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Brazil Soybean Transportation

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Contents

INFRASTRUCTURE TRANSPORTATION UPDATE

Investment Partnership Program (PPI): 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, PPI, and CNT):

1. **The North-South (EF-151) Railroad:** Porto National, Tocantins (TO) to Estrela d'Oeste, São Paulo (SP). Once completed, this railroad will integrate four States: TO, Goiás (GO), Minas Gerais (MG), and SP with access to the northeastern port of Itaquí-Sâo Luis, in the state of Maranhão (MA) and the southern port of Santos in the state of São Paulo (SP), the largest Brazilian exporting port.

Current Status: On July 31, 2019, the Brazilian government signed a 30-year concession for Rumo S.A. to operate and maintain the 953 mile (1,537 km) southern section of the North-South Railroad—from Estrela d'Oeste (SP) to Porto Nacional (TO). Rumo S.A. has the rights to operate services to and from the ports of Itaquí-Sâo Luis and Santos. The concession covers agreements with MRS Logística, the operator of the northern section of Ferrovia Norte Sul VLI, Carajás Railroad and Ferrovia Transnordestina Logística. Rumo S.A. also has the right to use unused rail capacity with Vale to haul 14 million metric tons of grain to the port of Itaquí-Sâo Luis.[1]

The southern section is divided in two segments with a broad gauge of 63 inches (1.60 meters). Segment I: 530 miles (855 km) from Porto Nacional (TO) to Anápolis (GO) is finished and is expected to be operational by the end of this year. Segment II: 423 miles (682 km) from Anápolis to Estrela d'Oeste is about 95 percent completed.

[1] Vale is a Brazilian multinational corporation engaged in metals and mining and one of the largest logistics operators in Brazil

Under the terms of the concession, Rumo S.A. has two years to finish the work before operations are due to start in 2021.Under the terms of the concession Rumo S.A. has two years to finish the works before operations are due to start in 2021.

2. **The West-East Integration (FIOL) Railroad (EF-334):** Ilhéus (BA) to Figueirópolis (TO). Extension: 947 miles (1,527 km).

This railway project aims to connect the soybean production plants in the west of Bahia state (BA) to the ports in the east. It is divided in three segments:

Current Status: Segment I: Ilhéus (BA) – Caietité (BA), 333 miles (537 km), of which more than 76 percent have been completed; Segment II: Caetité (BA) – Barreiras (BA), 301 miles (485 km), about 28 percent has been completed; and Segment III: Barreiras (BA) – Figueirópolis (TO), 314 miles (505 km). Currently the project is being studied. The estimated cost for segments I and II is $1.6 billion (R$6.4 billion).[2]

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 Center West 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 $3.4 billion (R$ 14 billion). The concession is for 65 years. Public hearings and technical studies are complete.

Current status: The Brazilian government plans to announce the tender offer and request bids for the concession during the first quarter of 2020 and begin operating in 2028.

4. **BR-163:** The distance by truck from Sorriso, in the state of Mato Grosso (MT) (Brazil's largest oilseed and grain producing state), 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 pavement of the last 28 miles (43 km) of BR-163, connecting Sorriso to Miritituba is divided in 2 segments. Segment I: The Army Engineer Construction Batallion (BEC) will complete paving the last 25 miles (40 kilometers) by December 2019. Segment II: A private company will finish paving of 2 miles (3 km) by the end of September 2019. The estimated cost is $615 million (R$ 2.5 billion) (CNT).

While construction on BR-163 continues, the Brazilian government is conducting daily inspections and maintenance of unpaved trouble spots on BR-163 within the state of Pará (PA). This is called Operation Radar II. In this way, the new Bolsonaro Administration reaffirmed its commitment to facilitating the flow of grain exports from Mato Grosso to the Amazon ports.

Port of Paranaguá

The port of Paranaguá is Brazil's second largest soybean exporting port, after Santos. In 2018, it exported more than 19 million tons of agricultural commodities including soybeans, corn, and soybean meal. The

2 Exchange rate of R$4.0631 per U.S. dollar, August 20, 2019.

Brazil Soybean Transportation

Administration of the Public Company Portos do Paraná (APPA) and the Associação dos Terminais do Corredor de Exportação de Paranaguá (ATEXP) are working to improve the port's infrastructure to increase export capacity. The projects are:

Improved rail access to port terminals: Currently, railcars and trucks unload at the same location, slowing down port operations. The port authorities, in partnership with Rumo S.A., will build a separate rail unloading facility and modernize the railcar and locomotive fleet. Daily truck inflow to the port will be reduced by 700 trucks per day, but railcar deliveries will increase by 532 per day. This would increase the grain rail modal share of exports from 30 to 50 percent.

Overhaul old conveyor belts: The installation of six new conveyor belts will increase ocean vessels' loading speed to 4,000 tons/hour per berth, increasing productivity and work safety, and improving environmental practices.

Improve truck terminals: The loading capacity of truck terminals will be increased to receive larger trucks with 9 axles, carrying 47 tons of cargo. Currently, the terminals receive trucks with 7 axles, carrying 37 tons of cargo.

Increased truck screening yard capacity: The screening yard capacity for truck scheduling will be increased from 1,000 to 1,400 trucks per day for loading cargo at the port.

Refurbishment of port access road: A deteriorated portion, 1.8 miles (2.9 km), one of the main access roads into the port, Bento Rocha Avenue, will be repaved and new vertical and horizontal road signs will be installed. The project is ongoing and is expected to be completed by December 2019. The amount invested was $3.91 million (R$ 15.9 million).

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 to 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, which was issued on August 9, 2018.[3] There is no indication when the ruling will be made. The law allows the ANTT to set minimum rate for trucking freight across the country, which reflect total transportation operating costs including fuel costs, distance traveled, 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.[4]

At the beginning of the year, 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

3 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.

