brazilian soybean export truck transportation cost index

Month	Freight price* (per 100 miles)	Index variation (%) (Base: prior month)	Index value (Base: Jan. 05 = 100)	Month	Freight price* (per 100 miles)	Index variation (%) (Base: prior month)	Index value (Base: Jan. 05 = 100)
Jan-11	10.84	1.1	186.89	Jan-15	8.01	0.7	138.15
Feb-11	11.21	3.4	193.30	Feb-15	8.02	0.1	138.29
Mar-11	12.07	7.6	208.04	Mar-15	8.32	3.7	143.44
Apr-11	13.30	10.2	229.22	Apr-15	9.00	8.2	155.13
May-11	12.01	-9.7	207.04	May-15	8.39	-6.8	144.58
Jun-11	12.25	2.0	211.20	Jun-15	8.01	-4.5	138.12
Jul-11	12.72	3.9	219.34	Jul-15	7.56	-5.7	130.25
Aug-11	12.64	-0.7	217.84	Aug-15	7.38	-2.4	127.15
Sep-11	11.43	-9.6	196.95	Sep-15	6.60	-10.5	113.78
Oct-11	11.09	-3.0	191.10	Oct-15	6.70	1.5	115.43
Nov-11	10.70	-3.4	184.52	Nov-15	7.08	5.8	122.08
Dec-11	10.04	-6.2	173.00	Dec-15	6.76	-4.5	116.56
Jan-12	10.20	1.7	175.90	Jan-16	6.42	-5.1	110.63
Feb-12	10.76	5.4	185.45	Feb-16	6.73	4.8	115.98
Mar-12	10.55	-2.0	181.82	Mar-16	7.79	15.8	134.33
Apr-12	10.45	-1.0	180.06	Apr-16	8.30	6.5	143.05
May-12	9.64	-7.7	166.20	May-16	7.28	-12.3	125.43
Jun-12	9.37	-2.9	161.44	Jun-16	7.16	-1.5	123.51
Jul-12	9.76	4.2	168.16	Jul-16	7.46	4.2	128.64
Aug-12	10.17	4.3	175.33	Aug-16	7.33	-1.7	126.41
Sep-12	10.30	1.3	177.54	Sep-16	6.35	-13.3	109.53
Oct-12	10.13	-1.6	174.66	Oct-16	5.88	-7.5	101.35
Nov-12	9.84	-2.8	169.69	Nov-16	5.00	-14.9	86.21
Dec-12	9.73	-1.1	167.74	Dec-16	5.47	9.4	94.32
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

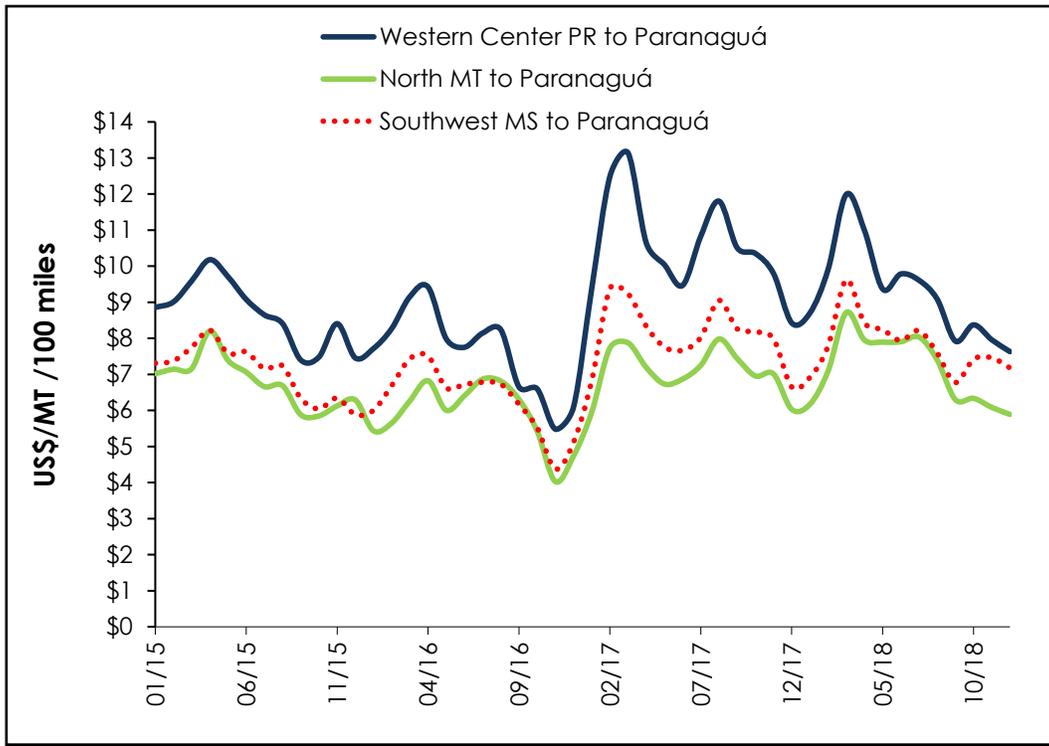
*Weighted average and quoted in US\$ per metric ton

