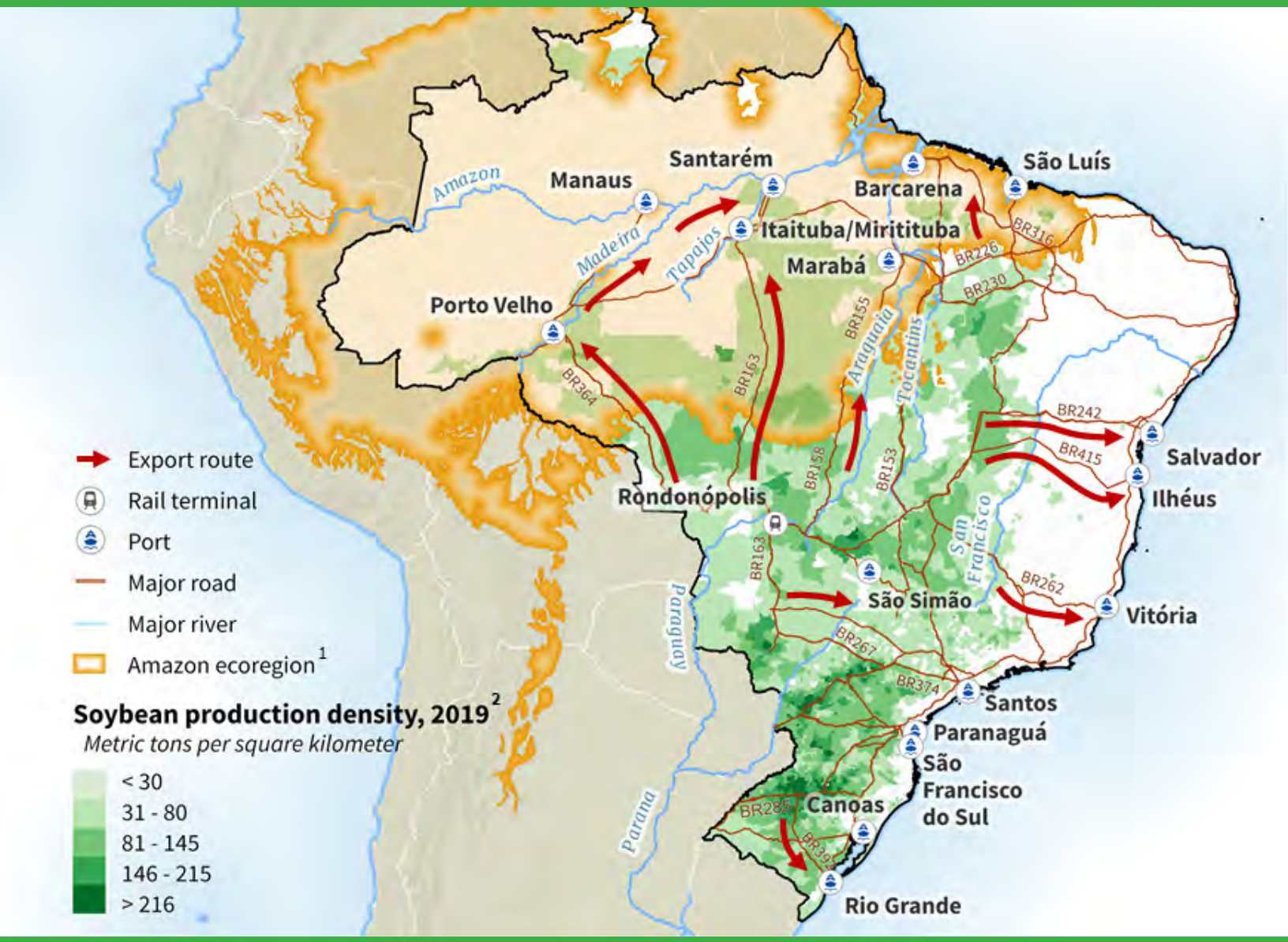
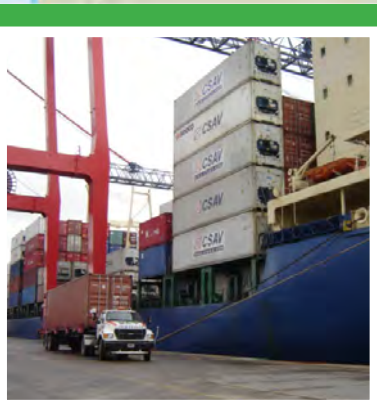
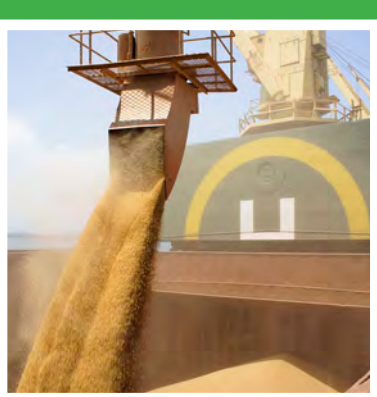
USDA Agricultural Marketing Service
U.S. DEPARTMENT OF AGRICULTURE

# Soybean Transportation Guide
# BRAZIL 2020





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# Contents

# Soybean Transportation Guide: Brazil 2020

## Executive Summary

The *Soybean Transportation Guide* is a visual snapshot of Brazilian soybean transportation in 2020. It provides data on the cost of shipping soybeans to Shanghai, China, and Hamburg, Germany. It also includes information about soybean production, exports, railways, ports, and infrastructural developments.

Brazil is the foremost U.S. competitor in the world oilseed market. Brazil largely bases its competitiveness on continually improving its transportation infrastructure to reduce transportation costs. The country's position has also benefited from low production costs, increases in planted area, high productivity, and weak currency. Because Brazilian and U.S. producers use the same advanced production and technological methods, their soybeans are relatively interchangeable for buyers. Similar to Brazil, U.S. soybean competitiveness worldwide rests (at least, in part) on keeping transportation costs low through continual infrastructure improvements.

Since 2013, Brazil has gained enough of a cost advantage to surpass U.S. soybean exports, becoming the top world soybean exporter. However, the United States retains a significant share of global soybean exports. USDA forecasts Brazil to retain its position as the world's largest soybean exporter through 2030. In recent years, the United States and Brazil have continued to vie for the position of the world's leading exporter. The United States remains the second-largest exporter, followed by Argentina, Paraguay, and Canada. China is the driver of global soybean trade, accounting for more than half of soybean worldwide imports.

## Soybean Transportation Cost and Export Demand

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. The cost of shipping a metric ton (mt) of soybeans 100 miles by truck decreased from $7.19 per mt in 2019 to $5.49 per mt in 2020. This 24-percent drop was mostly due to the Brazilian real's (R$) 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. 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 a secondary 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.

In Brazil, short-haul movements' average distance is about 440 miles (707 kilometers (km)) from the farm to rail and barge terminals. In the United States, the average distance from farm to inland elevators grain elevator terminals is about 25-100 miles. In 2019, the largest share (49 percent) of Brazil's soybeans shipped to major export facilities 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).

On average, Brazil's ocean rates for 2020 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. 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.

From 2019 to 2020 (year to year), lower transportation costs and higher farm prices led to lower costs for 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 and fell 26 percent from Barcarena. In Mato Grosso, Brazil's largest soybean-producing State, 2020 transportation costs from Sorriso to Shanghai through the Port of Santos represented 20-21 percent of the total landed costs, compared with 34 percent in 2008 and 45 percent in 2006. Year to year, average Brazilian soybean export prices declined 2 percent, from $352 per mt to $344 per mt. Brazilian farmers have benefited 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. A strong rally for 2020 farm gate prices mostly happened in the second half of the year when crop supplies were depleted following a robust pace of shipments to China.

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. The northern ports are favored for servicing Brazil's shipments to Europe because of their shorter route and fewer days at sea. Typically, Brazilian soybean exports peak in May and decline through the end of the year.

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 shorter loading delays and vessel backups than the southern ports of Santos and Paranaguá. Barcarena had vessel loading delays of 3-4 days, compared with average delays of 3-10 days for the ports of Santos and Paranaguá. The briefer delays at Barcarena offset the roughly 3-days-longer voyage distance from Barcarena to Shanghai. In 2020, the ocean freight spread was about $2-$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/mt) to Shanghai. Ocean freight spread is the cost difference between two vessel routes to the same destination.

## Acknowledgments

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# General Information


## State and Abbreviation

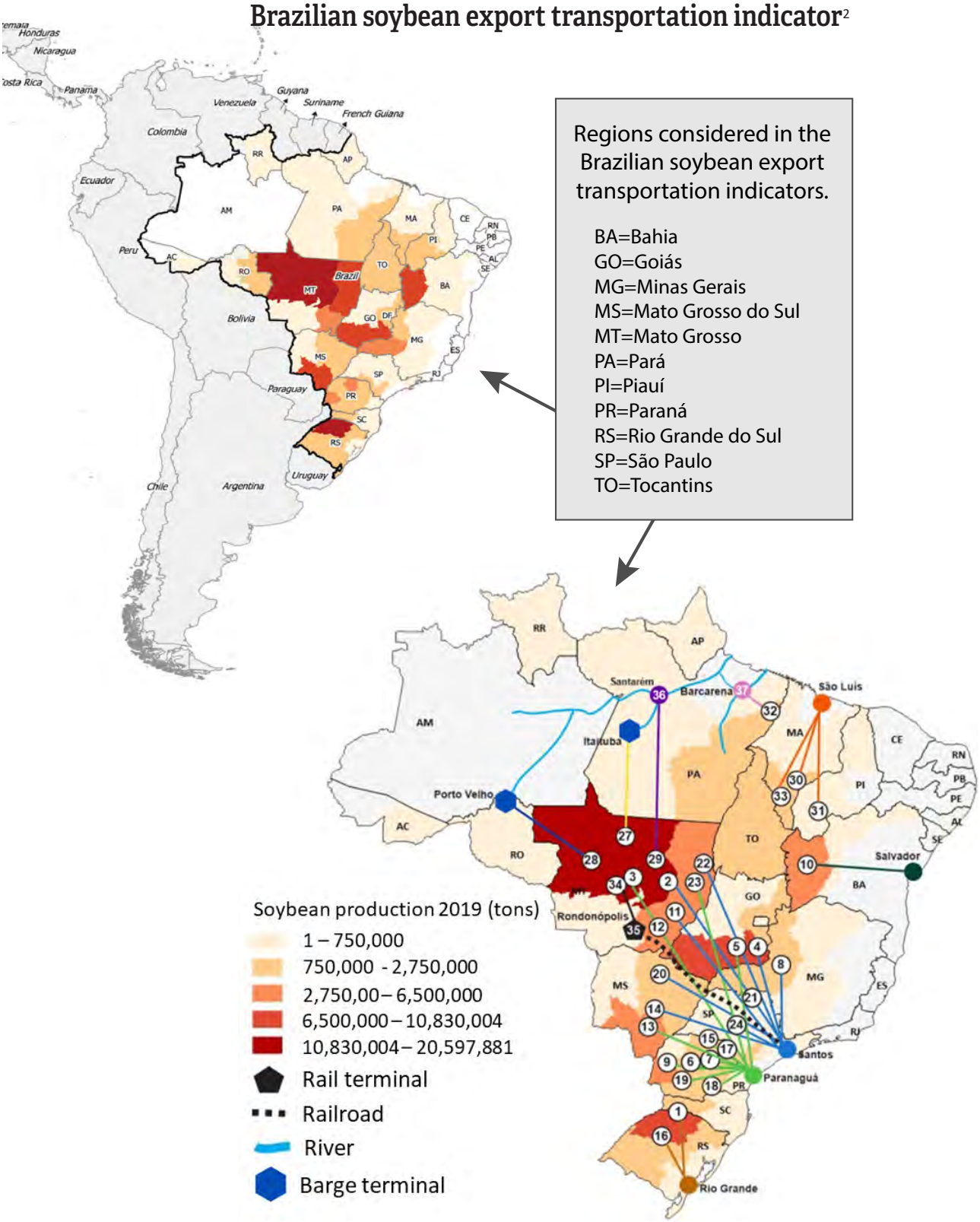
| | |
|---|---|
| Acre (AC) | Pará (PA) |
| Alagoas (AL) | Paraíba (PB) |
| Amapá (AP) | Paraná (PR) |
| Amazonas (AM) | Pernambuco (PE) |
| Bahia (BA) | Piauí (PI) |
| Ceará (CE) | Rio de Janeiro (RJ) |
| Distrito Federal (DF) | Rio Grande do Sul (RS) |
| Espírito Santo (ES) | Rondônia (RO) |
| Goiás (GO) | Roraima (RR) |
| Maranhão (MA) | Santa Catarina (SC) |
| Mato Grosso (MT) | São Paulo (SP) |
| Mato Grosso do Sul (MS) | Sergipe (SE) |
| Minas Gerais (MG) | Tocantins (TO) |

## Information about Brazil

| | |
|---|---|
| **Population:** | 211,755,692 (July 2020 estimate, Census, Instituto Brasileiro de Geografia e Estatística (IBGE)) |
| **Gross Domestic Product per Capita, 2020:** | $14,916 (International Monetary Fund) |
| **Inflation, 2020:** | 4.52 percent (IBGE) |
| **Unemployment, 4th Quarter 2020:** | 11 percent (IBGE) |
| **Area:** | 8,515,770 square kilometers |
| **Languages:** | Portuguese (official), Spanish, English, and French |

# 2020 Summary

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



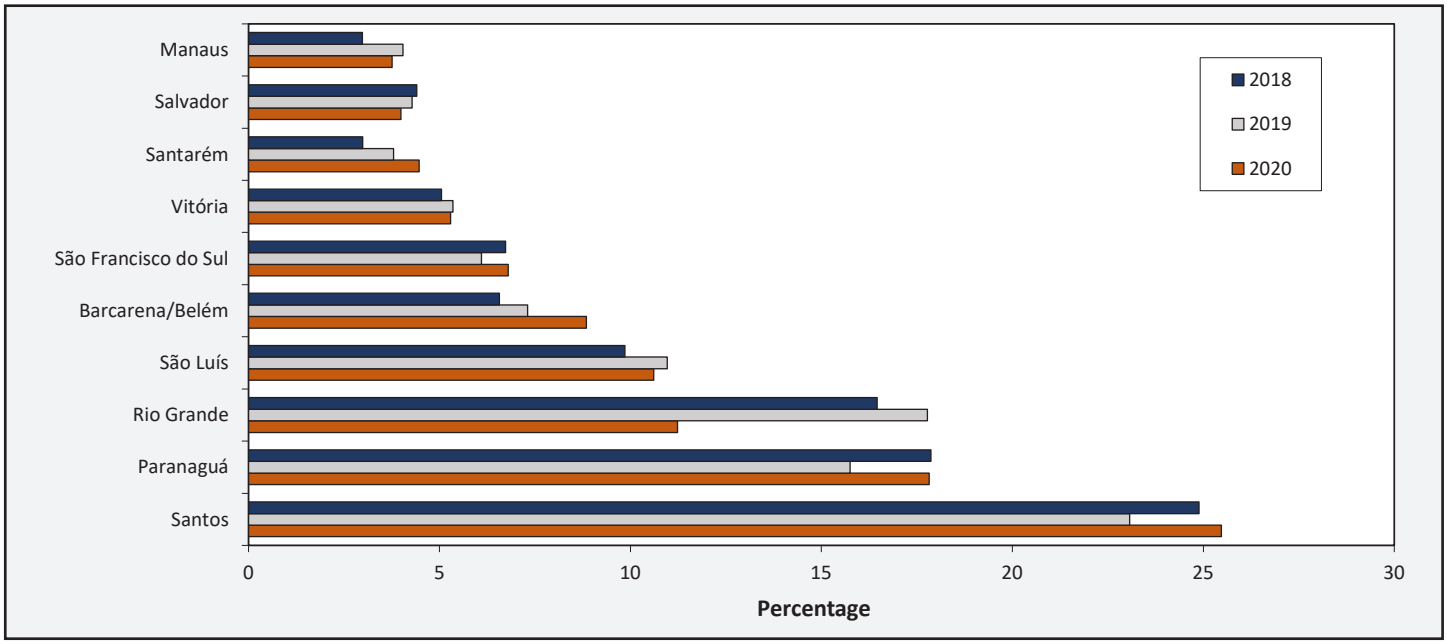

1 Table defining routes by number is shown on page 31.

2 Regions comprised about 81 percent of Brazilian soybean production, 2018 (Brazilian Institute of Geography and Statistics—Produção Agricola Municipal).

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

Brazil is the largest soybean-exporting country, followed by the United States, Argentina, Paraguay, and Canada. In 2020, 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.

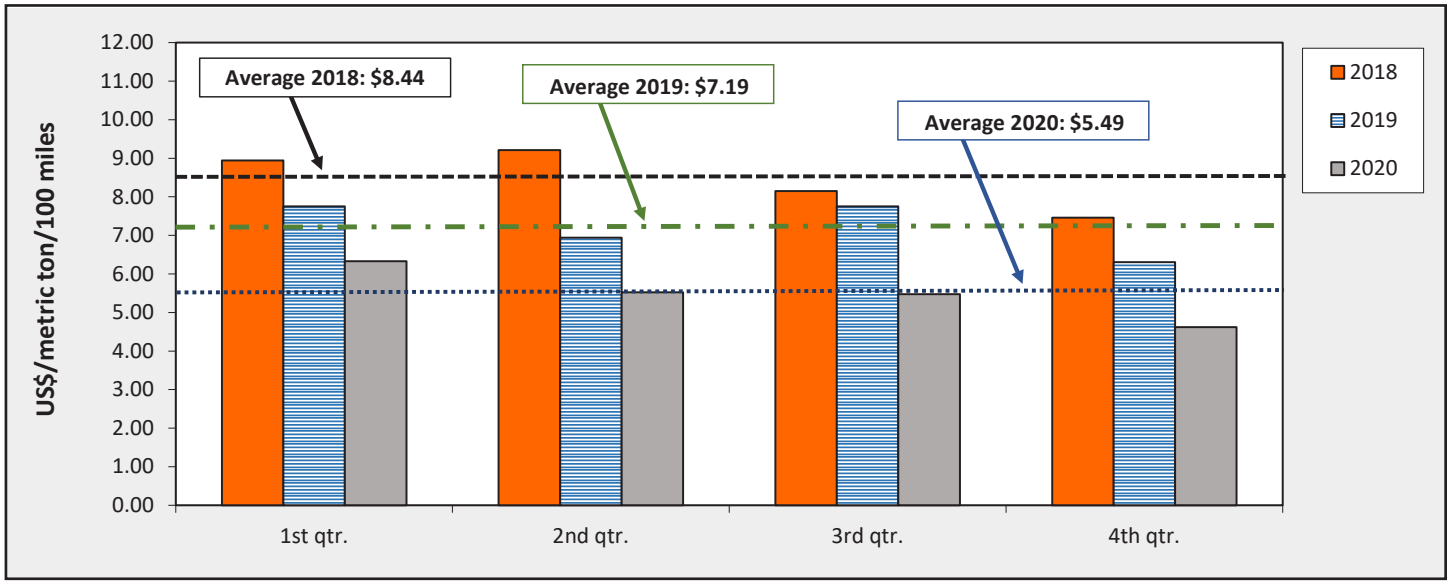
## Brazilian soybean exports by port, 2018-20




Source: Comex Stat, Ministério da Economia.

In 2020, the average cost in Brazil 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.

## Brazilian soybean export truck cost index, 2018-20




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

From 2019 to 2020, to transport Brazilian soybeans from northern Mato Grasso to Shanghai, China, total landed costs shipping via the ports of Santos and Santarém fell 25 percent and, via Barcarena, fell 26 percent. Total landed costs decreased in response to lower transportation costs and higher farm prices. 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, compared with 45 percent in 2006 and 34 percent in 2008.

## Costs of transporting Brazilian soybeans from the southern ports to Shanghai, China, 2015-20

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | % Change 2019-20 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | % Change 2019-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | North MT[1] - Santos[2] by truck —US$/mt— | | | | | | | Northwest RS[1] - Rio Grande[2] —US$/mt— | | | | | | |
| Truck | 86.04 | 75.49 | 92.95 | 91.76 | 79.28 | 60.65 | -23.5 | 26.37 | 18.38 | 30.72 | 29.20 | 25.06 | 19.24 | -23.2 |
| Ocean | 23.81 | 16.63 | 26.88 | 30.31 | 33.65 | 31.40 | -6.7 | 25.31 | 20.50 | 27.30 | 31.06 | 33.94 | 32.90 | -3.1 |
| Total transportation | 109.86 | 92.12 | 119.82 | 122.08 | 112.92 | 92.04 | -18.5 | 51.68 | 38.88 | 58.02 | 60.27 | 58.99 | 52.13 | -11.6 |
| Farm gate price[3] | 295.17 | 331.91 | 293.60 | 306.03 | 285.35 | 357.23 | 25.2 | 331.55 | 352.69 | 322.30 | 333.21 | 305.56 | 354.57 | 16.0 |
| Landed cost | 405.02 | 424.03 | 413.43 | 428.11 | 398.28 | 449.27 | 12.8 | 383.23 | 391.57 | 380.32 | 393.48 | 364.56 | 406.70 | 11.6 |
| Transport % of landed cost | 27.1 | 21.9 | 29.0 | 28.5 | 28.4 | 21.2 | -25.2 | 13.5 | 9.9 | 15.3 | 15.3 | 16.2 | 13.1 | -18.7 |
| | North MT[1] - Santos[2] by rail —US$/mt— | | | | | | | South GO[1] - Santos[2] —US$/mt— | | | | | | |
| Truck | - | - | - | 33.49 | 27.62 | 21.47 | -22.3 | 39.82 | 34.66 | 44.22 | 43.25 | 37.34 | 28.48 | -13.7 |
| Rail[4] | - | - | - | 43.29 | 39.98 | 32.13 | -19.6 | - | - | - | - | - | - | - |
| Ocean | - | - | - | 30.31 | 33.65 | 31.40 | -6.7 | 23.81 | 16.63 | 26.88 | 30.31 | 33.65 | 31.40 | 11.0 |
| Total transportation | - | - | - | 107.10 | 101.25 | 85.00 | -16.1 | 63.63 | 51.28 | 71.09 | 73.56 | 70.98 | 59.88 | -3.5 |
| Farm gate price[3] | - | - | - | 306.03 | 285.35 | 357.23 | 25.2 | 304.36 | 329.15 | 301.99 | 312.31 | 291.46 | 331.01 | -6.7 |
| Landed cost | - | - | - | 413.13 | 386.60 | 442.22 | 14.4 | 368.00 | 380.43 | 373.08 | 385.88 | 362.45 | 390.88 | -6.1 |
| Transport % of landed cost | - | - | - | 25.9 | 26.2 | 19.9 | -23.8 | 17.2 | 13.6 | 19.1 | 19.1 | 19.6 | 15.8 | 2.8 |

[1]Producing regions: RS = Rio Grande do Sul, MT= Mato Grosso, and GO = Goiás.
[2]Export ports.
[3]The source of the farm gate price is the Brazilian Government, Companhia Nacional de Abastecimento (CONAB).
[4]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.
Note: mt = metric ton.
Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

From 2019 to 2020, to ship soybeans to Hamburg, Germany, from Mato Grosso, transportation costs as a share of total landed costs decreased 24-26 percent and fell nearly 20 percent from Rio Grande do Sul.