4 The frequency with which rates will be published changes 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.

and regulatory impacts of the law.[5] In April, ANTT published a new version of the minimum freight rate table for consultation and public hearing. On July 18, 2019, the new version of the minimum freight table was published. The new rates introduced more significant variables into calculations, showing 11 different types of cargos with more precise minimum fees per kilometer transported, including number of axels, distance traveled, loading and unloading time of the truck, depreciation cost of the vehicle, remuneration of the truck driver and taxes, as well as tolls that must be paid. The ANTT held five public hearings across Brazil and received more than 500 comments as part of the process. After announcing a new version three days earlier, the ANTT temporarily suspended the new minimum freight price, on July 22, 2019, after it created a surge of truck drivers' protests.

Current Status: The ANTT plans to continue working on the methodology of the minimum freight rate table. On August 29, 2019, the Supreme Court announced that it was postponing the hearings on the constitutionality of the law scheduled for September 4 (g1.globo.com). There is no indication when the ruling will be made.

New Center-West Barge Brazilian Soybean Export Route

The Agricultural Marketing Service (AMS) and the ESALQ-LOG Group expanded the scope of the AMS quarterly *Brazil Soybean Transportation* indicator reports by adding two intermodal, truck-barge, export route through Itaituba/Miritituba barge terminal. These routes head through to the "Arco Norte" ports of Santarem and Barcarena to Shanghai, China, and Hamburg, Germany (figures 1, 2, and tables 1a, 2a, 5, 6, 7, and 9). Grain is transported 672 miles by truck from Sorriso, in the state of Mato Grosso (MT) to the Itaituba/Miritituba (PA) barge terminal on the Tapajós River. From there it continues 224 nautical miles (nm) to Santarém on the Amazon River, and 738 (nm) to Barcarena on the Pará River.

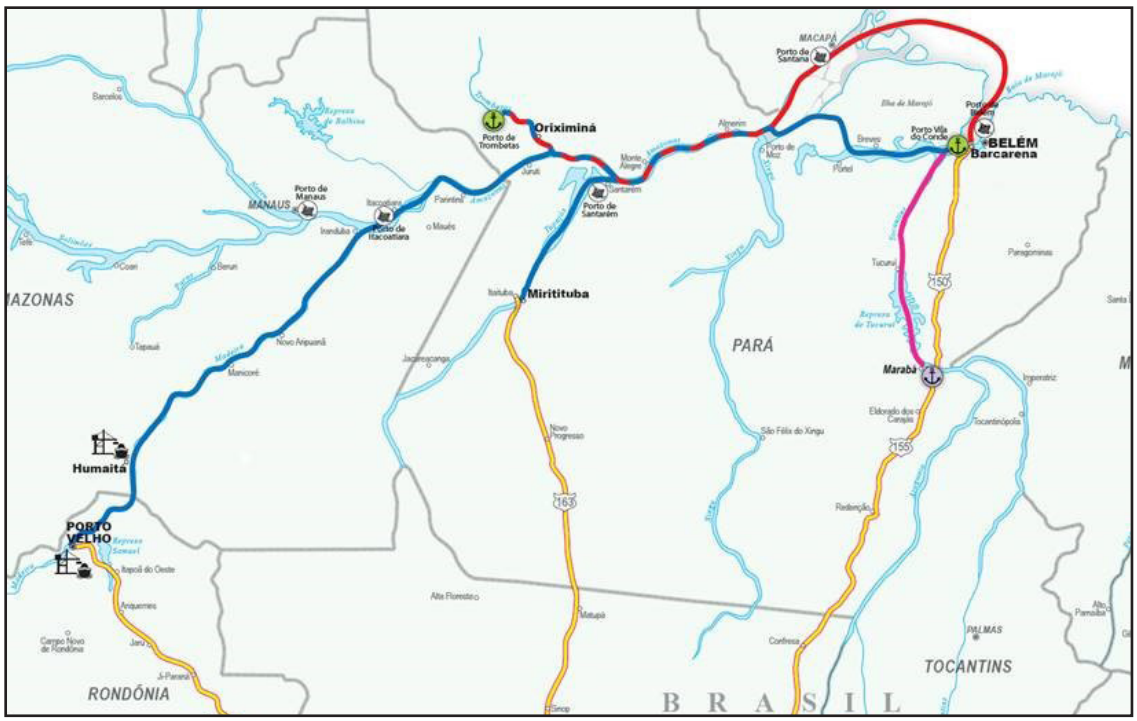
The revamped *Brazil Soybean Transportation* indicator report now includes 37 export routes through the Ports of Santos, Paranaguá, Rio Grande, Santarém, São Luís, and Barcarena to Shanghai, China, and Hamburg, Germany. It also includes 22 regions in 11 States, representing 80 percent of the total 2017 Brazilian soybean production (figure 1 and table 7). Truck freight rates correspond to actual values negotiated between shippers and carriers, including tolls, but excluding insurance and taxes.

In Brazil there are no public/official barge freight and tariff rail rates. Rail rates are approximately 30 percent lower than truck rates and barge freight rates are about 60 percent lower than truck rates, depending on volumes hauled and the terms of contracts signed between the rail/barge company and shippers (ESALQ-LOG, 2019). The ocean freight rates from the "Sistema de Informações de Fretes, SIFRECA, ESALQ – USP" correspond to actual values negotiated between shippers and carriers, but do not include insurance and handling costs. These rates are averaged according to the weight of the shipped volume.

5 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.