Source: ESALQ/ USP (University of São Paulo, Brazil) and USDA/AMS



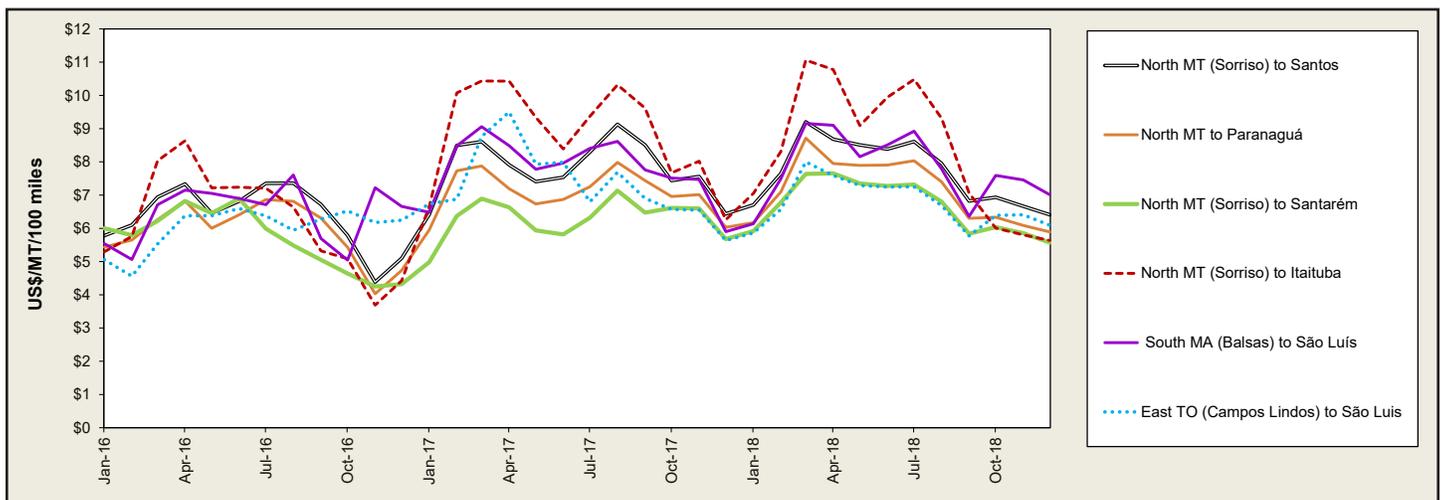
Brazil Soybean Transportation

Figure 3. Truck rates for selected southern Brazilian soybean export transportation route



Source: ESALQ/USP (University of São Paulo, Brazil) and USDA/AMS

Figure 4. Truck rates for selected north, south, and northeastern Brazilian soybean export transportation route