## Costs of transporting Brazilian soybeans from the southern ports to Hamburg, Germany, 2015-20

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | % Change 2019-20 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | % Change 2019-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | North MT[1] - Santos[2] by truck —US$/mt— | | | | | | | Northwest RS[1] - Rio Grande[2] —US$/mt— | | | | | | |
| Truck | 86.04 | 75.49 | 92.95 | 91.76 | 79.28 | 60.65 | -23.5 | 26.37 | 23.85 | 30.72 | 29.20 | 25.06 | 19.24 | -23.2 |
| Ocean | 19.75 | 18.13 | 24.50 | 25.25 | 25.63 | 24.75 | -3.4 | 20.25 | 17.25 | 25.50 | 26.25 | 25.63 | 25.13 | -2.0 |
| Total transportation | 105.79 | 93.62 | 117.45 | 117.01 | 104.90 | 85.40 | -18.6 | 46.62 | 41.10 | 56.22 | 55.45 | 50.68 | 44.36 | -12.5 |
| Farm gate price[3] | 295.17 | 331.91 | 293.60 | 306.03 | 285.35 | 357.23 | 25.2 | 331.55 | 348.28 | 322.30 | 333.21 | 305.56 | 354.57 | 16.0 |
| Landed cost | 400.96 | 425.53 | 411.05 | 423.05 | 390.25 | 442.62 | 13.4 | 378.17 | 389.37 | 378.52 | 388.66 | 356.25 | 398.93 | 12.0 |
| Transport % of landed cost | 26.3 | 22.1 | 28.6 | 27.6 | 26.9 | 20.0 | -25.5 | 12.3 | 10.6 | 14.9 | 14.3 | 14.2 | 11.4 | -19.7 |
| | North MT[1] - Santos[2] by rail —US$/mt— | | | | | | | South GO[1] - Santos[2] —US$/mt— | | | | | | |
| Truck | - | - | - | 33.49 | 27.62 | 21.47 | -22.3 | 39.82 | 34.66 | 44.22 | 43.25 | 37.34 | 28.48 | -23.7 |
| Rail[4] | - | - | - | 43.29 | 39.98 | 32.13 | -19.6 | - | - | - | - | - | - | - |
| Ocean | - | - | - | 25.25 | 25.63 | 24.75 | -3.4 | 19.75 | 18.13 | 24.50 | 25.25 | 25.63 | 24.75 | -3.4 |
| Total transportation | - | - | - | 102.03 | 93.23 | 78.35 | -16.0 | 59.57 | 52.78 | 68.72 | 68.50 | 62.96 | 53.23 | -15.5 |
| Farm gate price[3] | - | - | - | 306.03 | 285.35 | 357.23 | 25.2 | 304.36 | 329.15 | 301.99 | 312.3 | 291.5 | 331.0 | 13.6 |
| Landed cost | - | - | - | 408.07 | 378.58 | 435.58 | 15.1 | 363.94 | 381.93 | 370.71 | 380.81 | 354.42 | 384.24 | 8.4 |
| Transport % of landed cost | - | - | - | 25.0 | 24.6 | 18.7 | -24.0 | 16.3 | 13.9 | 18.6 | 18.0 | 17.8 | 14.3 | -19.3 |

[1]Producing regions: RS = Rio Grande do Sul, MT= Mato Grosso, and GO = Goiás.
[2]Export ports.
[3]The source of the farm gate price is the Brazilian Government, Companhia Nacional de Abastecimento (CONAB).
[4]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.
Note: mt = metric ton.
Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

Transportation costs decreased from the selected routes of the northern and northeastern ports, to Shanghai, China, and Hamburg, Germany.

## Cost of transporting soybeans from the northern and northeastern ports to Shanghai, China, 2018-20

| | 2018 | 2019 | 2020 | % Change 2019-20 | 2018 | 2019 | 2020 | % Change 2019-20 |
|---|---|---|---|---|---|---|---|---|
| | North MT[1] - Santarém[2] —US$/mt— | | | | South MA[1] - São Luís[2] —US$/mt— | | | |
| Truck | 58.86 | 52.04 | 39.20 | -24.7 | 37.60 | 32.99 | 26.83 | -18.7 |
| Ocean | 34.81 | 35.06 | 33.66 | -4.0 | 33.89 | 34.81 | 34.02 | -2.3 |
| Total transportation | 93.67 | 87.10 | 72.86 | -16.4 | 71.48 | 67.80 | 60.85 | -10.2 |
| Farm gate price[3] | 306.03 | 285.35 | 357.23 | 25.2 | 333.03 | 297.05 | 353.30 | 18.9 |
| Landed cost | 399.70 | 372.45 | 430.08 | 15.5 | 404.51 | 364.85 | 414.15 | 13.5 |
| Transport % of landed cost | 23.4 | 23.4 | 17.6 | -24.9 | 17.7 | 18.6 | 15.0 | -19.1 |
| | Southwest PI[1] - São Luís[2] —US$/mt— | | | | North MT[1] - Barcarena[2] —US$/mt— | | | |
| Truck | 46.52 | 39.34 | 29.81 | -24.2 | - | 46.64 | 31.72 | -32.0 |
| Barge[4] | - | - | - | - | - | 18.85 | 14.68 | -22.1 |
| Ocean | 33.89 | 34.81 | 34.02 | -2.3 | - | 34.96 | 34.96 | 0.0 |
| Total transportation | 80.41 | 74.15 | 63.83 | -13.9 | - | 100.45 | 81.35 | -19.0 |
| Farm gate price[3] | 306.26 | 295.87 | 342.39 | 15.7 | - | 285.35 | 357.23 | 25.2 |
| Landed cost | 386.67 | 370.02 | 406.23 | 9.8 | - | 385.80 | 438.58 | 13.7 |
| Transport % of landed cost | 20.8 | 20.9 | 16.0 | -23.2 | - | 26.1 | 19.2 | -26.1 |

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

[2]Export port.

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

[4]In 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: mt = metric ton.

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

## Cost of transporting soybeans from the northern and northeastern ports to Hamburg, Germany, 2018-20

| | 2018 | 2019 | 2020 | % Change 2019-20 | 2018 | 2019 | 2020 | % Change 2019-20 |
|---|---|---|---|---|---|---|---|---|
| | North MT[1] - Santarém[2] —US$/mt— | | | | South MA[1] - São Luís[2] —US$/mt— | | | |
| Truck | 58.86 | 52.04 | 39.20 | -24.7 | 37.60 | 32.99 | 26.83 | -18.7 |
| Ocean | 23.35 | 23.42 | 20.94 | -10.6 | 19.40 | 20.34 | 22.76 | 11.9 |
| Total transportation | 82.21 | 75.45 | 60.14 | -20.3 | 57.00 | 53.33 | 49.59 | -7.0 |
| Farm gate price[3] | 306.03 | 285.35 | 357.23 | 25.2 | 333.03 | 297.05 | 353.30 | 18.9 |
| Landed cost | 388.24 | 360.81 | 417.37 | 15.7 | 390.02 | 350.38 | 402.89 | 15.0 |
| Transport % of landed cost | 21.2 | 20.9 | 15.0 | -28.3 | 14.6 | 15.2 | 12.6 | -17.4 |
| | Southwest PI[1] - São Luís[2] —US$/mt— | | | | North MT[1] - Barcarena[2] —US$/mt— | | | |
| Truck | 46.52 | 39.34 | 29.81 | -24.2 | - | 46.64 | 31.72 | -32.0 |
| Barge[4] | - | - | - | - | - | 18.85 | 14.68 | -22.1 |
| Ocean | 19.40 | 20.34 | 22.76 | 11.9 | - | 21.16 | 20.31 | -4.0 |
| Total transportation | 65.92 | 59.68 | 52.58 | -11.9 | - | 86.64 | 66.71 | -23.0 |
| Farm gate price[3] | 306.26 | 295.87 | 342.39 | 15.7 | - | 285.35 | 357.23 | 25.2 |
| Landed cost | 372.18 | 355.55 | 394.97 | 11.1 | - | 372.00 | 423.93 | 14.0 |
| Transport % of landed cost | 17.7 | 16.8 | 13.6 | -19.3 | - | 23.3 | 16.4 | -29.6 |

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

[2]Export port.

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

[4]In 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: mt = metric ton.

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

In response to lower barge and ocean rates in the first half of 2020, U.S. soybean transportation costs decreased 14 percent from Iowa to Hamburg, Germany, via the U.S. Gulf. From Minnesota and Iowa to Shanghai, China, via the U.S. Gulf, transportation costs as a share of the total landed costs decreased 14-15 percent from 2019, because of lower transportation costs, which more than offset higher farm gate prices. However, landed costs rose as higher farm gate prices more than offset the lower transportation costs. Strong Chinese demand for U.S. soybeans that began in fourth quarter 2020 combined with unusually high demand for barge services resulted in higher than usual barge rates, especially from Minnesota to the U.S. Gulf.[3]

## Average costs of transporting U.S. soybeans to Hamburg, Germany, and Shanghai, China, 2016-20

| | 2016 | 2017 | 2018 | 2019 | 2020 | % Change 2019-20 | 2016 | 2017 | 2018 | 2019 | 2020 | % Change 2019-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | To Hamburg, Germany | | | | | | | | | | | |
| | Minneapolis, Minnesota —US$/mt— | | | | | | Davenport, Iowa —US$/mt— | | | | | |
| Truck | 10.36 | 12.71 | 12.14 | 10.10 | 11.04 | 9.3 | 10.36 | 12.71 | 12.14 | 10.10 | 11.04 | 9.3 |
| Rail[1] | 43.30 | 45.91 | 46.37 | 47.96 | 36.73 | -23.4 | 11.65 | 34.98 | 30.92 | 32.13 | 33.03 | 2.8 |
| Barge[2] | 24.32 | 22.62 | 29.97 | 21.99 | 26.14 | 18.8 | 18.72 | 17.60 | 24.51 | 20.43 | 20.05 | -1.8 |
| Ocean[3] | 13.83 | 15.46 | 19.85 | 18.15 | 16.61 | -8.5 | 19.20 | 15.47 | 19.85 | 18.15 | 16.61 | -8.5 |
| Total transportation[4] | 59.33 | 62.26 | 73.55 | 74.22 | 62.97 | -15.2 | 51.19 | 54.53 | 64.23 | 64.73 | 55.96 | -13.6 |
| Farm price[5] | 335.81 | 338.20 | 330.51 | 305.65 | 321.45 | 5.2 | 340.89 | 344.53 | 336.05 | 307.27 | 330.02 | 7.4 |
| Landed cost[6] | 395.14 | 400.46 | 404.06 | 379.86 | 384.42 | 1.2 | 392.08 | 399.06 | 400.28 | 372.00 | 385.98 | 3.8 |
| Transport % of landed cost | 15.1 | 15.5 | 18.1 | 19.4 | 16.4 | -15.7 | 13.1 | 13.6 | 16.0 | 17.4 | 14.4 | -16.9 |
| | To Shanghai, China | | | | | | | | | | | |
| | Minneapolis, Minnesota —US$/mt— | | | | | | Davenport, Iowa —US$/mt— | | | | | |
| Truck | 10.36 | 12.71 | 12.14 | 10.10 | 11.04 | 9.3 | 10.36 | 12.71 | 12.14 | 10.10 | 11.04 | 9.3 |
| Rail[1] | 43.30 | 45.91 | 46.37 | 47.96 | 36.73 | -23.4 | 33.12 | 34.98 | 30.92 | 32.12 | 33.03 | 2.8 |
| Barge[2] | 24.32 | 22.62 | 29.97 | 21.99 | 26.14 | 18.8 | 18.72 | 17.60 | 24.51 | 20.43 | 20.05 | -1.8 |
| Ocean[3] | 26.65 | 38.37 | 44.42 | 44.55 | 40.08 | -10.0 | 26.65 | 38.37 | 44.42 | 44.55 | 40.08 | -10.0 |
| Total transportation[4] | 72.15 | 85.17 | 98.12 | 100.62 | 86.44 | -14.1 | 64.00 | 77.43 | 88.80 | 91.14 | 79.43 | -12.8 |
| Farm price[5] | 335.81 | 338.20 | 330.56 | 305.65 | 321.45 | 5.2 | 340.89 | 344.53 | 336.05 | 307.27 | 330.02 | 7.4 |
| Landed cost[6] | 407.96 | 423.37 | 428.68 | 406.27 | 407.89 | 0.4 | 404.90 | 421.96 | 424.85 | 398.41 | 409.45 | 2.8 |
| Transport % of landed cost | 17.8 | 20.1 | 22.8 | 24.7 | 21.2 | -14.1 | 15.9 | 18.3 | 20.9 | 22.9 | 19.4 | -15.3 |

[1]Rail rates include fuel surcharges, but do not include the cost of purchasing empty rail cars in the secondary rail markets, which could exceed the rail tariff rate plus fuel surcharge shown in the table.

[2]The Mississippi River closes from Minneapolis to just north of St. Louis during mid-December to late March; the distance by barge between Minneapolis and Davenport to the Port of New Orleans is 1,713 and 1,343 miles, respectively.

[3]Source: The Baltic Exchange and O'Neil Commodity Consulting; excludes handling charges.

[4]The average of the sum of the total costs may not be equal to the sum of the individual average costs of truck, rail, barge, and ocean because rail is used only in the first quarter.

[5]Source for the U.S. farm prices: USDA, National Agricultural Statistics Service.

[6]Landed cost is transportation cost plus farm price.

Note: mt = metric ton; total may not add exactly due to rounding.

Source: Compiled by the USDA, Agricultural Marketing Service.

3 During the first half of 2019, severe and widespread flooding stopped barge traffic and disrupted navigation along the Upper Mississippi River resulting in lower average barge rates in 2019 in the Upper Mid-west region. According to the U.S. Coast Guard, the St. Louis Harbor was closed for 38 consecutive days between May and June; the longest period recorded for the year at a given lock and dam on the river.

From North and South Dakota to Shanghai, China, via the Pacific Northwest (PNW), U.S. soybean transportation costs, as a share of total landed costs, decreased 6 percent from a year earlier in response to lower transportation costs and higher soybean prices.

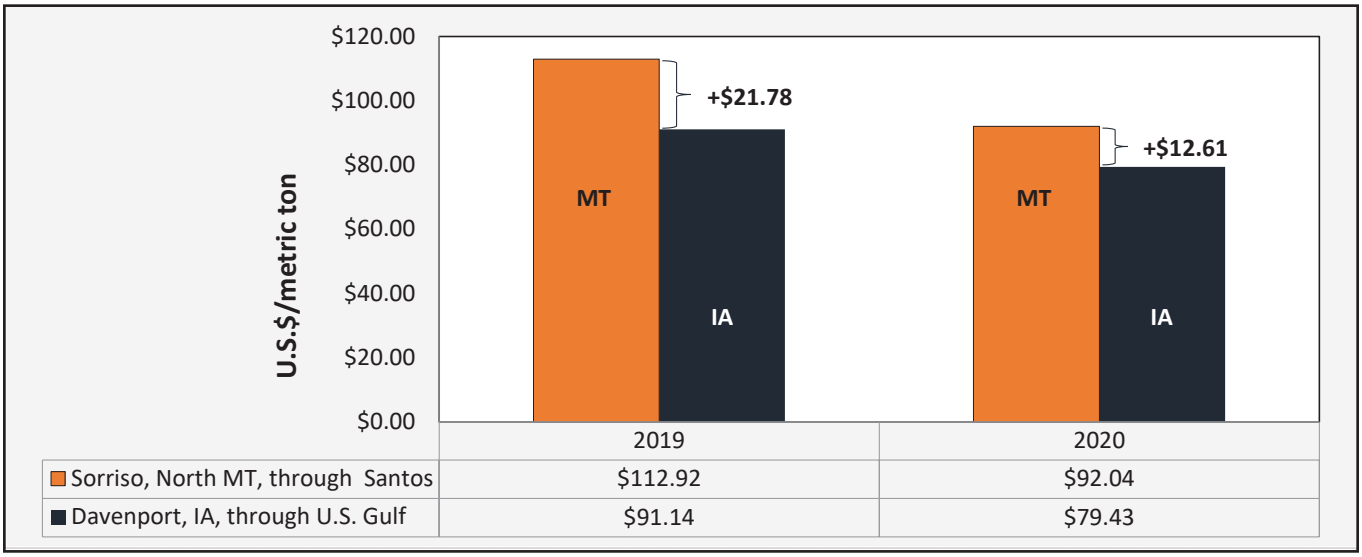
## Average costs of transporting U.S. soybeans to Shanghai, China, 2015-19

| | 2016 | 2017 | 2018 | 2019 | 2020 | % Change 2019-20 | 2016 | 2017 | 2018 | 2019 | 2020 | % Change 2019-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | To Shanghai, China via PNW | | | | | | | | | | | |
| | Fargo, ND —US$/mt— | | | | | | Sioux Falls, SD —US$/mt— | | | | | |
| Truck | 10.36 | 12.71 | 12.14 | 10.10 | 11.04 | 9.3 | 10.44 | 12.71 | 12.14 | 10.10 | 11.04 | 9.3 |
| Rail[1] | 53.04 | 54.66 | 55.12 | 56.36 | 57.10 | 1.3 | 54.02 | 55.65 | 56.11 | 57.35 | 58.09 | 1.3 |
| Ocean[2] | 14.90 | 20.37 | 24.34 | 24.59 | 21.38 | -13.1 | 14.85 | 20.37 | 24.34 | 24.59 | 21.38 | -13.1 |
| Total transportation | 78.30 | 87.74 | 91.60 | 91.05 | 89.52 | -1.7 | 79.31 | 88.74 | 92.59 | 92.04 | 90.51 | -1.7 |
| Farm price[3] | 327.42 | 324.57 | 319.55 | 285.65 | 306.11 | 7.2 | 328.98 | 328.98 | 320.38 | 293.98 | 315.51 | 7.3 |
| Landed cost[4] | 405.72 | 412.31 | 411.14 | 376.70 | 395.62 | 5.0 | 408.29 | 417.72 | 412.96 | 386.02 | 406.01 | 5.2 |
| Transport % of landed cost | 19.3 | 21.3 | 22.3 | 24.2 | 22.7 | -6.0 | 19.4 | 21.2 | 22.5 | 23.8 | 22.4 | -6.3 |

[1]Rail rates include fuel surcharges, but do not include the cost of purchasing empty rail cars in the secondary rail markets, which could exceed the rail tariff rate plus fuel surcharge shown in the table.
[2]Source for the U.S. ocean freight rates: O'Neil Commodity Consulting.
[3]Source for the U.S. farm prices: USDA, National Agricultural Statistics Service.
[4]Landed cost is transportation cost plus farm price.
Note: mt = metric ton; PNW = Pacific Northwest; SD = South Dakota; ND = North Dakota; total may not add exactly due to rounding.
Source: Compiled by the USDA, Agricultural Marketing Service.

In 2020, the cost per metric ton (mt) to ship soybeans from Sorriso, North Mato Grosso, to Shanghai, China, was $12.61 more than from Davenport, Iowa. The U.S. cost advantage decreased from 2019, as Brazilian transportation costs declined 18 percent while Iowa costs decreased around 13 percent. In 2020, the narrowing of the difference between Iowan and Brazilian transportation costs resulted mainly from a large reduction in ocean freight costs from the U.S. Gulf. Sorriso is located 1,190 miles from the port of Santos. Davenport is about 900 miles by truck, 908 miles by rail, and 1,343 miles by barge from the Port of New Orleans.

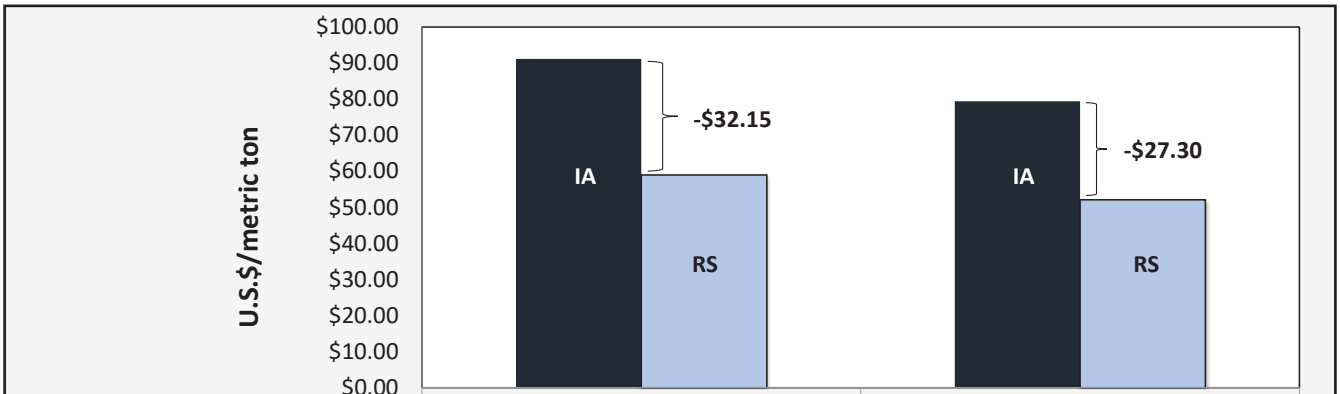
## Transportation cost differences between Mato Gross (MT) and Iowa (IA) to Shanghai, China, 2019-20




Note: MT = Mato Grosso and IA = Iowa.
Source: USDA, Agricultural Marketing Service.

In 2020, the cost of shipping a metric ton of soybeans from Cruz Alta, Northwest Rio Grande do Sul, to Shanghai, China, was $27.30 less than from Davenport, IA. The Brazilian cost advantage narrowed from 2019, as Brazilian transportation costs declined nearly 12 percent and Iowa costs decreased nearly 13 percent. The distance from Cruz Alta to the port of Rio Grande is 288 miles.