Brazil Soybean Transportation

Figure 1. The Northern Arc barge routes



Source: Hidrovias do Brasil
Modified by USDA/Agricultural Marketing Service (AMS)

Figure 1 shows the Northern Arc ports complex that includes: Itacoatiara/Manaus (Amazon River), Santarém (Amazon River), Barcarena (Pará River), Porto Velho (Rondonia) and Miritituba (PA) (barge terminals) and Marabá (planned barge terminal).

Weak Export Demand Lowers Prices and Transportation Costs During Brazilian Soybean Harvest Season

During the 2nd quarter of 2019, lower export volumes and prices decreased soybean export transportation demand. Brazilian soybean exports declined 14 percent to 28.1 million metric ton (mmt), compared with 33 mmt exported in the second quarter 2018 (Secretariat of Foreign Trade (SECEX), MDIC). Soybean exports to China declined 20 percent due to an epidemic of African swine fever that reduced the country's hog herd. China accounts for three quarters of total Brazilian soybean exports.

Average soybean export prices decreased to $349 per metric ton (mt) from $434 at the same time last year. The cost of shipping a metric ton of soybeans 100 miles by truck decreased by nearly 25 percent (on average) to $6.94 per mt in 2019's second quarter, from $9.21 at the same time last year (table 8). On average, ocean rates decreased nearly 15 percent to Hamburg and 7 percent to Shanghai. According to Drewry Maritime Research, during the first half of 2019, new vessel deliveries increased global dry bulk capacity, resulting in an excess vessel supply that kept ocean rates low (Grain Transportation Report, July 25, 2019).

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Brazil Soybean Transportation

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

	2018 2nd qtr	2019 2nd qtr	% Change 2018-2019	2018 2nd qtr	2019 2nd qtr	% Change 2018-2019
	North MT[1] - Santos[2] —US$/mt—			Northwest RS[1] - Rio Grande[2] —US$/mt—		
Truck	101.44	73.96	-27.1	31.29	24.86	-20.5
Ocean	31.00	30.92	-0.3	31.50	30.25	-4.0
Total transportation	132.44	104.88	-20.8	62.79	55.11	-12.2
Farm gate price[3]	323.46	271.70	-16.0	343.90	294.72	-14.3
Landed cost	455.90	376.58	-17.4	406.68	349.83	-14.0
Transport % of landed cost	29.1	27.8	-4.1	15.4	15.8	2.0
	North MT[1] - Santos[2] BY RAIL —US$/mt—			North MT[1] - Paranaguá[2] —US$/mt—		
Truck	32.93	26.49	-19.6	99.91	72.82	-27.1
Rail[4]	43.89	31.39	-28.5	-	-	-
Ocean	31.00	30.92	-0.3	32.00	31.42	-1.8
Total transportation	107.82	88.80	-17.6	131.91	104.24	-21.0
Farm gate price[3]	323.46	271.70	-16.0	323.46	271.70	-16.0
Landed cost	431.28	360.50	-16.4	455.37	375.94	-17.4
Transport % of landed cost	25.0	24.6	-1.5	29.0	27.7	-4.3

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

[2]Export ports

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

[4]Note: 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/ USP (University of São Paulo, Brazil) and USDA/AMS.

Brazil Soybean Transportation

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

	2018 2nd qtr	2019 2nd qtr	% Change 2018-2019	2018 2nd qtr	2019 2nd qtr	% Change 2018-2019
	North MT[1] - Santarém[2] —US$/mt—			South MA[1] - São Luís[2] —US$/mt—		
Truck	65.07	47.34	-27.2	41.36	31.80	-23.1
Ocean	35.50	30.58	-13.9	34.80	30.58	-12.1
Total transportation	100.57	77.92	-22.5	76.16	62.38	-18.1
Farm gate price[3]	323.46	271.70	-16.0	342.78	278.70	-18.7
Landed cost	424.03	349.62	-17.5	418.94	341.08	-18.6
Transport % of landed cost	23.7	22.3	-6.0	18.2	18.3	0.6
	Southwest PI[1] - São Luís[2] —US$/mt—			North MT[1] - Barcarena[2] BY BARGE —US$/mt—		
Truck	50.61	38.41	-24.1	-	45.66	-
Barge[4]	-	-	-	-	18.30	-
Ocean	34.80	30.58	-12.1	-	29.92	-
Total transportation	85.41	68.99	-19.2	-	75.58	-
Farm gate price[3]	320.70	285.28	-11.0	-	271.70	-
Landed cost	406.11	354.27	-12.8	-	347.29	-
Transport % of landed cost	21.0	19.5	-7.4	-	21.8	-

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

[2]Export ports

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

[4]Note: In Brazil there are no public/official Barge rates. Barge rates can be approximately 60 percent lower than truck rates, depending on volumes hauled and the terms of contracts signed between the barge company and shippers

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

Brazil Soybean Transportation

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

	2018 2nd qtr	2019 2nd qtr	% Change 2018-2019	2018 2nd qtr	2019 2nd qtr	% Change 2018-2019
	North MT[1] - Santos[2] —US$/mt—			Northwest RS[1] - Rio Grande[2] —US$/mt—		
Truck	101.44	73.96	-27.1	31.29	24.86	-20.5
Ocean	25.00	21.50	-14.0	26.00	21.25	-18.3
Total transportation	126.44	95.46	-24.5	57.29	46.11	-19.5
Farm gate price[3]	323.46	271.70	-16.0	343.90	294.72	-14.3
Landed cost	449.90	367.16	-18.4	401.18	340.83	-15.0
Transport % of landed cost	28.1	26.0	-7.5	14.3	13.5	-5.3
	North MT[1] - Santos[2] BY RAIL —US$/mt—			North MT[1] - Paranaguá[2] —US$/mt—		
Truck	32.93	26.49	-19.6	99.91	72.82	-27.1
Rail[4]	43.89	31.39	-28.5	-	-	-
Ocean	25.00	21.50	-14.0	26.00	21.25	-18.3
Total transportation	101.82	79.38	-22.0	125.91	94.07	-25.3
Farm gate price[3]	323.46	271.70	-16.0	323.46	271.70	-16.0
Landed cost	425.28	351.08	-17.4	449.37	365.77	-18.6
Transport % of landed cost	23.9	22.6	-5.6	28.0	25.7	-8.2