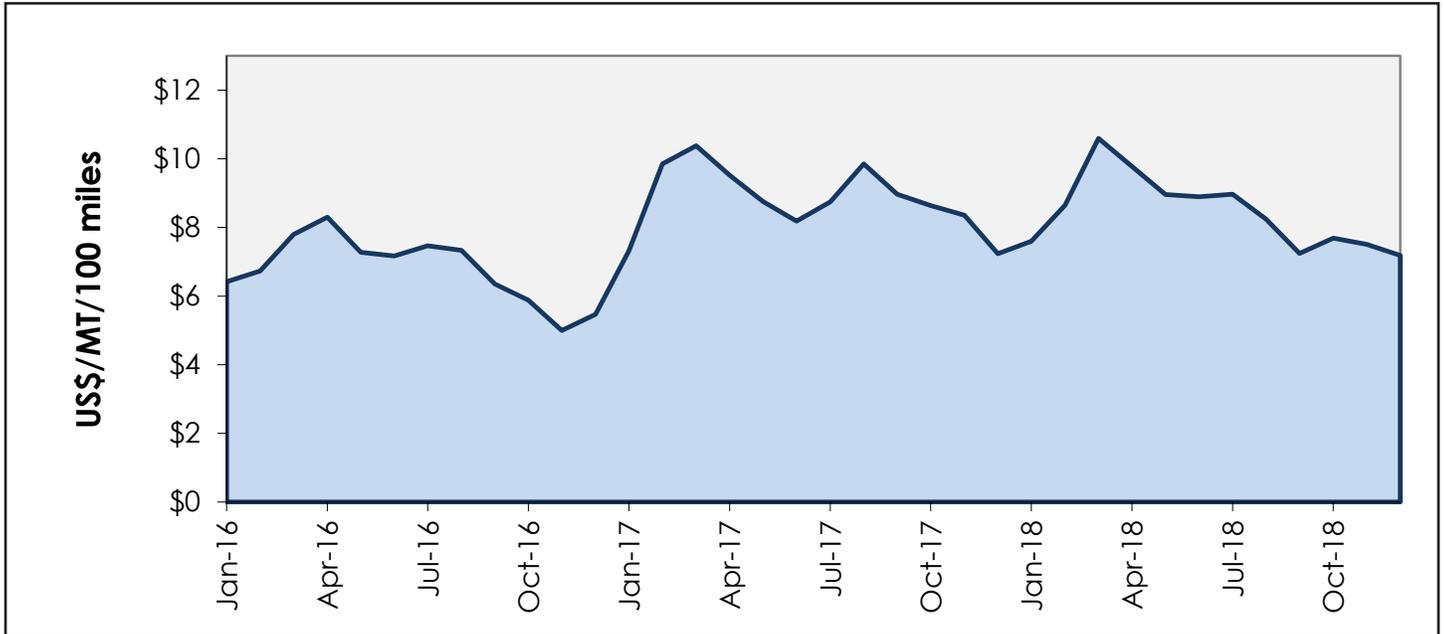


Source: ESALQ/USP (University of São Paulo, Brazil) and USDA/AMS



Brazil Soybean Transportation

Figure 5. Brazilian soybean export truck transportation weighted average prices, 2016/18



Source: ESALQ/USP (University of São Paulo, Brazil) and USDA/AMS



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 2011	2nd qtr 2011	3rd qtr 2011	4th qtr 2011
Santos	Germany (Hamburg)	34.96	35.00	36.65	32.00
Paranagua	Germany (Hamburg)	33.86	36.00	37.29	32.63
Rio Grande	Germany (Hamburg)	35.43	36.00	37.81	35.22
Santos	China (Shanghai)	50.00	50.05	52.31	49.65
Paranagua	China (Shanghai)	56.25	57.62	59.61	55.80
Rio Grande	China (Shanghai)	50.50	50.60	53.02	50.26
Port	Destination	1st qtr 2012	2nd qtr 2012	3rd qtr 2012	4th qtr 2012
Santos	Germany (Hamburg)	32.00	35.00	32.00	28.00
Paranagua	Germany (Hamburg)	31.58	35.00	34.30	34.30
Rio Grande	Germany (Hamburg)	32.08	36.50	32.00	32.00
Santos	China (Shanghai)	46.62	51.35	50.42	50.42
Paranagua	China (Shanghai)	52.32	57.63	55.42	55.42
Rio Grande	China (Shanghai)	47.92	52.78	49.02	49.02
Port	Destination	1st qtr 2013	2nd qtr 2013	3rd qtr 2013	4th qtr 2013
Santos	Germany (Hamburg)	30.00	29.00	29.00	30.00
Paranagua	Germany (Hamburg)	30.00	29.00	29.00	30.00
Rio Grande	Germany (Hamburg)	30.00	29.00	29.00	30.00
Santos	China (Shanghai)	52.34	34.50	34.50	42.50
Paranagua	China (Shanghai)	56.03	36.75	36.75	46.00
Rio Grande	China (Shanghai)	51.34	35.25	35.25	44.25
Port	Destination	1st qtr 2014	2nd qtr 2014	3rd qtr 2014	4th qtr 2014
Santos	Germany (Hamburg)	31.00	30.00	26.00	24.00
Paranagua	Germany (Hamburg)	31.00	30.00	28.00	26.00
Rio Grande	Germany (Hamburg)	31.00	30.00	24.50	22.50
Santos	China (Shanghai)	44.83	38.07	34.00	30.50
Paranagua	China (Shanghai)	47.22	41.13	36.00	32.50
Rio Grande	China (Shanghai)	44.83	38.75	32.50	30.50
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

*Correspond to the average actual values negotiated between shippers and carriers and weighted according to the magnitude of the shipped volume

Source: Sistema de Informações de Fretes, SIFRECA, ESALQ/USP (University of São Paulo, Brazil)

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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 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
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

*Correspond to the average actual values negotiated between shippers and carriers and weighted according to the magnitude of the shipped volume

Source: Sistema de Informações de Fretes, SIFRECA, ESALQ/USP (University of São Paulo, Brazil)



Brazil Soybean Transportation

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Data Sets (XLS files):

- [Figure 1. Brazilian soybean export truck cost index](#)
- [Figure 1a. Brazilian soybean export increases and truck cost for selected routes](#)
- [Figure 3. Truck rates for selected southern Brazilian soybean export transportation route](#)
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