## Transportation cost differences between Rio Grande do Sul (RS) and Iowa (IA) to Shanghai, China, 2019-20

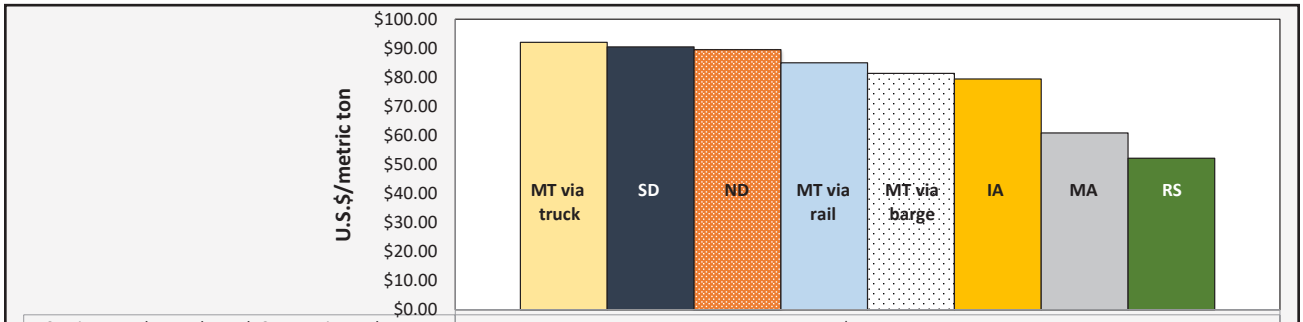



| | 2019 | 2020 |
|---|---|---|
| Davenport, IA through U.S. Gulf | 91.14 | 79.43 |
| Northwest RS, through Rio Grande | 58.99 | 52.13 |

Note: RS = Rio Grande do Sul and IA = Iowa.
Source: USDA, Agricultural Marketing Service.

During 2020, soybeans shipped by truck from Sorriso, North Mato Grosso, to Shanghai, China, cost about $1.50-$13.00 more per metric ton than U.S. shipments to Shanghai, by the U.S. Gulf and PNW routes. However, the cost advantage narrowed to $6 per metric ton when North Mato Grosso soybeans were shipped by rail to Santos and narrowed further to $2 per metric ton when shipped by barge to Barcarena. In Brazil, there are no public/official rail and barge tariff rates. Rail rates can be up to 30 percent lower than truck rates, and 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 railroad and barge companies and shippers.

## Transportation cost differences between selected Brazil-United States Routes to Shanghai, China, 2020




| | |
|---|---|
| Sorriso, North MT, through Santos via truck | $92.04 |
| Sioux Falls, SD, through Pacific Northwest | $90.51 |
| Fargo, ND, through Pacific Northwest | $89.52 |
| Sorriso, North MT, through Santos via rail | $85.00 |
| Sorriso, North MT, through Barcarena | $81.35 |
| Davenport, IA, through U.S. Gulf | $79.43 |
| Balsas, South MA, through São Luís | $60.85 |
| Cruz Alta, Northwest RS, through Rio Grande | $52.13 |

Note: MT = Mato Grosso, MA = Maranhão, RS= Rio Grande do Sul, SD = South Dakota, IA = Iowa, and ND= North Dakota.
Source: USDA, Agricultural Marketing Service.

In 2020, selected Brazilian export truck routes, measured in reais (R$), saw proportionally higher transportation costs, than those estimated in U.S. dollars, owing to the 31 percent depreciation of the Brazilian Real (R$) against the U.S. dollar and 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. 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.

## Truck rates for selected Brazilian soybean export routes, US$/metric ton, 2015-20

| Route # | Origin[1] (reference city) | Destination | Distance[2] (miles) | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | % change 2019-20 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Freight price, US$/metric ton[3] | | | | | | |
| 1 | Northwest RS[4] (Cruz Alta) | Rio Grande | 288 | 26.37 | 23.85 | 30.72 | 29.20 | 25.06 | 19.24 | -23.2 |
| 2 | North MT (Sorriso) | Santos | 1,190 | 86.04 | 75.49 | 92.95 | 91.76 | 79.28 | 60.65 | -23.5 |
| 3 | North MT (Sorriso) | Paranaguá | 1,262 | 85.68 | 74.42 | 89.41 | 90.20 | 75.78 | 59.87 | -21.0 |
| 4 | South GO (Rio Verde) | Santos | 587 | 39.82 | 34.66 | 44.22 | 43.25 | 37.34 | 28.48 | -23.7 |
| 6 | North Central PR (Londrina) | Paranaguá | 268 | 24.07 | 21.31 | 29.29 | 27.22 | 22.64 | 18.13 | -19.9 |
| 11 | Southeast MT (Primavera do Leste) | Santos | 901 | 58.82 | 51.29 | 63.63 | 62.16 | 53.56 | 41.57 | -22.4 |
| 27 | North MT (Sorriso) | Itaituba | 672 | 41.70 | 41.72 | 59.65 | 56.27 | 46.64 | 31.72 | -32.0 |
| 29 | North MT (Sorriso) | Santarém | 876 | 58.12 | 49.60 | 55.08 | 58.86 | 52.04 | 39.20 | -24.7 |
| 30 | South MA (Balsas) | São Luís | 482 | 36.15 | 31.04 | 37.69 | 37.60 | 32.99 | 26.83 | -18.7 |
| 31 | Southwest PI (Bom Jesus) | São Luís | 606 | 43.04 | 34.23 | 44.44 | 46.52 | 39.34 | 29.81 | -24.2 |
| 32 | Southeast PA (Paragominas) | Barcarena | 249 | 19.82 | 17.93 | 25.00 | 22.39 | 20.12 | 15.20 | -24.4 |
| 33 | East TO (Campos Lindos) | São Luís | 842 | 56.78 | 50.55 | 61.69 | 56.94 | 50.55 | 37.72 | -25.4 |
| 34 | North MT (Sorriso) | Rondonópolis (Rail terminal) | 382 | --na-- | --na-- | --na-- | 33.49 | 27.62 | 21.47 | -22.3 |
| 35 | Rondonópolis MT (Rail teminal)[5] | Santos | 1019 | --na-- | --na-- | --na-- | 43.29 | 39.98 | 32.13 | -19.6 |
| 36 | Itaituba PA (Barge terminal)[6] | Santarém | 224 | --na-- | --na-- | --na-- | --na-- | 14.67 | 9.17 | -37.5 |
| 37 | Itaituba PA (Barge terminal)[6] | Barcarena | 738 | --na-- | --na-- | --na-- | --na-- | 18.85 | 14.68 | -22.1 |

[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]Average monthly exchange rate from "Banco Central do Brasil" was used to convert Brazilian reais to U.S. dollars.
[4]RS = Rio Grande do Sul, MT= Mato Grosso, GO = Goiás, PR = Paraná, PI = Piauí, MA = Maranhão, PA = Pará, and TO = Tocantins.
[5]In 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.
[6]In 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.
Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

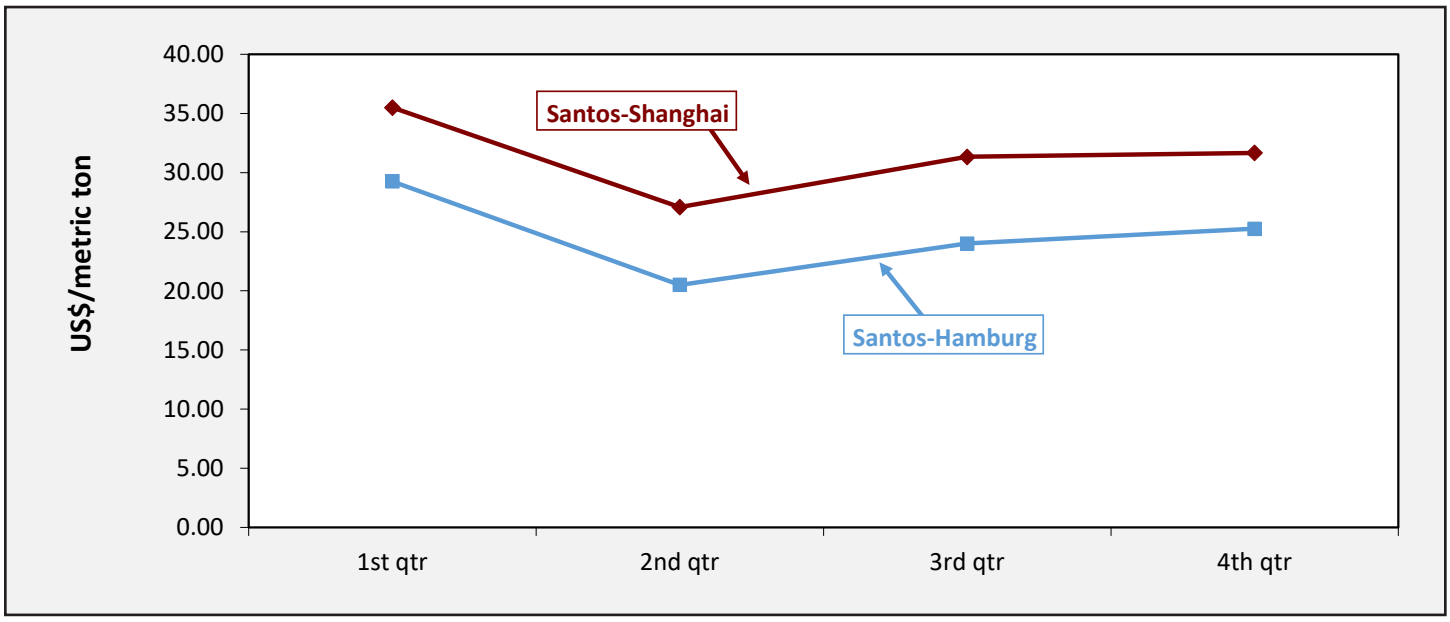
## Truck rates for selected Brazilian soybean export routes, reais/metric ton, 2015-20

| Route # | Origin[1] (reference city) | Destination | Distance[2] (miles) | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | % change 2019-20 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Freight price, reais/metric ton[3] | | | | | | |
| 1 | Northwest RS[4] (Cruz Alta) | Rio Grande | 288 | 87.26 | 83.70 | 97.91 | 106.15 | 98.63 | 98.34 | -0.3 |
| 2 | North MT (Sorriso) | Santos | 1,190 | 283.84 | 263.26 | 296.36 | 334.43 | 312.20 | 310.69 | -0.5 |
| 3 | North MT (Sorriso) | Paranaguá | 1,262 | 282.66 | 259.49 | 285.12 | 328.71 | 298.83 | 306.56 | 2.6 |
| 4 | South GO (Rio Verde) | Santos | 587 | 130.98 | 121.33 | 140.95 | 157.35 | 146.75 | 145.87 | -0.6 |
| 6 | North Central PR (Londrina) | Paranaguá | 268 | 79.44 | 74.77 | 93.34 | 98.87 | 89.07 | 92.75 | 4.1 |
| 11 | Southeast MT (Primavera do Leste) | Santos | 901 | 193.85 | 179.27 | 202.86 | 226.32 | 210.83 | 212.84 | 1.0 |
| 27 | North MT (Sorriso) | Itaituba | 672 | 137.56 | 145.97 | 190.01 | 204.53 | 183.26 | 162.06 | -11.6 |
| 29 | North MT (Sorriso) | Santarém | 876 | 190.47 | 174.02 | 175.70 | 214.29 | 204.53 | 200.87 | -1.8 |
| 30 | South MA (Balsas) | São Luís | 482 | 119.23 | 107.94 | 120.16 | 137.16 | 129.69 | 138.13 | 6.5 |
| 31 | Southwest PI (Bom Jesus) | São Luís | 606 | 141.03 | 119.74 | 141.67 | 169.77 | 154.46 | 153.25 | -0.8 |
| 32 | Southeast PA (Paragominas) | Barcarena | 249 | 65.77 | 62.95 | 79.64 | 81.19 | 78.95 | 77.84 | -1.4 |
| 33 | East TO (Campos Lindos) | São Luís | 842 | 184.72 | 175.24 | 196.74 | 207.55 | 198.95 | 193.24 | -2.9 |
| 34 | North MT (Sorriso) | Rondonópolis (Rail terminal) | 382 | --na-- | --na-- | --na-- | 121.48 | 108.61 | 109.95 | 1.2 |
| 35 | Rondonópolis MT (Rail teminal)[5] | Santos | 1019 | --na-- | --na-- | --na-- | 157.64 | 157.62 | 164.24 | 4.2 |
| 36 | Itaituba PA (Barge terminal)[6] | Santarém | 224 | --na-- | --na-- | --na-- | --na-- | 25.78 | 21.19 | -17.8 |
| 37 | Itaituba PA (Barge terminal)[6] | Barcarena | 738 | --na-- | --na-- | --na-- | --na-- | 74.17 | 75.24 | 1.4 |

[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]Average monthly exchange rate from "Banco Central do Brasil" was used to convert Brazilian reais to U.S. dollars.
[4]RS = Rio Grande do Sul, MT= Mato Grosso, GO = Goiás, PR = Paraná, PI = Piauí, MA = Maranhão, PA = Pará, and TO = Tocantins.
[5]In 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.
[6]In 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.
Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

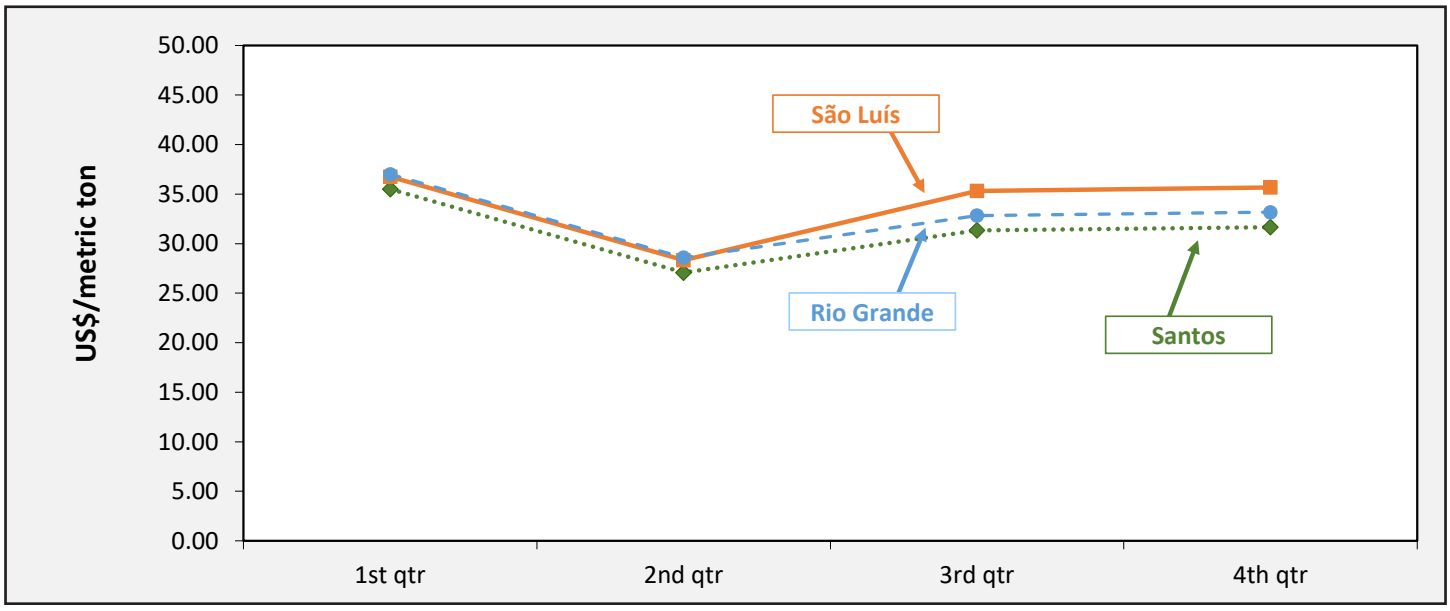
In 2020, ocean rates from the southern Brazilian ports, decreased on average about 2 percent to Hamburg, Germany, and 5 percent to Shanghai, China. The decrease in ocean rates resulted partly from the widening global impact of the COVID-19 pandemic and related restrictions in South Asia that discouraged shipyards from scrapping. The reduced demolition of older ships increased the vessel supply and further softened rates.

## Brazilian soybean ocean freight from Santos to Shanghai and Hamburg, 2020




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

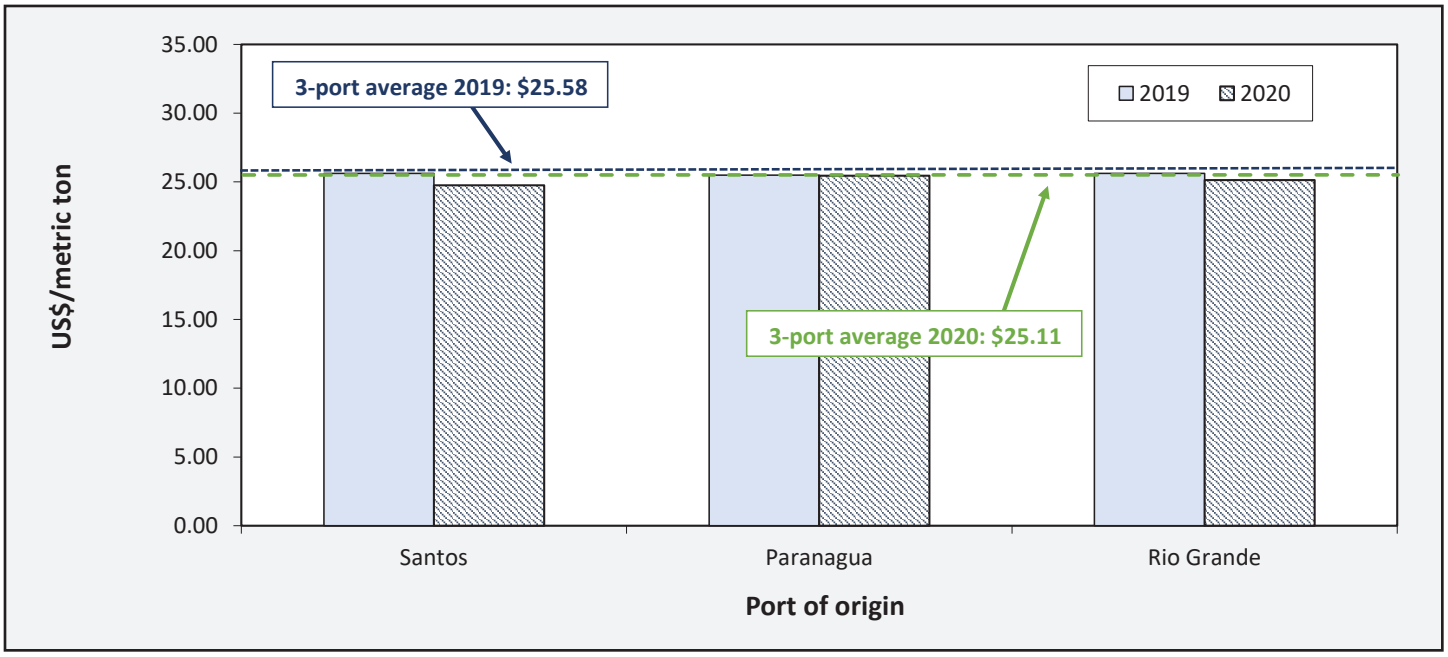
## Brazilian soybean ocean freight from selected ports to Shanghai, China, 2020




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

The cost to ship 1 mt of soybeans from Brazil to Hamburg, Germany, by oceangoing vessel decreased, on average, from $25.58/mt to $25.11/mt.

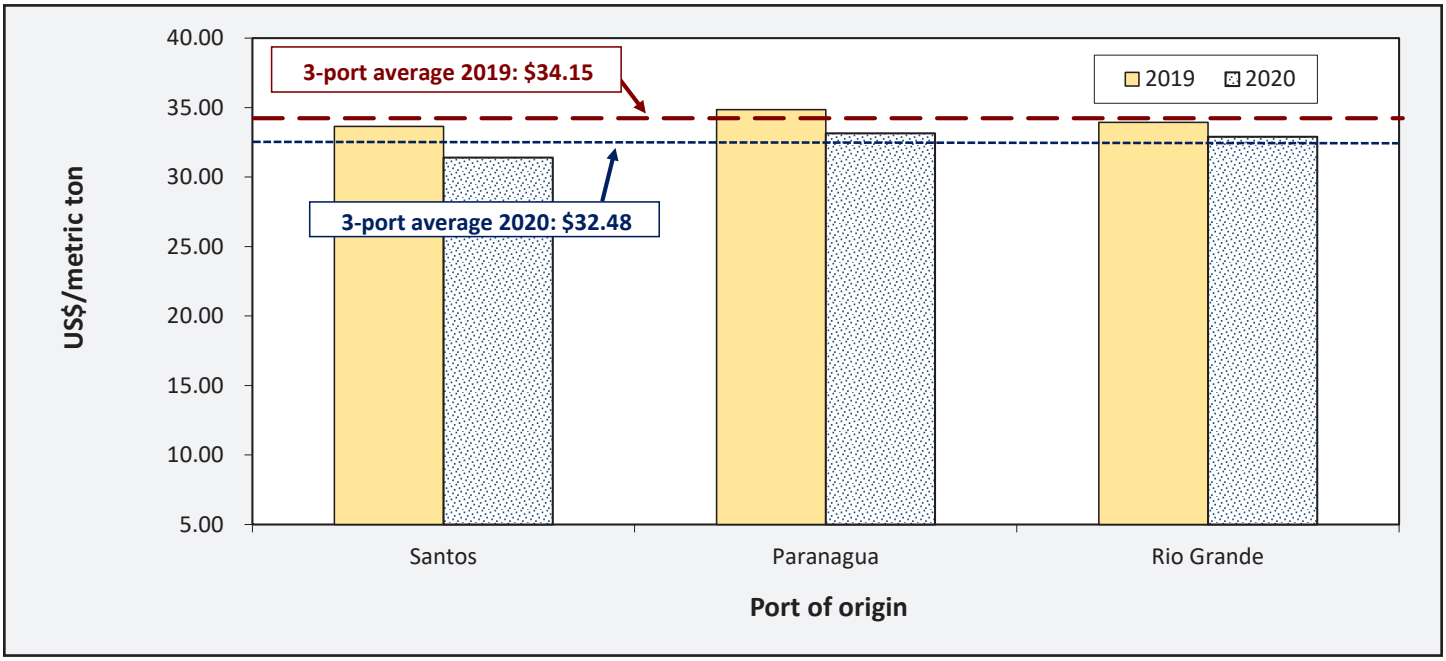
## Ocean rates from Brazil to Hamburg, Germany, slightly decreased in 2020




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

The cost to ship 1 mt of soybeans from Brazil to Shanghai, by ocean vessel, decreased on average, from $34.15/mt in 2019 to $32.48/mt in 2020.