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

[2]Export ports

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

[4]Note: 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/ USP (University of São Paulo, Brazil) and USDA/AMS

Brazil Soybean Transportation

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

	2018 2nd qtr	2019 2nd qtr	% Change 2018-2019	2018 2nd qtr	2019 2nd qtr	% Change 2018-2019
	North MT[1] - Santarém[2] —US$/mt—			South MA[1] - São Luís[2] —US$/mt—		
Truck	65.07	47.34	-27.2	41.36	31.80	-23.1
Ocean	22.90	20.25	-11.6	19.10	17.10	-10.5
Total transportation	87.97	67.59	-23.2	60.46	48.90	-19.1
Farm gate price[3]	323.46	271.70	-16.0	342.78	278.70	-18.7
Landed cost	411.43	339.29	-17.5	403.24	327.60	-18.8
Transport % of landed cost	21.4	19.9	-6.8	15.0	14.9	-0.5
	Southwest PI[1] - São Luís[2] —US$/mt—			North MT[1] - Barcarena[2] **BY BARGE** --US$/mt--		
Truck	50.61	38.4	-24.1	-	45.66	-
Barge[4]	-	-	-	-	18.30	-
Ocean	19.10	17.1	-10.5	-	17.85	-
Total transportation	69.71	55.5	-20.4	-	63.51	-
Farm gate price[3]	320.70	285.3	-11.0	-	271.70	-
Landed cost	390.41	340.8	-12.7	-	335.22	-
Transport % of landed cost	17.9	16.3	-8.8	-	18.9	-

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

[2]Export ports

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

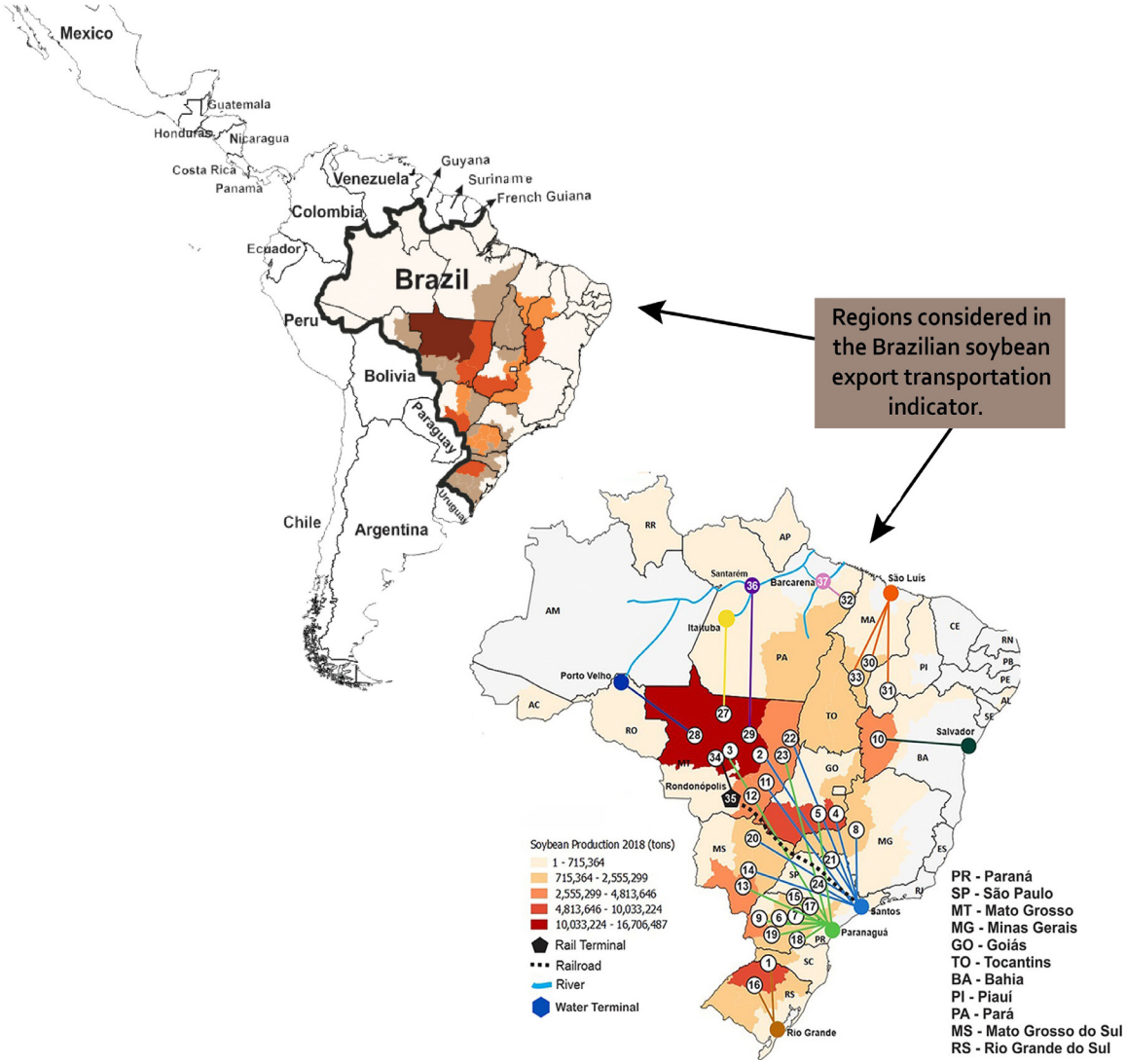
[4]Note: In Brazil there are no public/official Barge rates. Barge rates can be approximately 60 percent lower than truck rates, depending on volumes hauled and the terms of contracts signed between the barge company and shippers. The distance is in nautical miles

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

Brazil Soybean Transportation

Brazil Soybean Transportation Indicators

Figure 2. Routes[1] and regions considered in the Brazilian soybean export transportation indicator[2]



[1]Table defining routes by number is shown on page 15

[2]Regions comprised about 80 percent of Brazilian soybean production, 2017

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

Brazil Soybean Transportation

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

	—2019—									
	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	81.92	73.96			77.94	71.05	72.82			71.94
Ocean	32.25	30.92			31.59	33.75	31.42			32.59
Total transportation	114.17	104.88			109.52	104.80	104.24			104.52
Farm gate price[3]	275.38	271.70			273.54	275.38	271.70			273.54
Landed cost	389.54	376.58			383.06	380.18	375.94			378.06
Transport % of landed cost	29.3	27.8			28.6	27.6	27.7			27.6
	North MT[1] - Santos[2] BY RAIL —US$/mt—					Northwest RS[1] - Rio Grande[2] —US$/mt—				
Truck	29.89	26.49			28.19	26.05	24.86			25.46
Rail[4]	41.21	31.39			36.30	-	-			-
Ocean	32.25	30.92			31.59	31.58	30.25			30.92
Total transportation	103.36	88.80			96.08	57.63	55.11			56.37
Farm gate price[3]	275.38	271.70			273.54	308.52	294.72			301.62
Landed cost	378.73	360.50			369.62	366.2	349.83			357.99
Transport % of landed cost	27.3	24.6			26.0	15.7	15.8			15.7

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

[2]Export ports

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

[4]Note: 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/ USP (University of São Paulo, Brazil) and USDA/AMS

Brazil Soybean Transportation

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

	—2019—									
	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	81.92	73.96			77.94	71.05	72.82			71.94
Ocean	23.00	21.50			22.25	23.00	21.25			22.13
Total transportation	104.92	95.46			100.19	94.05	94.07			94.06
Farm gate price[3]	275.38	271.70			273.54	275.38	271.70			273.54
Landed cost	380.29	367.16			373.73	369.43	365.77			367.60
Transport % of landed cost	27.6	26.0			26.79	25.5	25.7			25.6
	North MT[1] - Santos[2] BY RAIL —US$/mt—					Northwest RS[1] - Rio Grande[2] —US$/mt—				
Truck	29.89	26.49			28.19	26.05	24.86			25.46
Rail[4]	41.21	31.39			36.30	-	-			-
Ocean	23.00	21.50			22.25	23.00	21.25			22.13
Total transportation	94.11	79.38			86.74	49.05	46.11			47.58
Farm gate price[3]	275.38	271.70			273.54	308.52	294.72			301.62
Landed cost	369.48	351.08			360.28	357.57	340.83			349.20
Transport % of landed cost	25.5	22.6			24.04	13.7	13.5			13.6

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

[2]Export ports

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

[4]Note: 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/ USP (University of São Paulo, Brazil) and USDA/AMS

Brazil Soybean Transportation

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

	—2019—									
	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	59.40	47.34			53.37	37.04	31.80			34.42
Ocean	32.25	30.58			31.42	31.00	30.58			30.79
Total transportation	91.65	77.92			84.79	68.04	62.38			65.21
Farm gate price[3]	275.38	271.70			273.54	298.43	278.70			288.57
Landed cost	367.03	349.62			358.33	366.47	341.08			353.78
Transport % of landed cost	25.0	22.3			23.6	18.6	18.3			18.4
	Southwest PI[1] - São Luís[2] —US$/mt—					North MT[1] - Barcarena[2] BY BARGE --US$/mt-				
Truck	45.24	38.41			41.83	53.99	45.66			49.83
Barge[4]	-	-			-	19.66	18.30			18.98
Ocean	31.00	30.58			30.79	32.25	29.92			31.09
Total transportation	76.24	68.99			72.62	86.24	75.58			80.91
Farm gate price[3]	292.96	285.28			289.12	298.43	271.70			285.07
Landed cost	369.20	354.27			361.74	384.67	347.29			365.98
Transport % of landed cost	20.7	19.5			20.1	22.4	21.8			22.1

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

[2]Export ports

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

[4]Note: In Brazil there are no public/official Barge rates. Barge rates can be approximately 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

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

Brazil Soybean Transportation

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

	—2019—									
	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	59.40	47.34			53.37	37.04	31.80			34.42
Ocean	21.00	20.25			20.63	18.00	17.10			17.55
Total transportation	80.40	67.59			74.00	55.04	48.90			51.97
Farm gate price[3]	275.38	271.70			273.54	298.43	278.70			288.57
Landed cost	355.78	339.29			347.54	353.47	327.60			340.54
Transport % of landed cost	22.6	19.9			21.3	15.6	14.9			15.2
	Southwest PI[1] - São Luís[2] —US$/mt—					North MT[1] - Barcarena[2] BY BARGE --US$/mt-				
Truck	45.24	38.41			41.83	53.99	45.66			49.83
Barge[4]	-	-			-	19.66	18.30			18.98
Ocean	18.00	17.10			17.55	19.00	17.85			18.43
Total transportation	63.24	55.51			59.38	72.99	63.51			68.25
Farm gate price[3]	292.96	285.28			289.12	298.43	271.70			285.07
Landed cost	356.20	340.79			348.50	371.42	335.22			353.32
Transport % of landed cost	17.8	16.3			17.0	19.7	18.9			19.3