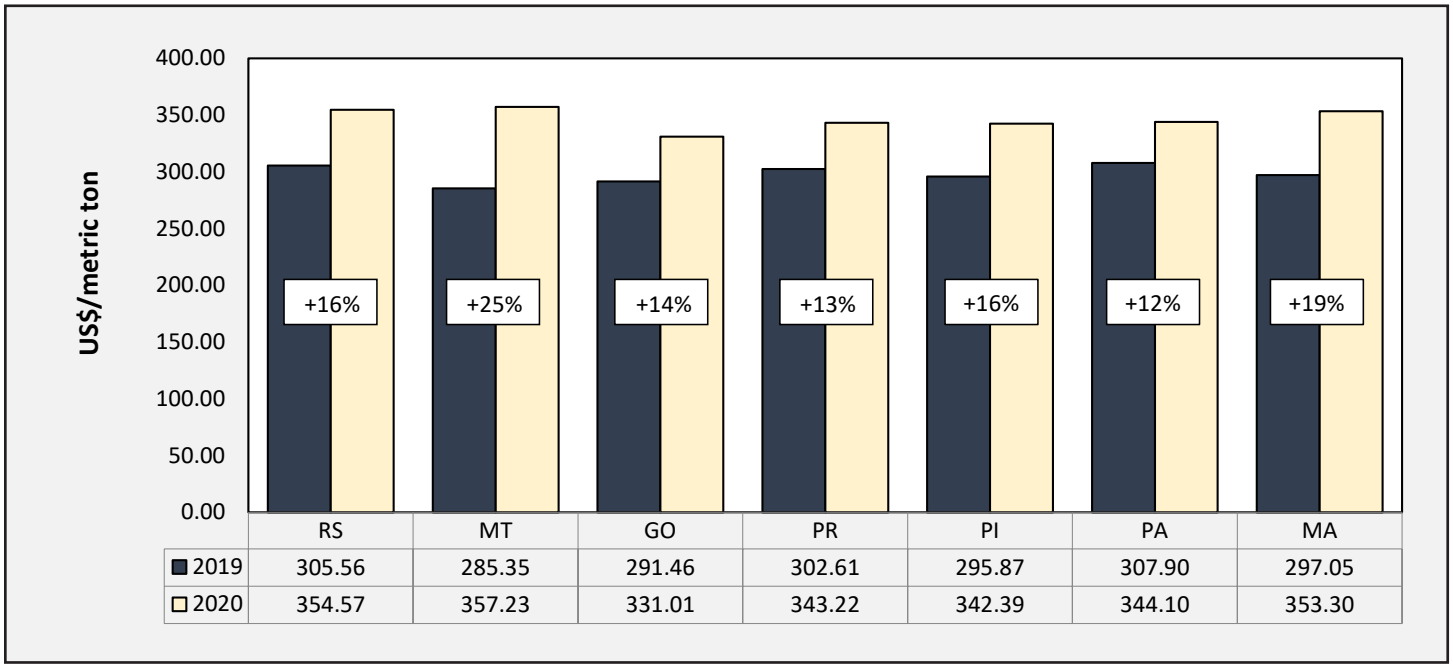
## Ocean rates from Brazil to Shanghai, China, decreased in 2020




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

Brazilian farmers have benefited 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.

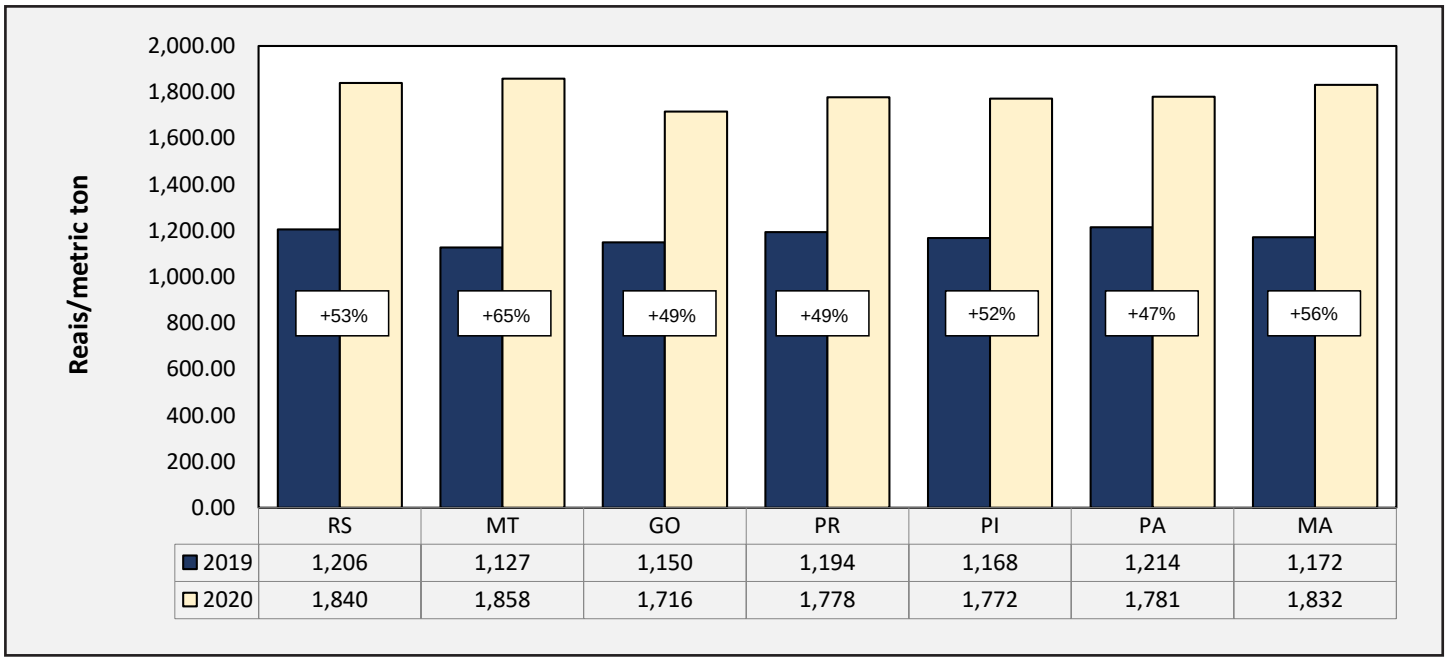
## Selected Brazilian farm prices, US$/metric ton, 2019-20




| | RS | MT | GO | PR | PI | PA | MA |
|---|---|---|---|---|---|---|---|
| 2019 | 305.56 | 285.35 | 291.46 | 302.61 | 295.87 | 307.90 | 297.05 |
| 2020 | 354.57 | 357.23 | 331.01 | 343.22 | 342.39 | 344.10 | 353.30 |

Note: RS = Rio Grande do Sul, MT = Mato Grosso, GO = Goiás, PR = Paraná, PI = Piauí, PA = Pará, and MA = Maranhão.
Source: Companhia Nacional de Abastecimento (CONAB).

## Selected Brazilian farm prices, reais/metric ton, 2019-20

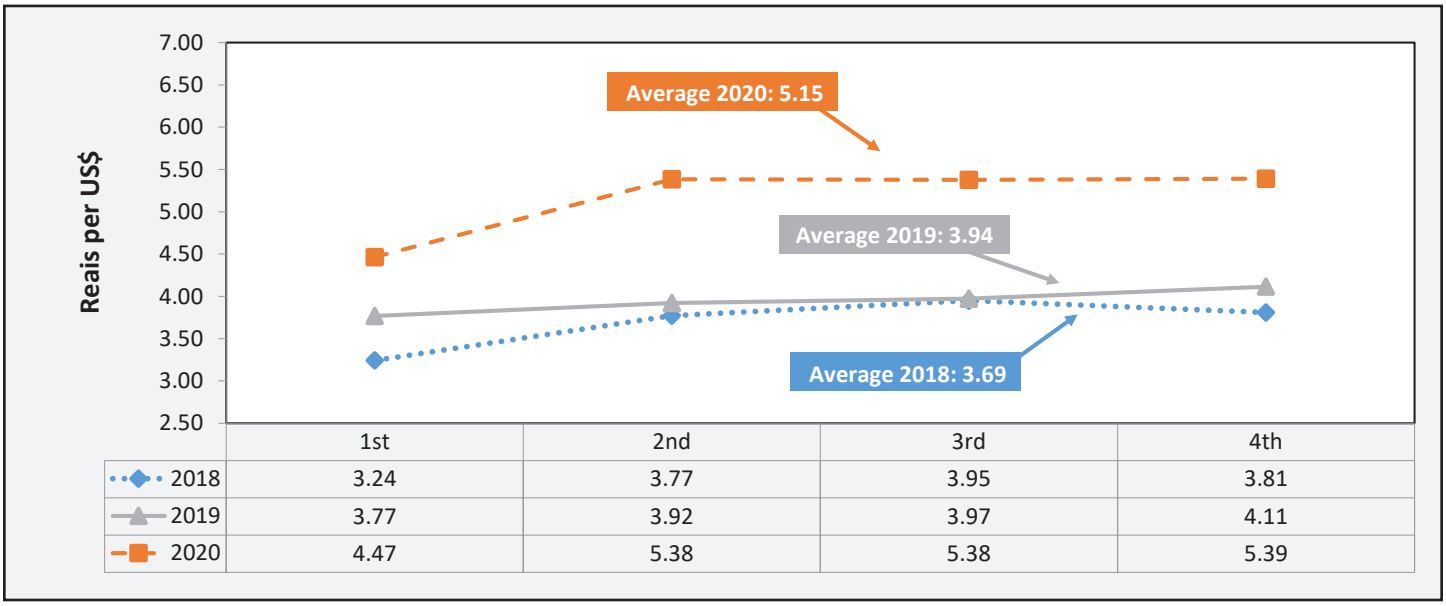



| | RS | MT | GO | PR | PI | PA | MA |
|---|---|---|---|---|---|---|---|
| 2019 | 1,206 | 1,127 | 1,150 | 1,194 | 1,168 | 1,214 | 1,172 |
| 2020 | 1,840 | 1,858 | 1,716 | 1,778 | 1,772 | 1,781 | 1,832 |

Note: RS = Rio Grande do Sul, MT = Mato Grosso, GO = Goiás, PR = Paraná, PI = Piauí, PA = Pará, and MA = Maranhão.
Source: Companhia Nacional de Abastecimento (CONAB).

From 2019 to 2020, the Brazilian real depreciated nearly 31 percent against the U.S. dollar, from R$3.94 per U.S. dollar to R$5.15 per U.S. dollar.

## Average quarterly exchange rate, real per U.S. dollar, 2018-20




| | 1st | 2nd | 3rd | 4th |
|---|---|---|---|---|
| 2018 | 3.24 | 3.77 | 3.95 | 3.81 |
| 2019 | 3.77 | 3.92 | 3.97 | 4.11 |
| 2020 | 4.47 | 5.38 | 5.38 | 5.39 |

Source: Banco Central do Brasil

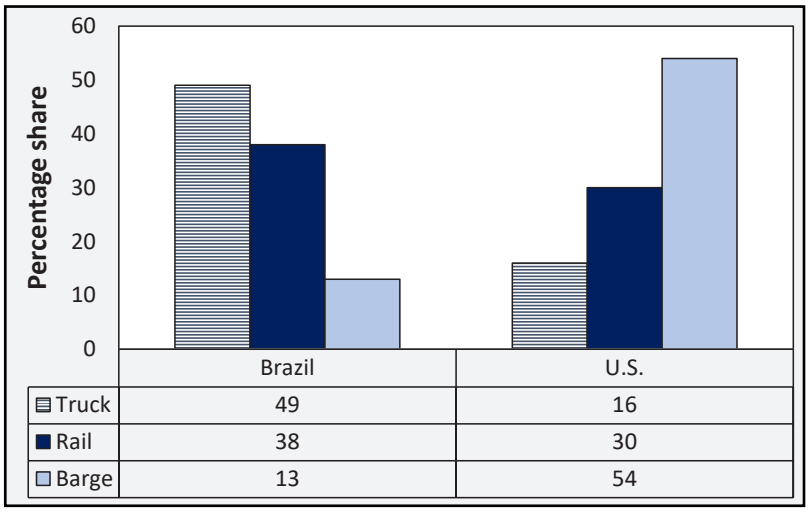
**Nearly half of Brazilian soybeans exports are moved by truck.**

Trucks shipped most of Brazil's soybeans to major export facilities, followed by rail, and barge. In contrast, in the United States, barges shipped most soybeans to major export facilities, followed by rail, and truck. 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. In Brazil, short-haul movements' average distance is about 440 miles (707 kilometers (km)) from farm to rail and barge terminals. In the United States, the average distance from farm to inland elevators grain elevators terminals is about 25-100 miles.

## 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 |

## US-Brazil soybeans modal share for exports, 2019, percent*

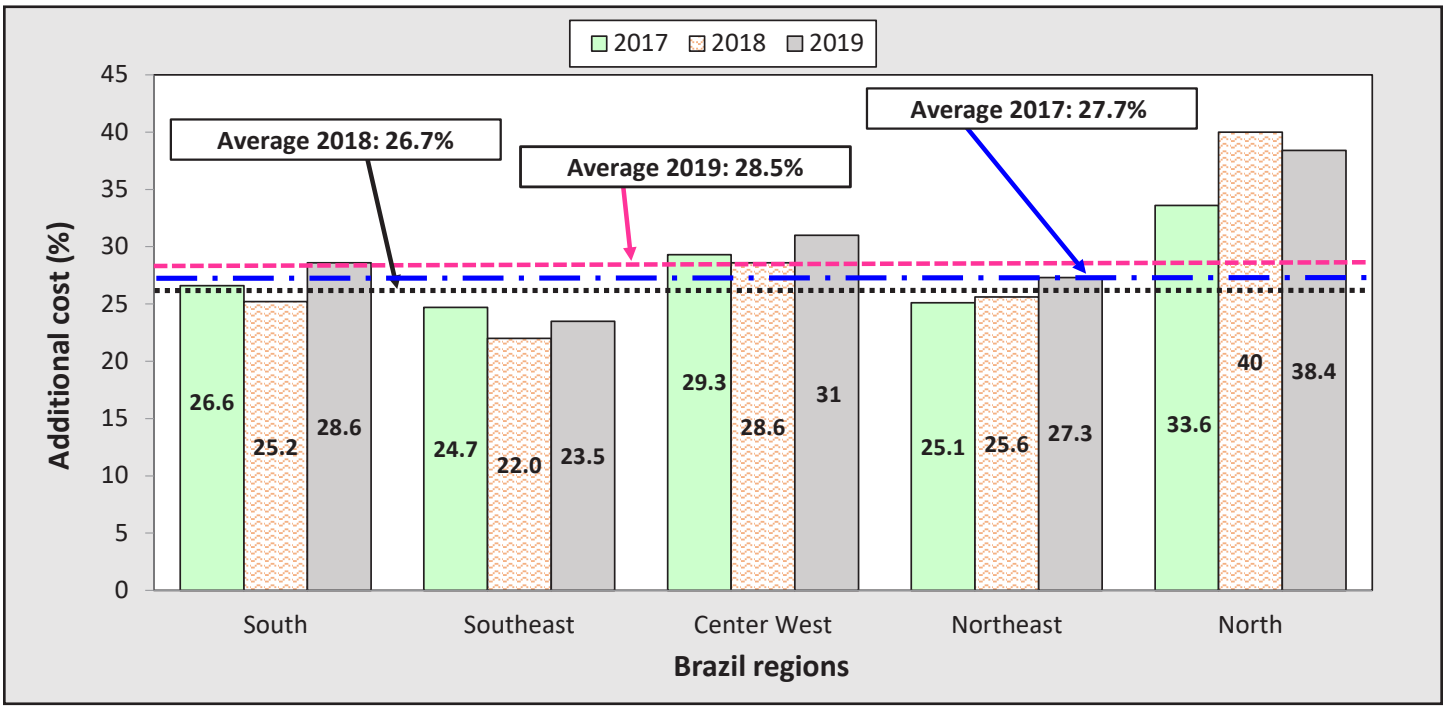



| | Brazil | U.S. |
|---|---|---|
| Truck | 49 | 16 |
| Rail | 38 | 30 |
| Barge | 13 | 54 |

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.

According to estimates based on the 2019 Confederação Nacional do Transporte (CNT) survey of overall highway conditions in Brazil, because of the poor conditions of the paved roads, the 2019 marginal operational cost of cargo trucks was 28.5 percent higher than it would have been if the trucks had used only paved roads in optimal condition. Overall, the 2019 additional operational cargo cost (28.5 percent) was higher than in 2018 (26.7 percent). This cost declined only in the North. For example, according to CNT, if the cost of shipping a metric ton of soybeans from Sorriso, North MT, to Santos was $100 per metric ton (mt), the 2019 optimal cost should have been $71.50/mt.

## Cost increases due to poor road pavement conditions, 2017-19




Source: Confederação Nacional do Transporte (CNT).

# Transportation Infrastructure

## Brazilian Minimum Freight Rates Law Update

On January 16, 2020, Brazil's National Land Transportation Agency's (ANTT) published updated guidelines to the National Policy of Minimum Freight Rates Law for truck cargo transportation.[4]

1. Shippers are obligated to pay backhaul freight rates for the return of empty containers. Shippers must also pay backhaul freight rates for trucks in specific fleets that cannot legally carry backhaul cargo, such as a truck that carries fuel or gases and cannot return with another type cargo.

2. The truck driver's daily rate (salary and expenses for lodging and food) is included in the calculation of the minimum rate.

3. Pressurized cargo—such as carbon dioxide, nitrogen, and oxygen gases utilized in the food industry—have been added as a new type of cargo covered by the law.

4. Two new tables were created for high efficiency loading operations that take less time to load and unload, thereby reducing the waiting time for trucks and drivers.

5. The costs of items included in the table (such as tires and maintenance) are to be updated every 6 months.

**Current status:** The Brazilian Supreme Court held several conciliation hearings about the constitutionality of the law. Conciliation hearings are suspended because of the COVID-19 pandemic. A new date will be appointed in due time. Until then, the current law remains in force. In July 2021, the ANTT adjusted for inflation the minimum freight rates.

**Background:** On August 9, 2018, the National Policy of Minimum Freight Rates Law was enacted to end an 11-day nationwide strike in late May by the truck drivers who blocked highways, creating immediate shortages of critical products such as fuel, food, and medicines. The poultry and pork industries were hit especially hard (USDA, FAS, Gain Report BR1810). Shortages of fuel and animal feed affected farms and feedlots. 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. The law allows ANTT to set minimum freight rates for trucking nationwide, reflecting total operating costs based on fuel costs, distances, tolls, and other factors (Confederação Nacional do Transporte (CNT) and AgriCensus). The minimum freight rates include a charge on backhaul trips, even if the truck is empty. Truckers are forbidden to negotiate contracts below the ANTT minimum. The law requires freight rates to be equal to, or above, the minimum rates set by the ANTT. Rates are published twice a year, on January 20 and July 20.[5] The minimum freight rates are adjusted every 6 months, based on several criteria, including fuel prices, inflation, and the cost of operations for independent drivers. Since 2018, organizations opposing these minimum mandatory freight rates have challenged the constitutionality of the law before the Brazil's Supreme Court.

4 On January 1, 2019, ANTT and the Fundação de Estudos Agrários Luiz de Queiroz (FEALQ) signed a 21-month contract to update the methodology and the minimum freight rate table.

5 The frequency with which freight 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 freight rates are not published within the identified timeframe, the previous period's freight rates—updated by the National Consumer Price Index (IPCA)—will be valid.

## 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 and CNT):

1. **The North-South (EF-151) Railroad**: Porto National, Tocantins-Estrela d'Oeste, São Paulo. This railroad integrates four States: Tocantins, Goiás, Minas Gerais, and São Paulo with access to the northeastern port of Itaquí-Sâo Luis, Maranhão, and the southern port of Santos with an extension that is 955 miles (1,537 km) long. On August 8, 2019, Rumo S.A. signed the 30-year concession contract for Ferrovia Norte-Sul (North-South Railway) from Estrela d'Oeste to Porto Nacional. Rumo has 2 years to complete the 424 miles (682 km) between Anápolis and Estrela d'Oeste (95 percent completed) and start operations in 2021. Rumo has 2 years to make the railroad operate.

   **Current Status**: At the end of July 2021, Rumo started operating the most important section of Norte-Sul Railroad between Estrela D'Oeste (São Paulo), and São Simão (Goiás) (Globo.com). In addition, the company set up a rail terminal in Rio Verde (Goiás) with a capacity to handle 11 million metric tons of grain and soybean meal per year to serve Goiás and eastern Mato Grosso. These two states produce more than one third of Brazil's total soybeans and, in 2020, accounted for 31 percent of total Brazil soybean exports. Despite being 124 miles (200 km) from São Simão, the terminal is now the closest one to the southwest Goiás' producers. These two infrastructure investments facilitate the production flow from the largest agribusiness region in the country to the southern Port of Santos, bringing fertilizers in as backhaul. According to Rumo, this rail expansion offers an alternative route to Center-West producers that is 15-20 percent cheaper than current truck rates and even lower than barge rates through the Tietê-Paraná waterway.

   In the first half of 2022, Rumo is planning to finish the last 180 miles (290 km) of the Norte-Sul Railroad between Rio Verde and Ouro Verde de Goiás. The previously constructed railroad section, ending in Tocantins, is already operating. Expected to be completed by the end of 2022, the Norte-Sul Railroad will be used to haul agricultural cargo from the north Goiás and south Tocantins to the Port of Santos. In addition, the new railroad will be used to transport containers from Maranhão to the Southeast region. Currently, Rumo's focus is on transporting grains, such as soybeans, corn, and soybean meal. But there is potential for other cargoes. In Rio Verde, a fertilizer plant is already under construction in partnership with Andali—a joint venture with CHS Inc. (The largest U.S. agricultural cooperative). Expected to be ready by the first half of 2022, the plant will offer structures for cargo transportation and fertilizer mixing.

   **The West-East Integration (FIOL) Railroad (EF-334)**: Ilhéus, Bahia, to Figueirópolis, Tocantins. Extension: 949 miles (1,527 km). FIOL will haul grains from Western Bahia and iron ore typical of the Caetité region in Central Bahia to the port city of Ilhéus. in the future, FIOL may be integrated with the North-South railroad. The project is divided into three sections: Section I: Ilhéus - Caetité, Bahia (334 miles (537 km)); Section 2: Caetité - Barreiras, Bahia (301 miles (485 km)); and Section 3: Barreiras - Figueirópolis, Tocantins (314 miles (505 km)).

   **Current Status**: The Brazilian Government announced that Valec Engenharia, Construções e Ferrovias S.A. in partnership with the Army Engineering Construction Battalion will build the railroad. On April 8, 2021, Bahia Mineração S.A. (Bamin) won the auction of the 35-year concession to complete and operate section 1 (between Caetité and Ilhéus), which will facilitate iron ore exports from Bamin's mines to the ports. In 2025, this section is expected to begin operations.

**Ferrogrão Railroad (EF-170)**: 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 $2.5 billion (R$14 billion).[6] The concession is for 65 years. Public hearings and technical studies are complete.

**Current status**: The Brazilian government announced that the auction for the construction and operation of the railroad will be held in the third quarter of 2021.