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

[2]Export ports

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

[4]Note: In Brazil there are no public/official Barge rates. Barge rates can be approximately 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

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

Brazil Soybean Transportation

Table 7. Quarterly truck rates for selected Brazilian soybean export transportation routes, 2019

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	12.0	9.05	8.63			8.84
2	North MT (Sorriso)	Santos	1,190	3.0	6.88	6.21			6.55
3	North MT (Sorriso)	Paranaguá	1,262	2.8	5.63	5.77			5.70
4	South GO (Rio Verde)	Santos	587	5.1	7.29	5.89			6.59
5	South GO (Rio Verde)	Paranaguá	726	4.1	6.15	6.03			6.09
6	North Central PR (Londrina)	Paranaguá	268	3.3	8.86	8.40			8.63
7	Western Central PR (Mamborê)	Paranaguá	311	2.6	7.96	7.76			7.86
8	Triangle MG (Uberaba)	Santos	339	3.1	10.13	8.11			9.12
9	West PR (Assis Chateaubriand)	Paranaguá	377	2.5	7.45	7.00			7.22
10	West Extreme BA (São Desidério)	Salvador	535	5.6	7.03	6.48			6.76
11	Southeast MT (Primavera do Leste)	Santos	901	2.5	6.23	5.60			5.91
12	Southeast MT (Primavera do Leste)	Paranaguá	975	2.3	5.21	5.26			5.23
13	Southwest MS (Maracaju)	Paranaguá	612	3.3	6.48	6.33			6.40
14	Southwest MS (Maracaju)	Santos	652	3.1	7.67	6.20			6.93
15	West PR (Assis Chateaubriand)	Santos	550	1.7	7.76	6.29			7.02
16	East GO (Cristalina)	Santos	585	1.9	8.18	6.80			7.49
17	North PR (Cornélio Procópio)	Paranaguá	306	1.8	7.16	6.78			6.97
18	Eastern Central PR (Castro)	Paranaguá	130	2.1	12.15	10.87			11.51
19	South Central PR (Guarapuava)	Paranaguá	204	2.3	11.22	10.29			10.75
20	North Central MS (São Gabriel do Oeste)	Santos	720	2.3	6.79	5.44			6.12
21	Ribeirão Preto SP (Guairá)	Santos	314	0.0	8.57	6.62			7.60
22	Northeast MT (Canarana)	Santos	950	3.4	7.04	5.71			6.37
23	East MS (Chapadão do Sul)	Santos	607	0.0	6.71	5.45			6.08

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

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

[3]Share is measured as a percentage of total production.

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

[5]RS=Rio Grande do Sul, MT=Mato Grosso, GO=Goiás, PR=Paraná, MG=Minas Gerais, BA=Bahia, MS=Mato Grosso do Sul, SP=São Paulo, PI=Piauí, MA=Maranhão, PA=Pará, TO=Tocantins

[6]Note: 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

[7]Note: In Brazil there are no public/official Barge rates. Barge rates can be approximately 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

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

-continued on page 16-

Brazil Soybean Transportation

Table 7. Quarterly truck rates for selected Brazilian soybean export transportation routes, 2019

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] ——				
24	Northeast MT (Canarana)	Paranaguá	1,075	3.0	6.04	5.66			5.85
25	Western Central RS (Tupanciretã)	Rio Grande	273	2.7	9.40	8.31			8.85
26	Southwest PR(Chopinzinho)	Paranaguá	291	1.8	11.75	10.44			11.10
27	North MT (Sorriso)	Itaituba	672	5.3	8.04	6.80			7.42
28	North MT (Sorriso)	Porto Velho	632	5.7	6.29	5.98			6.14
29	North MT (Sorriso)	Santarém	876	4.1	6.78	5.40			6.09
30	South MA (Balsas)	São Luís	482	1.9	7.69	6.60			7.15
31	Southwest PI (Bom Jesus)	São Luís	606	2.2	7.47	6.34			6.90
32	Southeast PA (Paragominas)	Barcarena	249	1.5	10.05	7.58			8.82
33	East TO (Campos Lindos)	São Luís	842	1.1	6.43	5.36			5.90
34	North MT (Sorriso)	Rondonópolis (**Rail terminal**)	382		7.83	6.93			7.38
35	Rondonópolis MT (**Rail terminal**)[6]	Santos	1,019		4.04	3.08			3.56
36	Itaituba PA **(Barge terminal)**[7]	Santarém	224		9.24	7.84			8.54
37	Itaituba PA **(Barge terminal)**[7]	Barcarena	738		2.67	2.48			2.57
	Average		**587**	**100.0**	**7.75**	**6.94**			**7.35**

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

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

[3]Share is measured as a percentage of total production.

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

[5]RS=Rio Grande do Sul, MT=Mato Grosso, GO=Goiás, PR=Paraná, MG=Minas Gerais, BA=Bahia, MS=Mato Grosso do Sul, SP=São Paulo, PI=Piauí, MA=Maranhão, PA=Pará, TO=Tocantins

[6]Note: 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

[7]Note: In Brazil there are no public/official Barge rates. Barge rates can be approximately 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

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

Brazil Soybean Transportation

Table 8. Monthly Brazilian soybean export truck transportation cost index

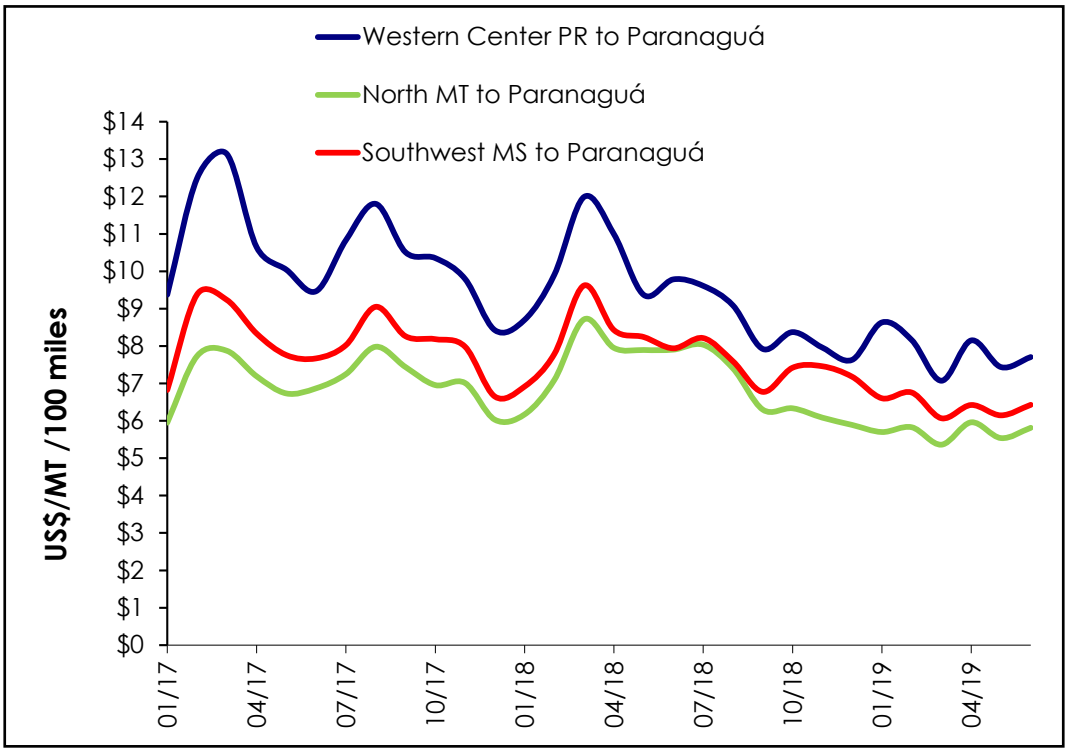
Month	Freight price* (per 100 miles)	Index variation (%) (Base: prior month)	Index value (Base: Jan. 05 = 100)	Month	Freight price* (per 100 miles)	Index variation (%) (Base: prior month)	Index value (Base: Jan. 05 = 100)
Jan-12	10.20	1.7	175.90	Jan-16	6.42	-5.1	110.63
Feb-12	10.76	5.4	185.45	Feb-16	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
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				
Aug-15	7.38	-2.4	127.15				
Sep-15	6.60	-10.5	113.78				
Oct-15	6.70	1.5	115.43				
Nov-15	7.08	5.8	122.08				
Dec-15	6.76	-4.5	116.56				

*Weighted average and quoted in US$ per metric ton

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

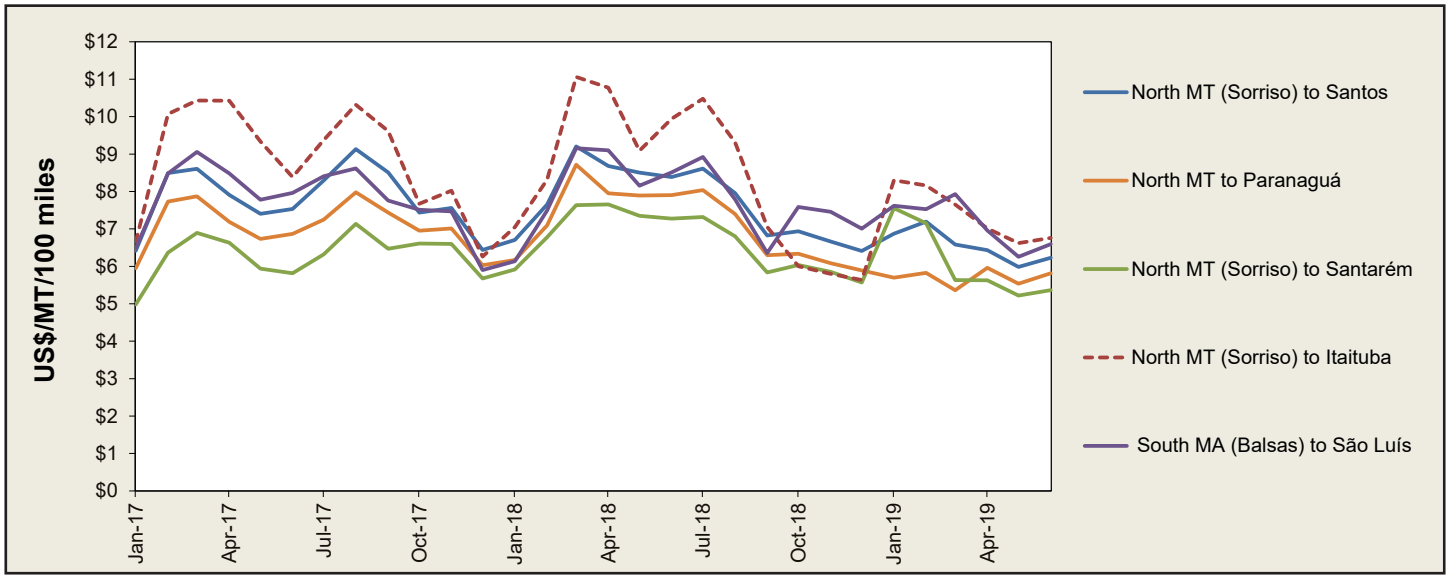
Brazil Soybean Transportation

Figure 3. Truck rates for selected southern Brazilian soybean export transportation routes, 2017-2019