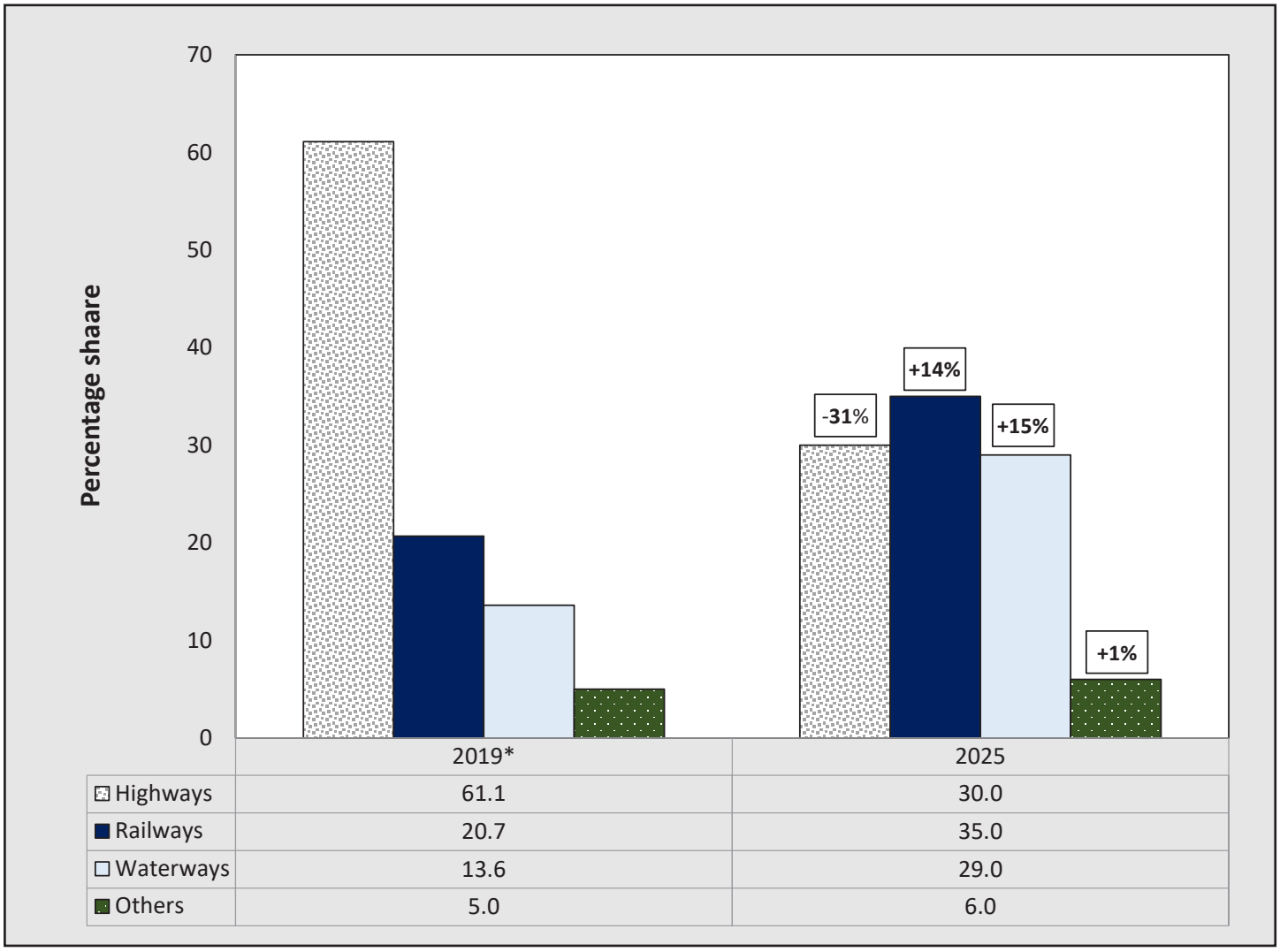
2. **BR-163**: The 663-mile (1,067 km) stretch of BR-163 from Sorriso, North Mato Grosso, (Brazil's largest grain producer) to Miritituba was completed in late November 2019. Currently, using this new route, it takes about 2 days to ship grain by truck to Miritituba.

   **Current status**: On July 8, 2021, Consortium Via Brasil won the auctioned contract to operate Brazilian toll road BR 163. The concession is for 10 years. According to ESALQ-LOG, the Northern Arc toll rates will increase about $2.85 (R$ 15) per metric ton. For example, for the Sorriso, North Mato Grosso, to Itaituba route, the average freight rate was $38.44 per mt in the first half of 2021. With the new tolls, the rate would increase about 7.5 percent to $41.29/mt.

6 Exchange rate of 5.56846 real per U.S. dollar, April 28, 2020.

The Brazilian Government plans to change the current cargo transportation matrix by developing an integrated intermodal system, especially for exports. The improved infrastructure has contributed to higher production of corn and soybeans in major production regions. 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 a mere 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.

## Brazil modal share for general cargo, 2019-25†




| | 2019* | 2025 |
|---|---|---|
| Highways | 61.1 | 30.0 |
| Railways | 20.7 | 35.0 |
| Waterways | 13.6 | 29.0 |
| Others | 5.0 | 6.0 |

†Government plans.

*Because of rounding, 2019 shares do not sum exactly to 100.

Source: Brazil Ministry of Transportation, National Plan of Logistic & Transportation (PNLT) and Confederação Nacional do Transporte (CNT) 2019.

# Tonnages and modal share for Brazil soybeans, 2010-2019

| Year | Long-haul truck* | | Short-haul truck* | | | | Total soybeans |
|---|---|---|---|---|---|---|---|
| | | | Rail | | Barge | | |
| | 1,000 tons | Percent | 1,000 tons | Percent | 1,000 tons | Percent | 1,000 tons |
| **Total** | | | | | | | |
| 2010 | 51,218 | 74.7 | 13,908 | 20.2 | 3,562 | 5.1 | 68,688 |
| 2011 | 54,936 | 73.0 | 16,169 | 21.4 | 4,219 | 5.6 | 75,324 |
| 2012 | 47,679 | 72.0 | 14,596 | 21.9 | 4,108 | 6.1 | 66,383 |
| 2013 | 60,908 | 74.9 | 16,120 | 19.7 | 4,472 | 5.4 | 81,500 |
| 2014 | 66,119 | 76.8 | 15,985 | 18.5 | 4,069 | 4.7 | 86,173 |
| 2015 | 73,941 | 76.2 | 17,691 | 18.2 | 5,462 | 5.6 | 97,094 |
| 2016 | 71,408 | 74.7 | 17,666 | 18.4 | 6,624 | 6.9 | 95,698 |
| 2017 | 81,817 | 71.2 | 24,324 | 21.1 | 8,886 | 7.7 | 115,027 |
| 2018 | 79,390 | 64.5 | 32,841 | 26.6 | 11,028 | 8.9 | 123,259 |
| 2019 | 80,557 | 67.4 | 28,783 | 24.0 | 10,378 | 8.6 | 119,718 |
| **Export** | | | | | | | |
| 2010 | 12,980 | 44.7 | 13,676 | 47.0 | 2,417 | 8.3 | 29,073 |
| 2011 | 13,964 | 42.4 | 15,960 | 48.4 | 3,051 | 9.2 | 32,975 |
| 2012 | 15,396 | 46.9 | 14,462 | 43.9 | 3,048 | 9.2 | 32,906 |
| 2013 | 23,492 | 55.0 | 15,997 | 37.3 | 3,307 | 7.7 | 42,796 |
| 2014 | 26,320 | 57.7 | 15,796 | 34.5 | 3,577 | 7.8 | 45,693 |
| 2015 | 31,406 | 57.9 | 17,456 | 32.1 | 5,462 | 10.0 | 54,324 |
| 2016 | 28,165 | 54.7 | 17,393 | 33.7 | 6,024 | 11.6 | 51,582 |
| 2017 | 36,323 | 53.4 | 24,017 | 35.2 | 7,815 | 11.4 | 68,154 |
| 2018 | 40,975 | 49.3 | 32,565 | 39.1 | 9,718 | 11.6 | 83,258 |
| 2019 | 36,225 | 49.1 | 28,442 | 38.3 | 9,406 | 12.6 | 74,073 |
| **Domestic** | | | | | | | |
| 2010 | 38,239 | 96.7 | 232 | 0.5 | 1,145 | 2.9 | 39,614 |
| 2011 | 40,972 | 96.9 | 208 | 0.4 | 1,168 | 2.8 | 42,349 |
| 2012 | 32,283 | 96.5 | 134 | 0.4 | 1,060 | 3.1 | 33,477 |
| 2013 | 37,416 | 96.7 | 123 | 0.3 | 1,165 | 3.0 | 38,703 |
| 2014 | 39,799 | 98.4 | 190 | 0.4 | 492 | 1.2 | 40,481 |
| 2015 | 42,535 | 99.5 | 234 | 0.5 | 0 | 0 | 42,770 |
| 2016 | 43,243 | 98.1 | 273 | 0.6 | 600 | 1.3 | 44,116 |
| 2017 | 45,494 | 97.2 | 307 | 0.6 | 1,071 | 2.2 | 46,873 |
| 2018 | 38,416 | 96.2 | 276 | 0.6 | 1,310 | 3.2 | 40,001 |
| 2019 | 44,332 | 97.2 | 342 | 0.7 | 972 | 2.1 | 45,645 |

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

*Short-haul truck shipments refer to the average distance of 440 miles (707 kilometers) from the farm to rail and barge terminals.

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.

# Transportation Indicators

## 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 MT[1] - Santos[2] by truck —US$/mt— | | | | | North MT[1] - Paranaguá[2] —US$/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 MT[1] - Santos[2] by rail —US$/mt— | | | | | Northwest RS[1] - Rio Grande[2] —US$/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 |

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

[2]Export port.

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

[4]In 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.

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.

# 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 MT[1] - Santos[2] by truck —US$/mt— | | | | | North MT[1] - Paranaguá[2] —US$/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 MT[1] - Santos[2] by rail —US$/mt— | | | | | Northwest RS[1] - Rio Grande[2] —US$/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 |

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

[2]Export port.

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

[4]In 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.

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.

## 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 MT[1] - Santarém[2] —US$/mt— | | | | | South MA[1] - São Luís[2] —US$/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 PI[1] - São Luís[2] —US$/mt— | | | | | North MT[1] - Barcarena[2] —US$/mt— | | | | |
| Truck | 32.49 | 29.98 | 31.84 | 24.94 | 29.81 | 37.11 | 33.27 | 30.89 | 25.60 | 31.72 |
| Barge[4] | - | - | - | - | - | 16.42 | 14.36 | 14.45 | 13.49 | 14.68 |
| 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 | 92.03 | 75.96 | 81.67 | 75.76 | 81.35 |
| 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 | 374.62 | 363.48 | 449.56 | 566.66 | 438.58 |
| Transport % of landed cost | 18.6 | 16.9 | 16.3 | 12.2 | 16.0 | 24.6 | 20.9 | 18.2 | 13.4 | 19.2 |

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

[2]Export port.

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

[4]In 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.

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

## 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 MT[1] - Santarém[2] —US$/mt— | | | | | South MA[1] - São Luís[2] —US$/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 PI[1] - São Luís[2] —US$/mt— | | | | | North MT[1] - Barcarena[2] —US$/mt— | | | | |
| Truck | 32.49 | 29.98 | 31.84 | 24.94 | 29.81 | 37.11 | 33.27 | 30.89 | 25.60 | 31.72 |
| Barge[4] | - | - | - | - | - | 16.42 | 14.36 | 14.45 | 13.49 | 14.68 |
| 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 | 77.53 | 62.63 | 65.84 | 60.84 | 66.71 |
| 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 | 360.12 | 350.15 | 433.73 | 551.74 | 423.93 |
| Transport % of landed cost | 15.3 | 14.2 | 14.1 | 10.5 | 13.6 | 21.5 | 17.9 | 15.2 | 11.0 | 16.4 |

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

[2]Export port.

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

[4]In 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.

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

# Truck rates for selected Brazilian soybean export transportation routes, 2020

| 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 | 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 |
| 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[6]** | | **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 teminal)[7] | Santos | 1,019 | | 3.70 | 3.00 | 3.04 | 2.87 | 3.15 |
| 36 | Itaituba PA (Barge terminal)[8] | Santarém | 224 | | 4.73 | 4.23 | 3.92 | 3.47 | 4.09 |
| 37 | Itaituba PA (Barge terminal)[8] | Barcarena | 738 | | 2.23 | 1.95 | 1.96 | 1.83 | 1.99 |

[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 based on the quantity of production in the route's mesoregion as that quantity relates to the total produced by all mesoregions considered in the project and not in relation to Brazil's total production.

[4]Average monthly exchange rate from "Banco Central do Brasil" was used to convert Brazilian reais to U.S. dollars.

[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, and TO = Tocantins.

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

[7]In 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.

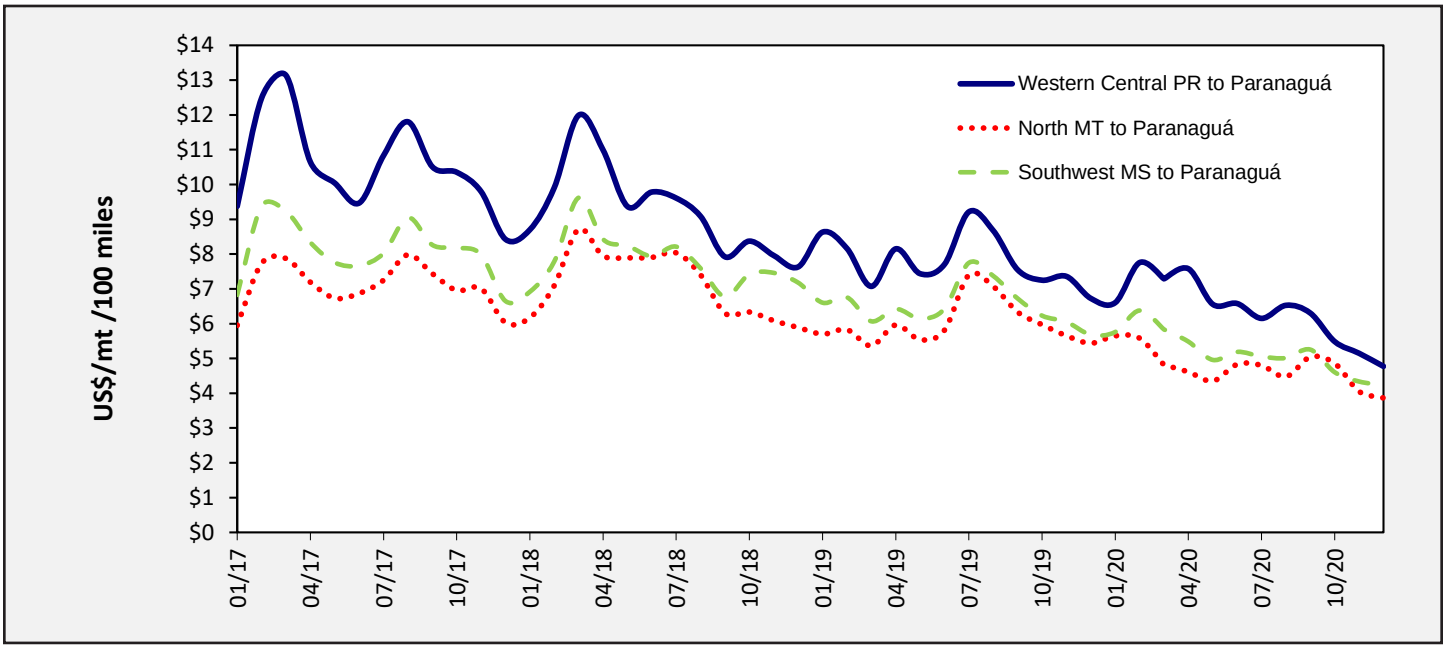
[8]In Brazil, there are no public/official barge rates. Barge rates can be up to 60 percent lower than truck rates, depending on the volumes hauled and the terms of contracts signed between the barge company and shippers. The distance is in nautical miles.

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

For more details, on the definitions/calculations contact esalqlog@esalqlog.esalq.usp.br.

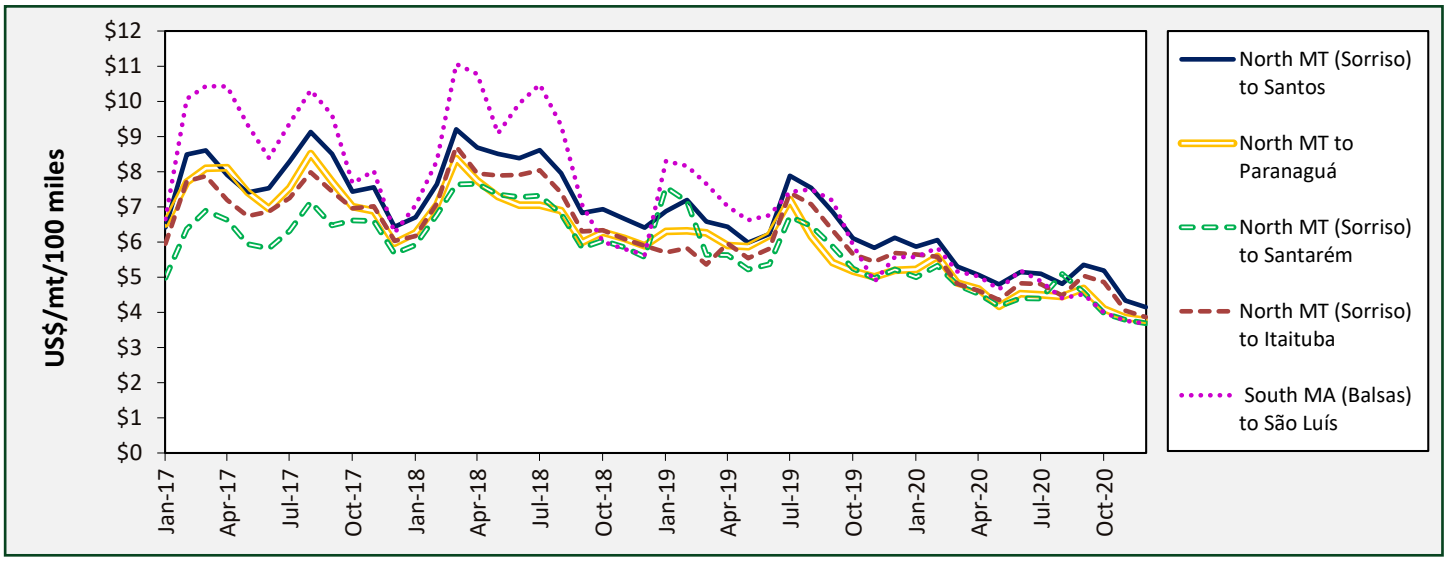
Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

## Truck rates for selected southern Brazilian soybean export transportation routes, 2017-20



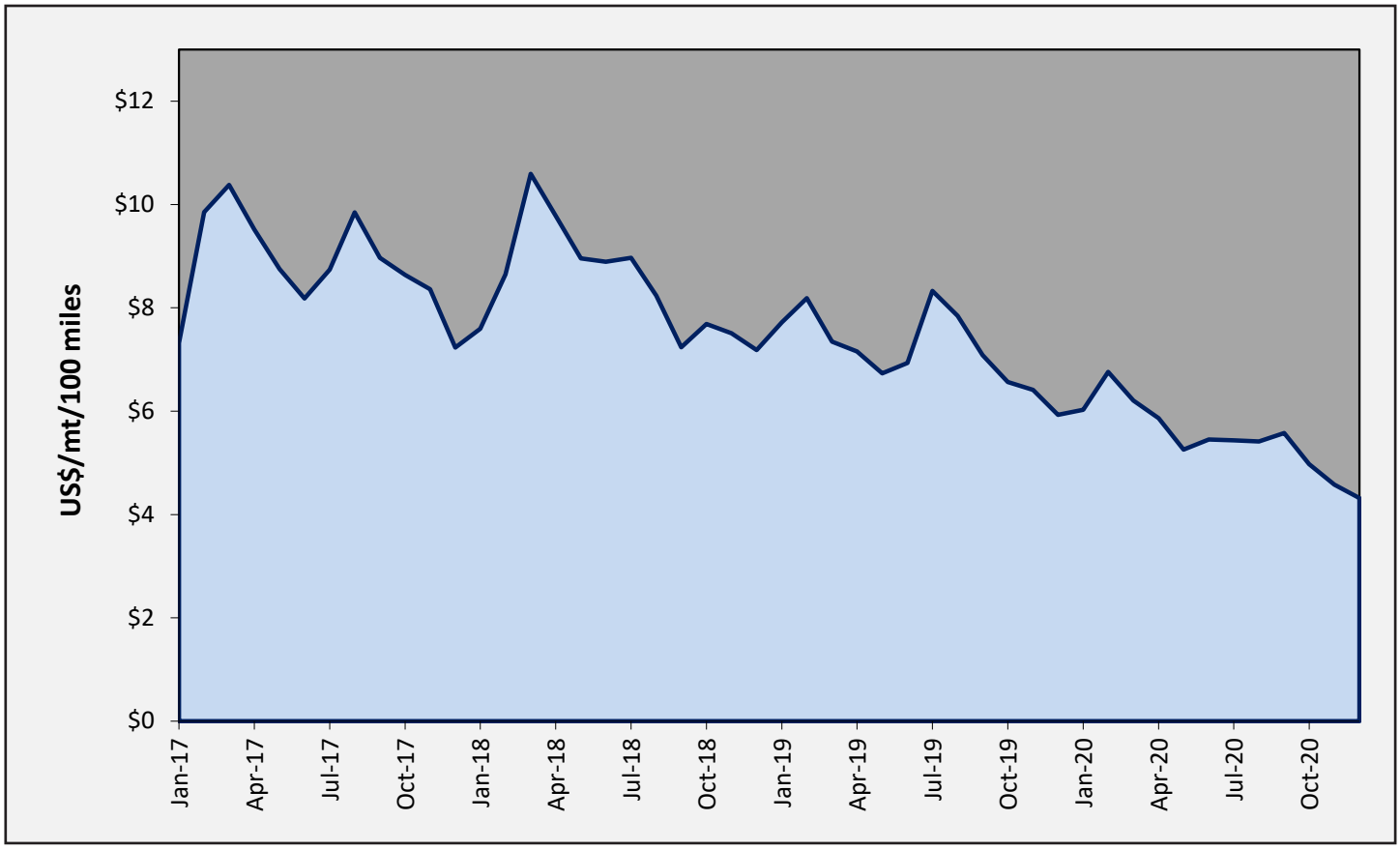

Note: mt = metric ton. PR = Paraná, MT= Mato Grosso, and MS = Mato Grosso do Sul.
Source: University of São Paulo, Escola Superior de Agricultura "Luiz de Queiroz," Brazil (ESALQ/USP) and USDA, Agricultural Marketing Service.