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

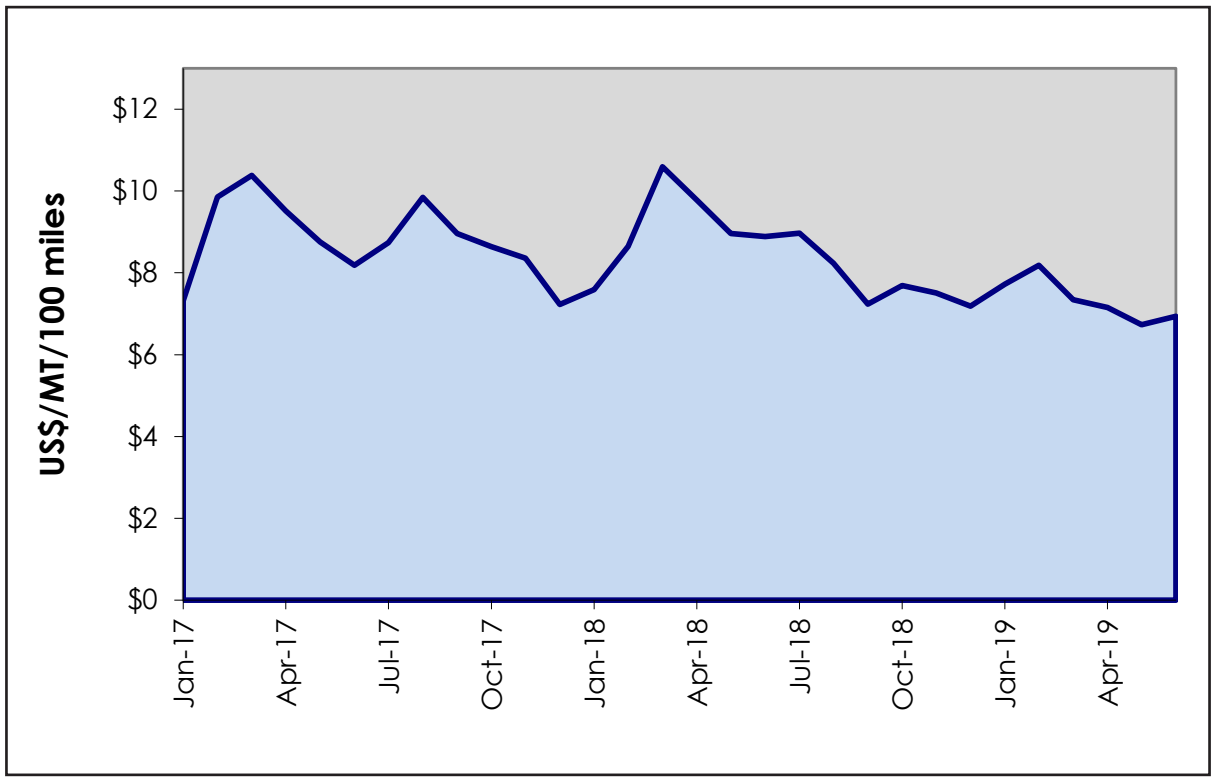
Figure 4. Truck rates for selected north, south, and northeastern Brazilian soybean export transportation routes, 2017-2019



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

Brazil Soybean Transportation

Figure 5. Brazilian soybean export truck transportation weighted average prices, 2017-2019



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 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
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

*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)

-continued on page 21-

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 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		
Paranaguá	Germany (Hamburg)	23.00	21.25		
Rio Grande	Germany (Hamburg)	23.00	21.25		
Santarém	Germany (Hamburg)	21.00	20.25		
São Luís	Germany (Hamburg)	18.00	17.10		
Barcarena	Germany (Hamburg)	19.00	17.85		
Santos	China (Shanghai)	32.25	30.92		
Paranagua	China (Shanghai)	33.75	31.42		
Rio Grande	China (Shanghai)	31.58	30.25		
Santarém	China (Shanghai)	32.25	30.58		
São Luís	China (Shanghai)	31.00	30.58		
Barcarena	China (Shanghai)	32.25	29.92		

*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 3. Truck rates for selected southern Brazilian soybean export transportation routes, 2017-2019
- Figure 4. Truck rates for selected north, south, and northeastern Brazilian soybean export transportation routes, 2017-2019
- Figure 5. Brazilian soybean export truck transportation weighted average prices, 2017-2019
- Table 1. Quarterly costs of transporting Brazilian soybeans from the southern ports to Shanghai, China
- Table 1a. Quarterly costs of transporting Brazilian soybeans from the northern and northeastern ports to Shanghai, China
- Table 2. Quarterly costs of transporting Brazilian soybeans from the southern ports to Hamburg, Germany
- Table 2a. 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
- Table 4. Quarterly costs of transporting Brazilian soybeans from the southern ports to Hamburg, Germany
- Table 5. Quarterly costs of transporting Brazilian soybeans from the northern and northeastern ports to Shanghai, China
- Table 6. Quarterly costs of transporting Brazilian soybeans from the northern and northeastern ports to Hamburg, Germany
- Table 7. Quarterly truck rates for selected Brazilian soybean export transportation routes, 2019
- 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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Related Websites:

- Soybean Transportation Guide: Brazil 2017 (PDF)
- Prior Articles: Brazil Soybean Transportation
- Related Articles: Grain Transportation Report: June 20, 2019 (PDF)

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