## 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.

## 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.

# Monthly Brazilian soybean export truck transportation cost index, 2013-20

| 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-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 is calculated from production-based shares to weight high-volume routes more heavily than low-volume routes. The share associated with each route is used to define the weight of a given route's freight price in the composition of the weighted export freight index for trucks (calculated monthly).

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

# Quarterly ocean freight rates for shipping soybeans from selected Brazilian ports to Shanghai, China, 2013-20 (US$/metric ton)*

| Port | 1st qtr 2013 | 2nd qtr 2013 | 3rd qtr 2013 | 4th qtr 2013 | 2013 Average |
|---|---|---|---|---|---|
| Santos | 52.34 | 34.50 | 34.50 | 42.50 | 40.96 |
| Paranaguá | 56.03 | 36.75 | 36.75 | 46.00 | 43.88 |
| Rio Grande | 51.34 | 35.25 | 35.25 | 44.25 | 41.52 |
| **Port** | **1st qtr 2014** | **2nd qtr 2014** | **3rd qtr 2014** | **4th qtr 2014** | **2014 Average** |
| Santos | 44.83 | 38.07 | 34.00 | 30.50 | 36.85 |
| Paranagua | 47.22 | 41.13 | 36.00 | 32.50 | 39.21 |
| Rio Grande | 44.83 | 38.75 | 32.50 | 30.50 | 36.65 |
| **Port** | **1st qtr 2015** | **2nd qtr 2015** | **3rd qtr 2015** | **4th qtr 2015** | **2015 Average** |
| Santos | 29.50 | 22.50 | 23.25 | 20.00 | 23.81 |
| Paranaguá | 31.50 | 23.50 | 24.18 | 20.50 | 24.92 |
| Rio Grande | 29.50 | 25.00 | 25.75 | 21.00 | 25.31 |
| Santarém | 32.00 | 25.00 | 25.75 | 23.50 | 26.56 |
| São Luís | 32.00 | 25.00 | 25.75 | 23.50 | 26.56 |
| Barcarena | 32.00 | 25.00 | 25.75 | 23.50 | 26.56 |
| **Port** | **1st qtr 2016** | **2nd qtr 2016** | **3rd qtr 2016** | **4th qtr 2016** | **2016 Average** |
| Santos | 17.50 | 16.50 | 12.50 | 20.00 | 16.63 |
| Paranaguá | 18.00 | 18.50 | 14.50 | 21.50 | 18.13 |
| Rio Grande | 18.50 | 17.00 | 13.00 | 20.50 | 17.25 |
| Santarém | 22.00 | 21.00 | 19.40 | 23.75 | 21.54 |
| São Luís | 20.00 | 18.40 | 17.50 | 22.00 | 19.48 |
| Barcarena | 22.50 | 21.50 | 20.00 | 23.75 | 21.94 |
| **Port** | **1st qtr 2017** | **2nd qtr 2017** | **3rd qtr 2017** | **4th qtr 2017** | **2017 Average** |
| Santos | 18.50 | 29.00 | 30.00 | 30.00 | 26.88 |
| Paranaguá | 20.50 | 30.50 | 31.00 | 31.50 | 28.38 |
| Rio Grande | 18.00 | 29.50 | 31.00 | 30.70 | 27.30 |
| Santarém | 24.00 | 33.50 | 31.00 | 34.50 | 30.75 |
| São Luís | 23.50 | 30.25 | 31.00 | 33.50 | 29.56 |
| Barcarena | 24.00 | 33.50 | 31.00 | 34.50 | 30.75 |
| **Port** | **1st qtr 2018** | **2nd qtr 2018** | **3rd qtr 2018** | **4th qtr 2018** | **2018 Average** |
| Santos | 32.50 | 31.00 | 27.75 | 30.00 | 30.31 |
| Paranaguá | 32.00 | 32.00 | 28.75 | 31.00 | 30.94 |
| Rio Grande | 33.00 | 31.50 | 28.25 | 31.00 | 30.94 |
| Santarém | 38.50 | 35.50 | 31.25 | 34.00 | 34.81 |
| São Luís | 37.00 | 34.80 | 30.75 | 33.00 | 33.89 |
| Barcarena | 37.50 | 33.80 | 32.25 | 35.00 | 34.64 |
| **Port** | **1st qtr 2019** | **2nd qtr 2019** | **3rd qtr 2019** | **4th qtr 2019** | **2019 Average** |
| Santos | 32.25 | 30.92 | 33.25 | 38.17 | 33.65 |
| Paranaguá | 33.75 | 31.42 | 34.75 | 39.50 | 34.86 |
| Rio Grande | 31.58 | 30.25 | 30.58 | 39.67 | 33.94 |
| Santarém | 32.25 | 30.58 | 38.25 | 39.17 | 35.06 |
| São Luís | 31.00 | 30.58 | 38.25 | 39.42 | 34.81 |
| Barcarena | 32.25 | 29.92 | 38.25 | 39.42 | 34.96 |
| **Port** | **1st qtr 2020** | **2nd qtr 2020** | **3rd qtr 2020** | **4th qtr 2020** | **2020 Average** |
| Santos | 35.50 | 27.08 | 31.33 | 31.67 | 31.40 |
| Paranaguá | 37.25 | 28.83 | 33.08 | 33.42 | 33.15 |
| Rio Grande | 37.00 | 28.58 | 32.83 | 33.17 | 32.90 |
| Santarém | 36.50 | 28.08 | 34.83 | 35.21 | 33.66 |
| São Luís | 36.75 | 28.33 | 35.33 | 35.67 | 34.02 |
| Barcarena | 38.50 | 28.33 | 36.33 | 36.67 | 34.96 |

*The rates correspond to the average actual values negotiated between shippers and carriers and 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.

## Quarterly ocean freight rates for shipping soybeans from selected Brazilian ports to Hamburg, Germany, 2013-20 (US$/metric ton)*

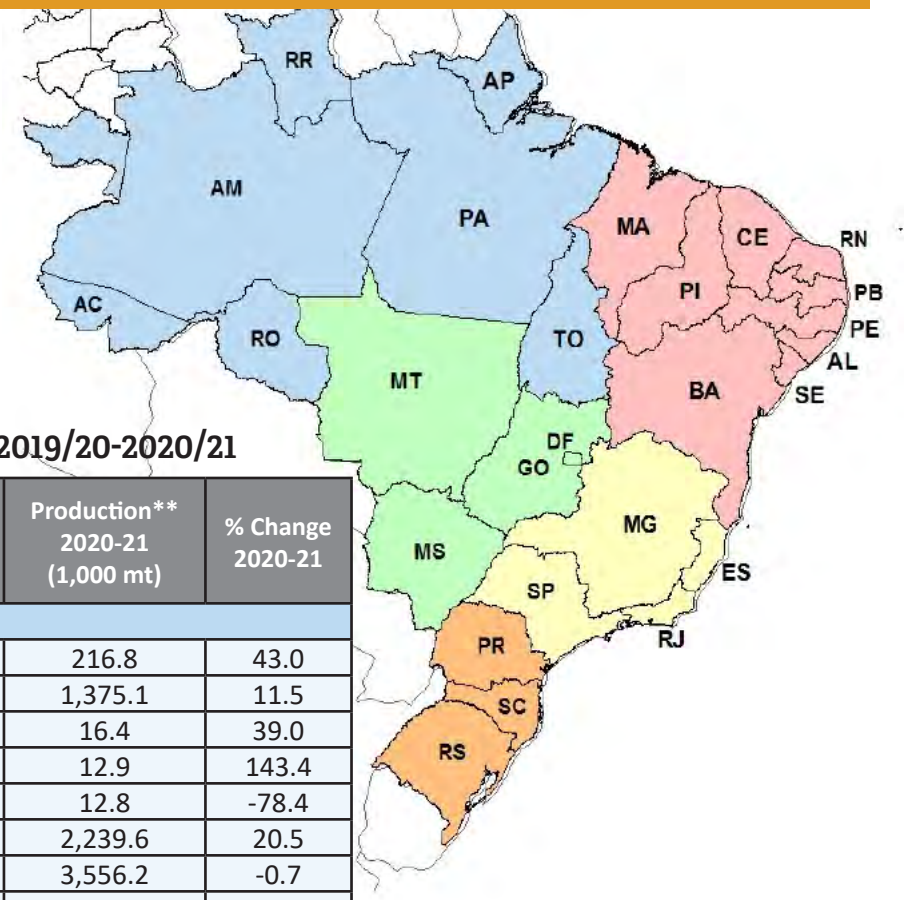
| Port | 1st qtr 2013 | 2nd qtr 2013 | 3rd qtr 2013 | 4th qtr 2013 | 2013 Average |
|---|---|---|---|---|---|
| Santos | 30.00 | 29.00 | 29.00 | 30.00 | 29.50 |
| Paranaguá | 30.00 | 29.00 | 29.00 | 30.00 | 29.50 |
| Rio Grande | 30.00 | 29.00 | 29.00 | 30.00 | 29.50 |
| **Port** | **1st qtr 2014** | **2nd qtr 2014** | **3rd qtr 2014** | **4th qtr 2014** | **2014 Average** |
| Santos | 31.00 | 30.00 | 26.00 | 24.00 | 27.75 |
| Paranaguá | 31.00 | 30.00 | 28.00 | 26.00 | 28.75 |
| Rio Grande | 31.00 | 30.00 | 24.50 | 22.50 | 27.00 |
| **Port** | **1st qtr 2015** | **2nd qtr 2015** | **3rd qtr 2015** | **4th qtr 2015** | **2015 Average** |
| Santos | 22.00 | 21.00 | 19.00 | 17.00 | 19.75 |
| Paranaguá | 22.00 | 21.00 | 19.00 | 17.00 | 19.75 |
| Rio Grande | 22.00 | 21.00 | 19.00 | 17.00 | 19.75 |
| Santarém | 20.00 | 14.50 | 13.50 | 20.00 | 17.00 |
| São Luís | 20.00 | 18.25 | 16.38 | 20.50 | 18.78 |
| Barcarena | 20.00 | 16.00 | 15.20 | 21.00 | 18.05 |
| **Port** | **1st qtr 2016** | **2nd qtr 2016** | **3rd qtr 2016** | **4th qtr 2016** | **2016 Average** |
| Santos | 16.00 | 17.00 | 16.50 | 23.00 | 18.13 |
| Paranaguá | 16.00 | 17.00 | 16.50 | 24.00 | 18.38 |
| Rio Grande | 16.00 | 17.00 | 16.50 | 23.00 | 18.13 |
| Santarém | 11.03 | 14.13 | 15.00 | 19.80 | 14.99 |
| São Luís | 8.25 | 11.00 | 11.80 | 15.80 | 11.71 |
| Barcarena | 9.60 | 12.45 | 13.20 | 17.35 | 13.15 |
| **Port** | **1st qtr 2017** | **2nd qtr 2017** | **3rd qtr 2017** | **4th qtr 201** | **2017 Average** |
| Santos | 21.00 | 24.00 | 26.00 | 27.00 | 24.50 |
| Paranaguá | 22.00 | 25.00 | 27.00 | 28.00 | 25.50 |
| Rio Grande | 22.00 | 25.00 | 27.00 | 28.00 | 25.50 |
| Santarém | 21.00 | 23.60 | 25.00 | 26.00 | 23.90 |
| São Luís | 17.60 | 20.00 | 21.20 | 22.00 | 20.20 |
| Barcarena | 18.00 | 20.60 | 21.80 | 22.70 | 20.78 |
| **Port** | **1st qtr 2018** | **2nd qtr 2018** | **3rd qtr 2018** | **4th qtr 2018** | **2018 Average** |
| Santos | 27.00 | 25.00 | 24.00 | 25.00 | 25.25 |
| Paranaguá | 28.00 | 26.00 | 25.00 | 26.00 | 26.25 |
| Rio Grande | 28.00 | 26.00 | 25.00 | 26.00 | 26.25 |
| Santarém | 25.00 | 22.90 | 22.50 | 23.00 | 23.35 |
| São Luís | 21.00 | 19.10 | 18.50 | 19.00 | 19.40 |
| Barcarena | 23.00 | 20.90 | 20.20 | 20.00 | 21.03 |
| **Port** | **1st qtr 2019** | **2nd qtr 2019** | **3rd qtr 2019** | **4th qtr 2019** | **2019 Average** |
| Santos | 23.00 | 21.50 | 27.00 | 31.00 | 25.63 |
| Paranaguá | 23.00 | 21.25 | 27.00 | 30.75 | 25.50 |
| Rio Grande | 23.00 | 21.25 | 27.00 | 31.25 | 25.63 |
| Santarém | 21.00 | 20.25 | 25.92 | 26.50 | 23.42 |
| São Luís | 18.00 | 17.10 | 22.77 | 23.50 | 20.34 |
| Barcarena | 19.00 | 17.85 | 23.52 | 24.25 | 21.16 |
| **Port** | **1st qtr 2020** | **2nd qtr 2020** | **3rd qtr 2020** | **4th qtr 2020** | **2020 Average** |
| Santos | 29.25 | 20.50 | 24.00 | 25.25 | 24.75 |
| Paranaguá | 30.00 | 21.50 | 25.00 | 25.35 | 25.46 |
| Rio Grande | 29.50 | 20.75 | 24.50 | 25.75 | 25.13 |
| Santarém | 25.00 | 16.00 | 20.75 | 22.00 | 20.94 |
| São Luís | 22.25 | 17.50 | 25.00 | 26.30 | 22.76 |
| Barcarena | 24.00 | 15.00 | 20.50 | 21.75 | 20.31 |

*The rates correspond to the average actual values negotiated between shippers and carriers and 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.

# Soybean Production




## Soybean production by state, 2019/20-2020/21

| Region/State | Production* 2019-20 (1,000 mt) | Production** 2020-21 (1,000 mt) | % Change 2020-21 |
|---|---|---|---|
| **NORTH** | | | |
| Roraima (RR) | 151.6 | 216.8 | 43.0 |
| Rondônia (RO) | 1,233.7 | 1,375.1 | 11.5 |
| Acre (AC) | 11.8 | 16.4 | 39.0 |
| Amazonas (AM) | 5.3 | 12.9 | 143.4 |
| Amapá (AP) | 59.3 | 12.8 | -78.4 |
| Pará (PA) | 1,859.3 | 2,239.6 | 20.5 |
| Tocantins (TO) | 3,581.1 | 3,556.2 | -0.7 |
| **Total** | **6,902.1** | **7,429.8** | **7.6** |
| **NORTHEAST** | | | |
| Maranhão (MA) | 3,130.3 | 3,285.6 | 5.0 |
| Piauí (PI) | 2,562.8 | 2,742.3 | 7.0 |
| Alagoas (AL) | 4.5 | 8.3 | 84.4 |
| Bahia (BA) | 6,122.0 | 6,838.0 | 11.7 |
| **Total** | **11,819.6** | **12,874.2** | **8.9** |
| **CENTER-WEST** | | | |
| Mato Grosso (MT) | 35,884.70 | 35,875.30 | 0.0 |
| Mato Grosso do Sul (MS) | 11,362.8 | 11,431.2 | 0.6 |
| Goiás (GO) | 13,159.4 | 13,723.2 | 4.3 |
| Distrito Federal (DF) | 290.6 | 292.0 | 0.5 |
| **Total** | **60,697.5** | **61,321.7** | **1.0** |
| **SOUTHEAST** | | | |
| Minas Gerais (MG) | 6,172.4 | 7,021.7 | 13.8 |
| São Paulo (SP) | 3,958.7 | 4,299.4 | 8.6 |
| **Total** | **10,131.1** | **11,321.1** | **11.7** |
| **SOUTH** | | | |
| Paraná (PR) | 21,598.1 | 19,880.1 | -8.0 |
| Santa Catarina (SC) | 2,252.8 | 2,363.9 | 4.9 |
| Rio Grande do Sul (RS) | 11,443.6 | 20,787.5 | 81.7 |
| Total | 35,294.5 | 43,031.5 | 21.9 |
| **TOTAL PRODUCTION** | **124,844.8** | **135,978.3** | **8.9** |

*Data based on calendar year, January-December

**Forecast, August 2021

Source: Companhia Nacional de abastecimento (CONAB).

# Brazil soybean supply and distribution

| Year* | Area harvested | Beginning stocks | Production | Imports | Total supply | Exports | Crush | Domestic consumption | Ending stocks |
|---|---|---|---|---|---|---|---|---|---|
| | 1,000 hectares | 1,000 metric tons | | | | | | | |
| 2008/09 | 21,700 | 8,828 | 57,800 | 124 | 66,752 | 28,041 | 30,779 | 33,129 | 5,582 |
| 2009/10 | 23,500 | 5,582 | 69,000 | 150 | 74,732 | 29,188 | 35,700 | 38,100 | 7,444 |
| 2010/11 | 24,200 | 7,444 | 75,300 | 40 | 82,784 | 33,789 | 37,264 | 39,714 | 9,281 |
| 2011/12 | 25,000 | 9,281 | 66,500 | 298 | 76,079 | 31,905 | 36,230 | 38,730 | 5,444 |
| 2012/13 | 27,700 | 5,444 | 82,000 | 240 | 87,684 | 42,826 | 36,432 | 38,982 | 5,876 |
| 2013/14 | 30,100 | 5,876 | 86,200 | 579 | 92,655 | 45,747 | 38,195 | 40,795 | 6,113 |
| 2014/15 | 32,100 | 6,113 | 97,100 | 329 | 103,542 | 54,635 | 40,339 | 42,989 | 5,918 |
| 2015/16 | 33,300 | 5,918 | 95,700 | 362 | 101,980 | 52,099 | 39,967 | 42,617 | 7,264 |
| 2016/17 | 33,900 | 7,264 | 114,900 | 267 | 122,431 | 68,806 | 42,161 | 44,811 | 8,814 |
| 2017/18 | 35,150 | 8,814 | 123,400 | 185 | 132,399 | 83,728 | 43,389 | 46,039 | 2,632 |
| 2018/19 | 35,900 | 2,632 | 119,700 | 145 | 122,477 | 73,436 | 43,510 | 46,160 | 2,881 |
| 2019/20 | 36,900 | 2,881 | 128,500 | 884 | 132,265 | 81,621 | 46,000 | 48,650 | 1,994 |
| 2020/21 | 38,600 | 1,994 | 137,000 | 850 | 139,844 | 86,500 | 46,750 | 49,400 | 3,944 |
| 2021/22** | 40,400 | 3,944 | 144,000 | 656 | 148,600 | 94,300 | 47,700 | 50,350 | 3,950 |

*Data based on Brazil's local February/January Marketing Year (MY).
Where February 2012 - January 2013 is the 2011/12 MY.
**Forecast, July 12, 2021
Source: USDA/Foreign Agricultural Service/Market and Trade Data/Reports/Oilseeds

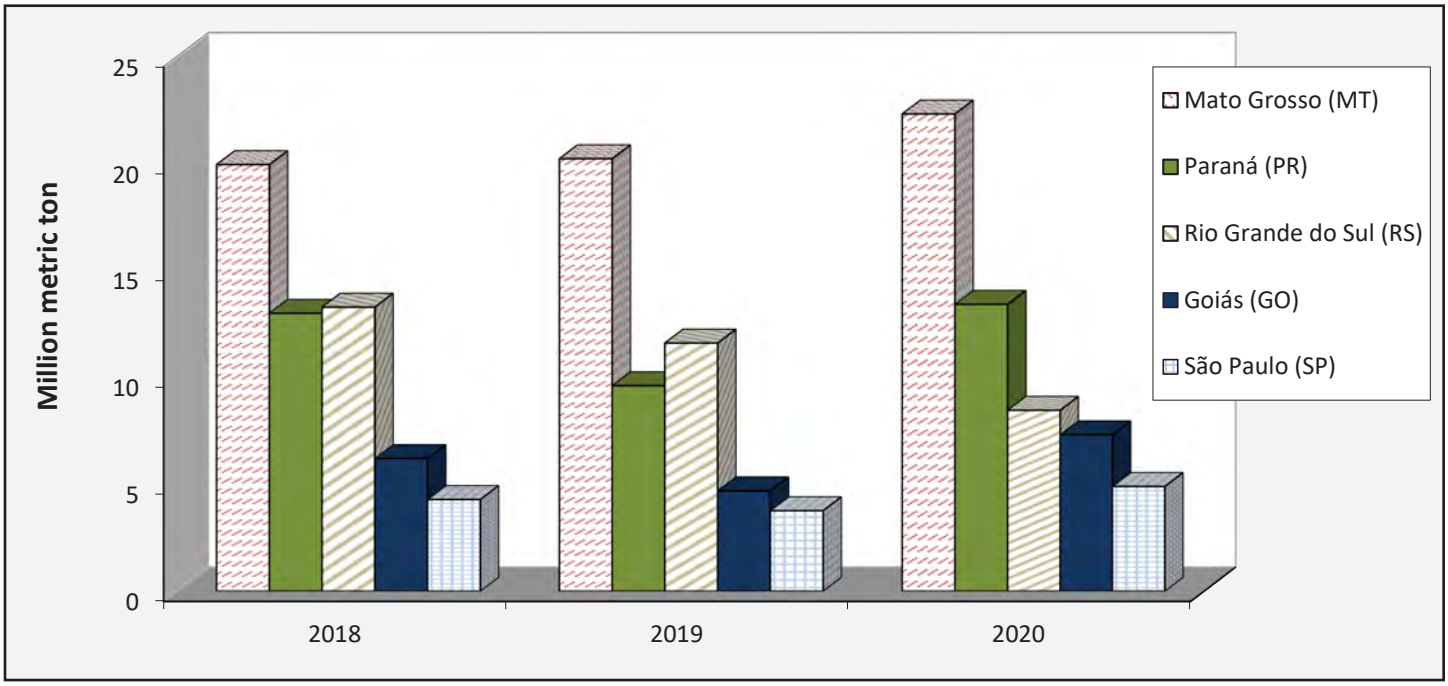
# Exports


## Top 15 Brazilian soybean exporting states, 2018-20

| State | 2018 | 2019 | 2020 | Rank |
|---|---|---|---|---|
| | metric ton | | | |
| Mato Grosso (MT) | 19,954 | 20,228 | 22,326 | 1 |
| Paraná (PR) | 12,983 | 9,620 | 13,404 | 2 |
| Rio Grande do Sul (RS) | 13,271 | 11,619 | 8,466 | 3 |
| Goiás (GO) | 6,206 | 4,696 | 7,318 | 4 |
| São Paulo (SP) | 4,290 | 3,765 | 4,901 | 5 |
| Mato Grosso do Sul (MS) | 5,198 | 3,279 | 4,796 | 6 |
| Minas Gerais (MG) | 4,434 | 3,285 | 4,560 | 7 |
| Bahia (BA) | 4,012 | 3,253 | 3,761 | 8 |
| Tocantins (TO) | 2,528 | 2,214 | 2,554 | 9 |
| Maranhão (MA) | 2,497 | 2,306 | 2,299 | 10 |
| Pará (PA) | 1,423 | 1,509 | 2,227 | 11 |
| Santa Catarina (SC) | 2,335 | 1,861 | 1,935 | 13 |
| Rondônia (RO) | 1,048 | 1,115 | 1,244 | 12 |
| Piauí (PI) | 1,527 | 1,176 | 1,188 | 14 |
| Distrito Federal (DF) | 317 | 150 | 119 | 15 |
| Others | 1,222 | 3,988 | 1,871 | |
| **Total** | **83,247** | **74,064** | **82,968** | |

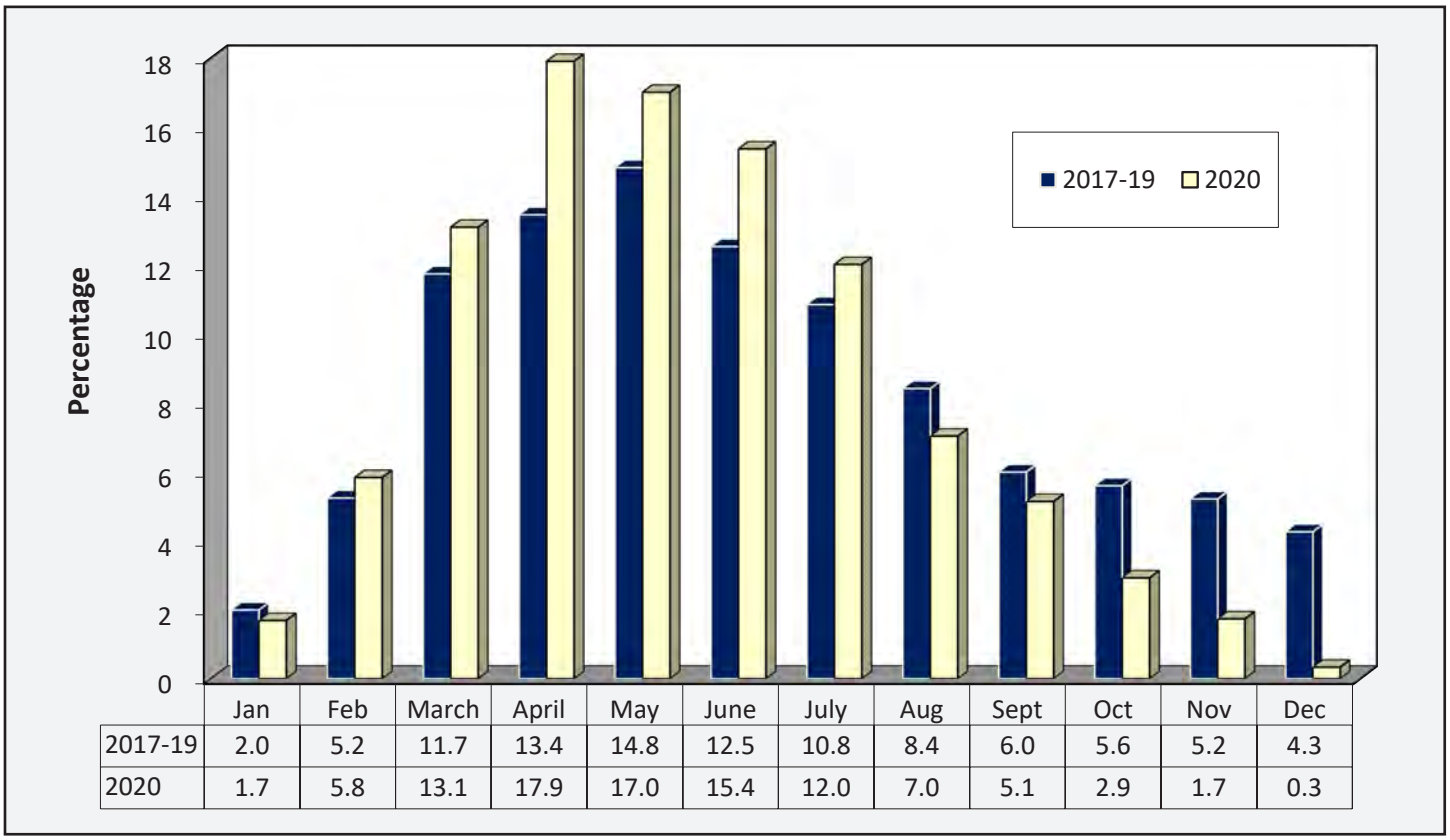
Source: Comex Stat, Ministério da Economia.

## Top five Brazilian soybean exporting states, 2018-20




Source: Comex Stat, Ministério da Economia.

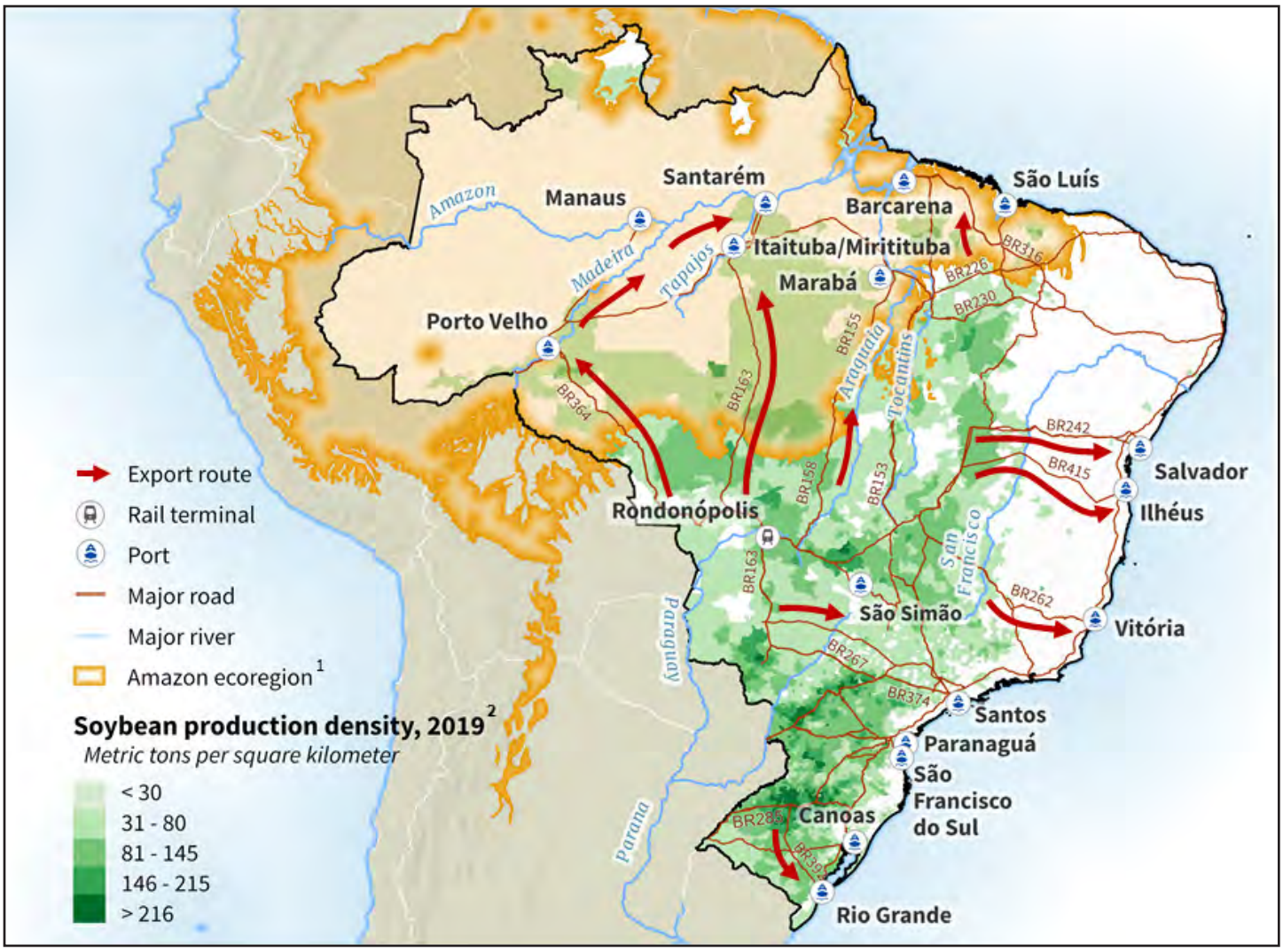
## Brazil average monthly soybean exports, 2017-20




| | Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017-19 | 2.0 | 5.2 | 11.7 | 13.4 | 14.8 | 12.5 | 10.8 | 8.4 | 6.0 | 5.6 | 5.2 | 4.3 |
| 2020 | 1.7 | 5.8 | 13.1 | 17.9 | 17.0 | 15.4 | 12.0 | 7.0 | 5.1 | 2.9 | 1.7 | 0.3 |

Source: Comex Stat, Ministério da Economia.

## Main export routes for soybeans




[1]World Wildlife Fund.

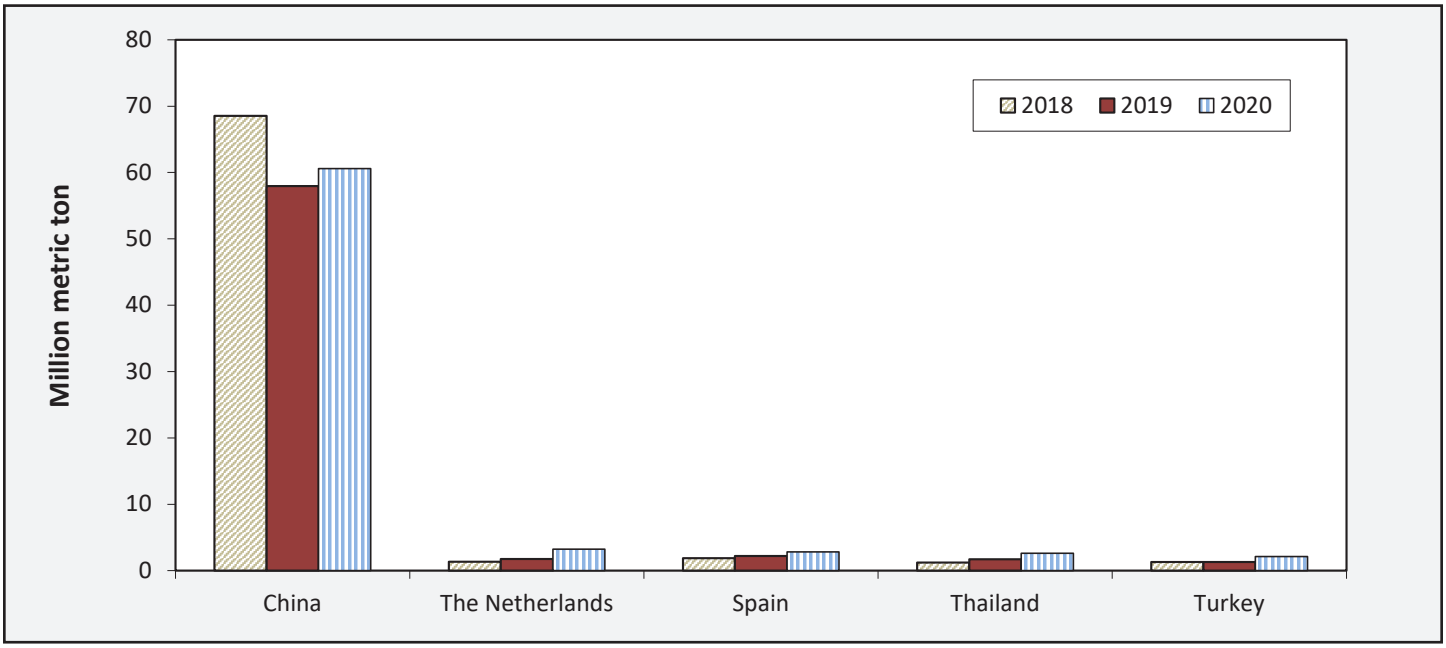
[2]Brazilian Institute of Geography and Statistics—Produção Agricola Municipal.

Source: USDA/Agricultural Marketing Service (AMS) and USDA/Foreign Agricultural Service (FAS).

## World export routes for Brazilian soybeans


Source:USDA/Agricultural Marketing Service and USDA/Foreign Agricultural Service.

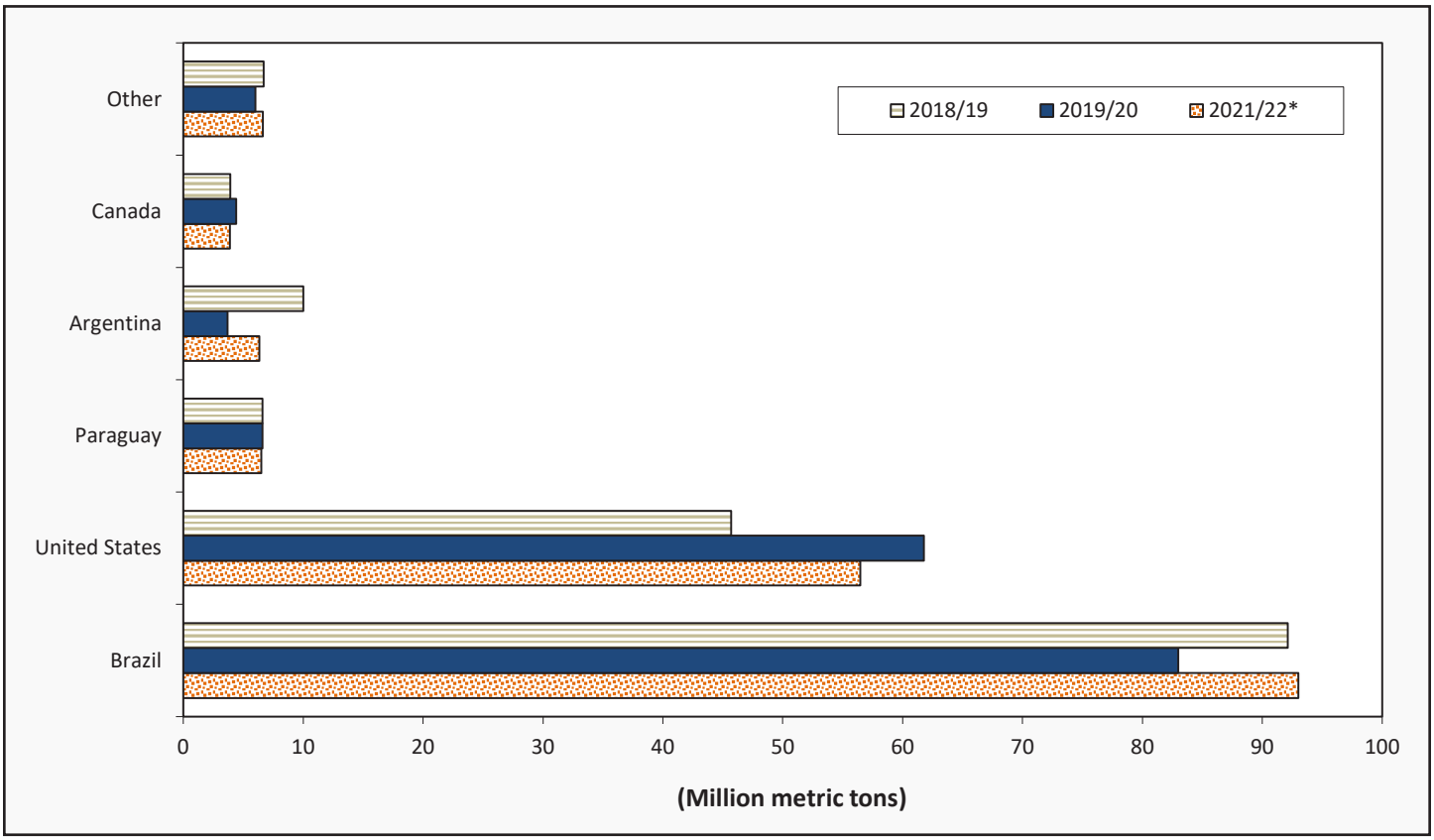
## Top five Brazilian soybean-export destinations, 2018-20




Source: Comex Stat, Ministério da Economia.

In 2020, Brazil was the leading soybean exporter, followed by the United States, Paraguay, Argentina, and Canada. USDA forecasts that Brazil will sustain its leadership position in 2021.

## Top five world soybean-exporting countries, 2018/19-2021/22*

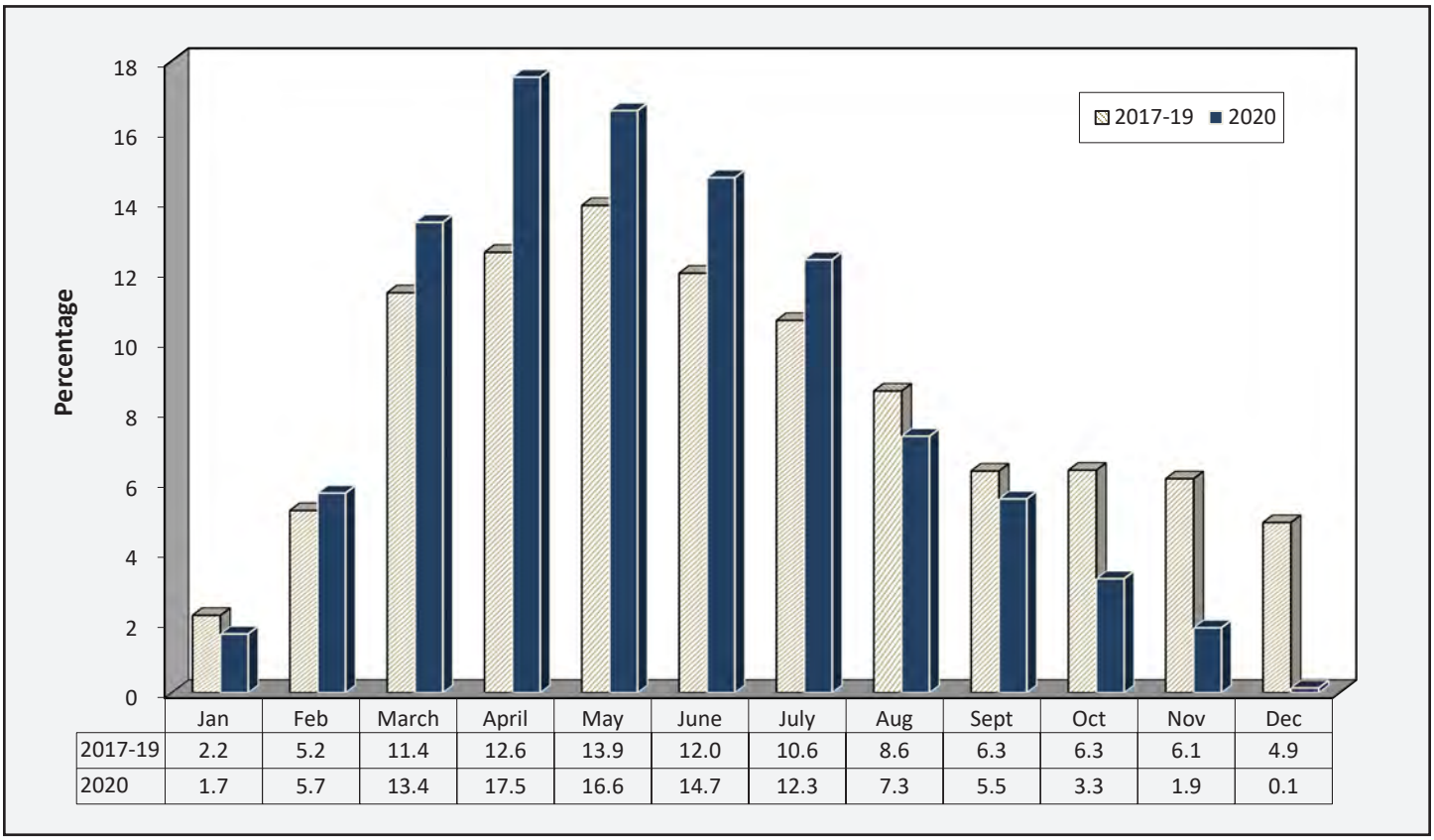



*Forecast July 12, 2021.
Source:USDA/Foreign Agricultural Service/Market and Trade/Reports/PSD Reports/Oilseeds.

# Exports to China

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). Over 90 percent of Brazilian soybean exports to China in 2020 originated from Paraná, Mato Grosso, Rio Grande do Sul, Goiás, Mato Grosso do Sul, São Paulo, Minas Gerais, Bahia, Santa Catarina, and Tocantins.

## Brazil average monthly soybean exports to China, 2017-20




| | Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017-19 | 2.2 | 5.2 | 11.4 | 12.6 | 13.9 | 12.0 | 10.6 | 8.6 | 6.3 | 6.3 | 6.1 | 4.9 |
| 2020 | 1.7 | 5.7 | 13.4 | 17.5 | 16.6 | 14.7 | 12.3 | 7.3 | 5.5 | 3.3 | 1.9 | 0.1 |

Source: Comex Stat, Ministério da Economia.

## Top 15 Brazilian soybean exporting states to China, 2018-20

| State | 2018 | 2019 | 2020 | Rank |
|---|---|---|---|---|
| | metric ton | | | |
| Paraná | 12,252,933 | 8,553,610 | 12,122,956 | 1 |
| Mato Grosso | 12,743,315 | 12,487,191 | 11,465,981 | 2 |
| Rio Grande do Sul | 12,900,416 | 11,177,365 | 8,101,550 | 3 |
| Goiás | 5,387,269 | 3,910,109 | 6,263,894 | 4 |
| Mato Grosso do Sul | 4,315,265 | 2,490,965 | 3,917,124 | 5 |
| São Paulo | 3,793,637 | 3,282,430 | 3,842,195 | 6 |
| Minas Gerais | 3,271,399 | 2,568,900 | 3,544,637 | 7 |
| Bahia | 3,817,777 | 2,698,728 | 2,800,965 | 8 |
| Santa Catarina | 2,226,527 | 1,636,180 | 1,775,530 | 9 |
| Tocantins | 2,040,447 | 1,691,598 | 1,706,796 | 10 |
| Maranhão | 2,067,352 | 1,746,621 | 1,565,424 | 11 |
| Piauí | 1,411,692 | 995,313 | 888,244 | 13 |
| Pará | 806,366 | 777,540 | 882,740 | 12 |
| Distrito Federal | 296,401 | 130,524 | 94,106 | 14 |
| Rondônia | 141,332 | 121,827 | 29,830 | 15 |
| Others | 1,084,496 | 3,694,577 | 1,593,878 | |
| **Brazil exports to China** | **68,556,623** | **57,963,480** | **60,595,851** | |
| **Brazil total exports** | **83,246,812** | **74,063,633** | **82,968,242** | |

Source: Comex Stat, Ministério da Economia.

## Top 15 Mato Grosso soybean exports destinations, 2018-20

| State | 2018 | 2019 | 2020 | % share | Rank |
|---|---|---|---|---|---|
| | metric ton | | | | |
| China | 12,743,315 | 12,487,191 | 11,465,981 | 51.4 | 1 |
| The Netherlands | 840,285 | 1,010,715 | 2,095,566 | 9.4 | 2 |
| Spain | 1,208,445 | 1,146,825 | 1,603,747 | 7.2 | 3 |
| Turkey | 884,021 | 875,285 | 1,336,095 | 6.0 | 4 |
| Thailand | 495,137 | 551,291 | 848,095 | 3.8 | 5 |
| Mexico | 272,165 | 497,229 | 645,568 | 2.9 | 6 |
| Italy | 150,244 | 185,594 | 433,328 | 1.9 | 7 |
| Russia | 161,164 | 595,929 | 353,948 | 1.6 | 8 |
| United Kingdom | 297,400 | 133,099 | 362,402 | 1.6 | 9 |
| Norway | 270,688 | 346,394 | 300,565 | 1.3 | 10 |
| Pakistan | 187,837 | 224,425 | 341,444 | 1.5 | 11 |
| Iran | 503,935 | 747,222 | 315,435 | 1.4 | 12 |
| South Korea | 109,853 | 31,585 | 244,786 | 1.1 | 13 |
| Tunisia | 139,760 | 173,451 | 220,514 | 1.0 | 14 |
| Vietnam | 83,525 | 137,621 | 215,653 | 1.0 | 15 |
| Others | 1,606,266 | 1,084,523 | 1,543,108 | 6.9 | |
| **Mato Grosso total** | **19,954,041** | **20,228,380** | **22,326,237** | **100.0** | |

| | 2018 | 2019 | 2020 |
|---|---|---|---|
| MT % share of Brazil exports to China | 18.6 | 21.5 | 18.9 |
| Brazil exports to China | 68,556,623 | 57,963,480 | 60,595,851 |
| Brazil total exports | 83,246,812 | 74,063,633 | 82,968,242 |
| China % share of Brazil total exports | 82.4 | 78.3 | 73.0 |

Source: Comex Stat, Ministério da Economia.

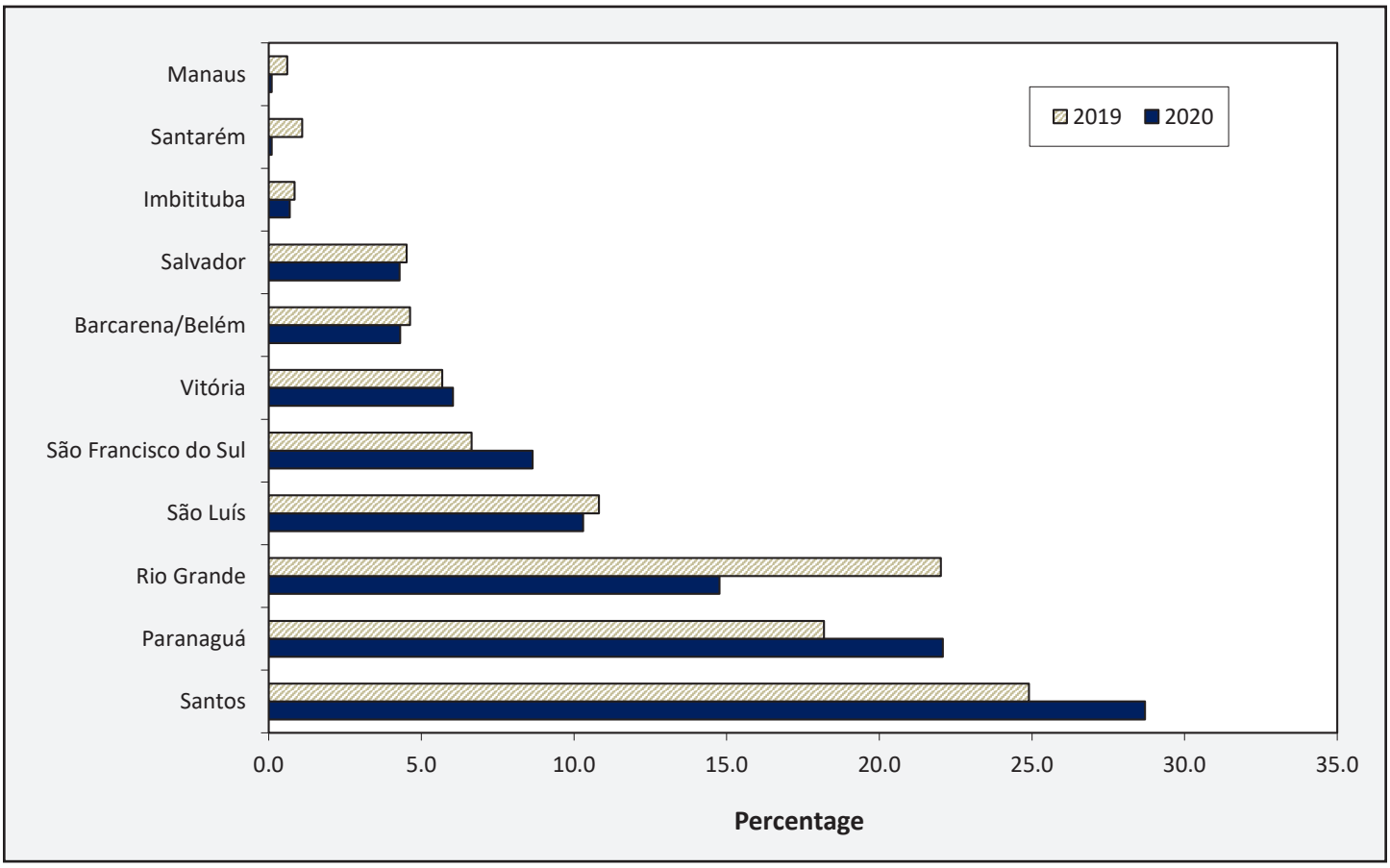
The southern ports of Santos, Rio Grande, Paranaguá, and São Francisco do Sul still dominate the soybean trade to China, accounting for 74 percent of Brazil's soybean exports to China. The northeastern ports of São Luís, Vitória, Salvador, and Barcarena accounted for nearly 25 percent of soybean exports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

## Total Brazilian soybean exports by port to China, 2018-20

| Ports | 2018 | 2019 | 2020 |
|---|---|---|---|
| | metric ton | | |
| Santos | 17,601,053 | 14,433,778 | 17,392,177 |
| Paranaguá | 14,056,376 | 10,542,592 | 13,378,303 |
| Rio Grande | 13,391,121 | 12,764,079 | 8,949,582 |
| São Luís | 6,982,873 | 6,271,719 | 6,239,866 |
| São Francisco do Sul | 5,252,417 | 3,852,101 | 5,239,528 |
| **Subtotal** | **57,283,841** | **47,864,269** | **51,199,456** |
| Others | 11,272,781 | 10,099,211 | 9,396,395 |
| **Total exports to China** | **68,556,623** | **57,963,480** | **60,595,851** |
| **Brazil total exports** | **83,246,812** | **74,063,633** | **82,968,242** |
| **Ports** | **2018** | **2019** | **2020** |
| | **% share of exports to China** | | |
| Santos | 25.7 | 24.9 | 28.7 |
| Paranaguá | 20.5 | 18.2 | 22.1 |
| Rio Grande | 19.5 | 22.0 | 14.8 |
| São Luís | 10.2 | 10.8 | 10.3 |
| São Francisco do Sul | 7.7 | 6.6 | 8.6 |
| **Subtotal** | **83.6** | **82.6** | **84.5** |
| Others | 16.4 | 17.4 | 15.5 |
| **Total exports to China** | **100.0** | **100.0** | **100.0** |
| **Ports** | **2018** | **2019** | **2020** |
| | **% share of Brazil total exports** | | |
| Santos | 21.1 | 19.5 | 21.0 |
| Paranaguá | 16.9 | 14.2 | 16.1 |
| Rio Grande | 16.1 | 17.2 | 10.8 |
| São Luís | 8.4 | 8.5 | 7.5 |
| São Francisco do Sul | 6.3 | 5.2 | 6.3 |
| **Subtotal** | **68.8** | **64.6** | **61.7** |
| Others | 13.5 | 13.6 | 11.3 |
| **Total exports to China** | **82.4** | **78.3** | **73.0** |

Source: Comex Stat, Ministério da Economia.

## Brazil soybean exports to China by port, 2019-20




Source: Comex Stat, Ministério da Economia.

# Distance from selected Brazilian ports to Shanghai, China, and Hamburg, Germany

| Brazilian port | Region | Route through | Destination | Nautical miles | Days at sea* |
|---|---|---|---|---|---|
| Santos, São Paulo | South | Good Hope | Shanghai, China | 11,056 | 32.22 |
| Santos, São Paulo | South | Direct | Hamburg, Germany | 5,683 | 16.22 |
| Rio Grande, Rio Grande do Sul | South | Good Hope | Shanghai, China | 11,129 | 33.03 |
| Rio Grande, Rio Grande do Sul | South | Panama Canal | Shanghai, China | 13,564 | 40.09 |
| Rio Grande, Rio Grande do Sul | South | Cape Horn | Shanghai, China | 11,397 | 33.22 |
| Rio Grande, Rio Grande do Sul | South | Direct | Hamburg, Germany | 6,204 | 18.11 |
| Paranaguá, Paraná | South | Good Hope | Shanghai, China | 11,111 | 33.02 |
| Paranaguá, Paraná | South | Panama Canal | Shanghai, China | 13,165 | 39.04 |
| Paranaguá, Paraná | South | Direct | Hamburg, Germany | 5,805 | 17.07 |
| São Francisco do Sul, Santa Catarina | South | Good Hope | Shanghai, China | 11,111 | 33.4 |
| São Francisco do Sul, Santa Catarina | South | Direct | Hamburg, Germany | 5,805 | 17.1 |
| Itajaí, Santa Catarina | South | Good Hope | Shanghai, China | 13,158 | 39.2 |
| Itajaí, Santa Catarina | South | Direct | Hamburg, Germany | 7,289 | 21.7 |
| Vitória, Espírito Santo | Southeast | Good Hope | Shanghai, China | 10,857 | 32.08 |
| Vitória, Espírito Santo | Southeast | Panama Canal | Shanghai, China | 12,587 | 37.11 |
| Vitória, Espírito Santo | Southeast | Direct | Hamburg, Germany | 5,227 | 15.13 |
| Salvador, Bahia | Northeast | Good Hope | Shanghai, China | 10,997 | 32.18 |
| Salvador, Bahia | Northeast | Panama Canal | Shanghai, China | 12,170 | 36.05 |
| Salvador, Bahia | Northeast | Direct | Hamburg, Germany | 4,811 | 14.08 |
| Aratu, Bahia | Northeast | Good Hope | Shanghai, China | 10,997 | 32.18 |
| Aratu, Bahia | Northeast | Panama Canal | Shanghai, China | 12,170 | 36.05 |
| Aratu, Bahia | Northeast | Direct | Hamburg, Germany | 4,811 | 14.08 |
| Itaquí/São Luís - Ponta de Madeira, Maranhão | Northeast | Good Hope | Shanghai, China | 11,708 | 34.2 |
| Itaquí/São Luís - Ponta de Madeira, Maranhão | Northeast | Panama Canal | Shanghai, China | 11,087 | 33 |
| Itaquí/São Luís - Ponta de Madeira, Maranhão | Northeast | Direct | Hamburg, Germany | 4,361 | 13 |
| Santarém, Pará** Reference point for Itaituba/Miritituba | North | Good Hope | Shanghai, China | 12,305 | 37.8 |
| Santarém, Pará** Reference point for Itaituba/Miritituba | North | Panama Canal | Shanghai, China | 11,200 | 33.1 |
| Santarém, Pará** Reference point for Itaituba/Miritituba | North | Direct | Hamburg, Germany | 4,750 | 14.18 |
| Manaus, Amazonas | North | Good Hope | Shanghai, China | 12,880 | 38.04 |
| Manaus, Amazonas | North | Panama Canal | Shanghai, China | 10,926 | 32.12 |
| Manaus, Amazonas | North | Direct | Hamburg, Germany | 5,283 | 15.17 |
| Barcarena, Pará** | North | Good Hope | Shanghai, China | 11,905 | 35.6 |
| Barcarena, Pará** | North | Panama Canal | Shanghai, China | 10,950 | 32.6 |
| Barcarena,Pará** | North | Direct | Hamburg, Germany | 4,510 | 13.6 |

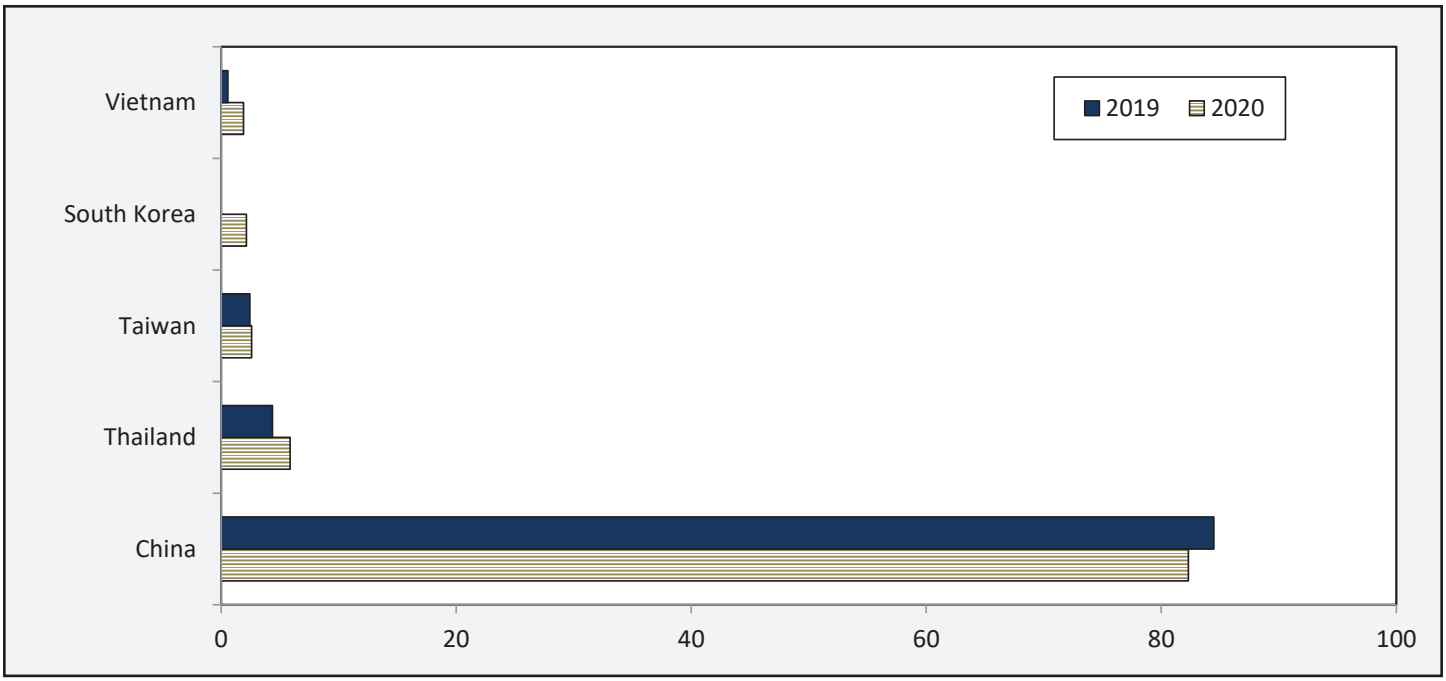
*Vessel speed: 14 knots.

**Barcarena is located 49 nautical miles from Belém; Itaituba is located 140 nautical miles from Santarém.

Source: http://sea-distances.com/ and 1Ports.com.

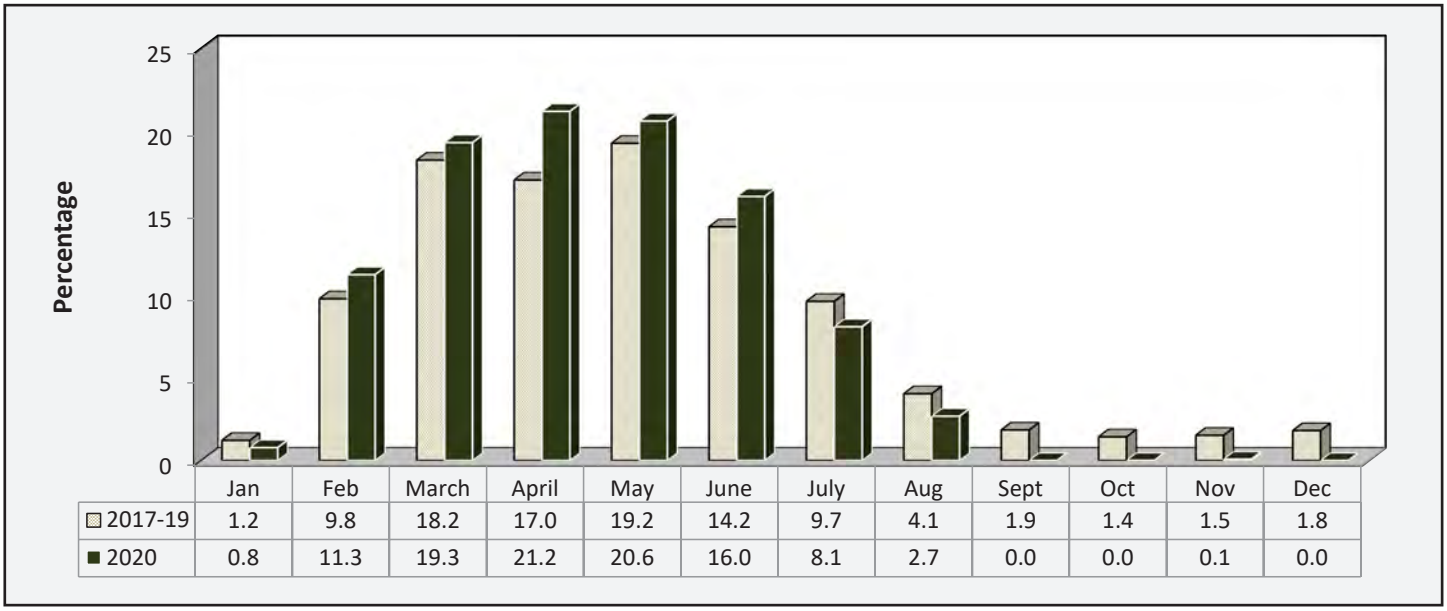
In 2020, China was the major destination for Brazilian soybeans through the port of Santos, Brazil's largest soybean-exporting port. The next-largest destinations (in descending order) were Thailand, Taiwan, South Korea, and Vietnam. The peak of soybean shipments to China from Santos usually occurs from March to May. Forty-two percent of the soybean exports, through Santos, originated from Mato Grosso, followed (in descending order) by Goiás, São Paulo, Minas Gerais, and Mato Grosso do Sul.

## Port of Santos soybean exports by country, 2019-20




Source: Comex Stat, Ministério da Economia.

## Port of Santos soybean average monthly exports to China, 2017-20

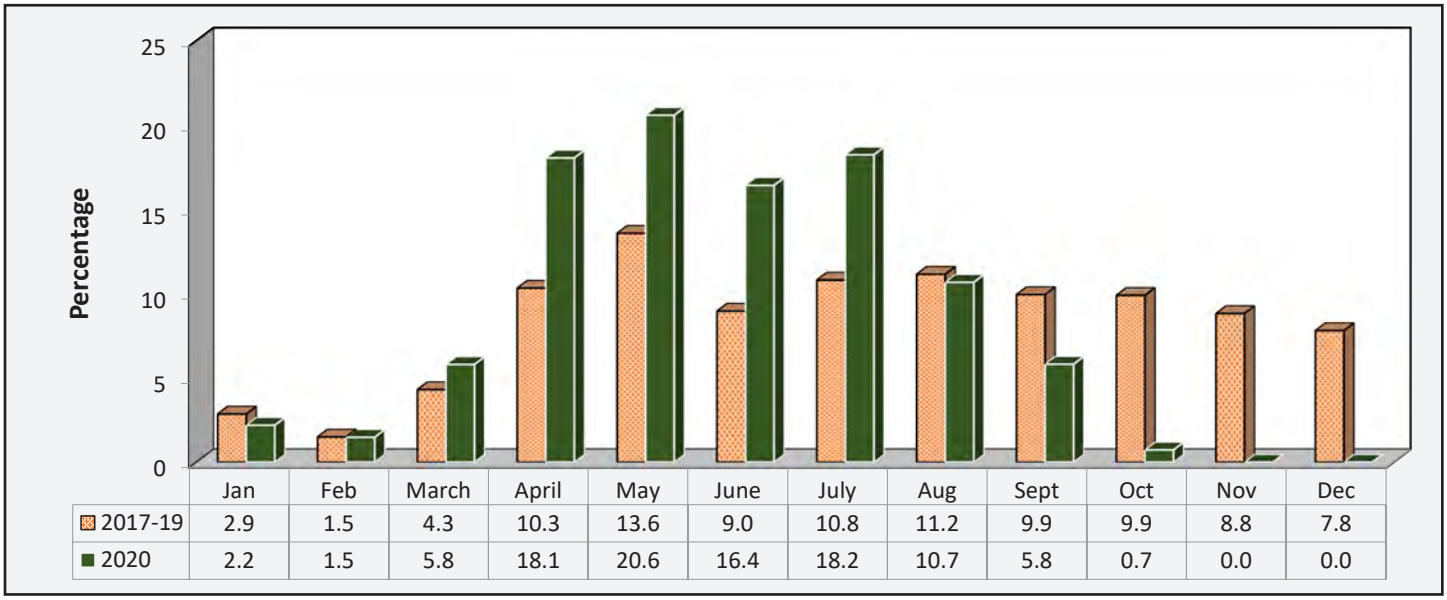



| | Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017-19 | 1.2 | 9.8 | 18.2 | 17.0 | 19.2 | 14.2 | 9.7 | 4.1 | 1.9 | 1.4 | 1.5 | 1.8 |
| 2020 | 0.8 | 11.3 | 19.3 | 21.2 | 20.6 | 16.0 | 8.1 | 2.7 | 0.0 | 0.0 | 0.1 | 0.0 |

Source: Comex Stat, Ministério da Economia.

China was the major destination for Brazilian soybeans via the port of Rio Grande, accounting for nearly 96 percent, followed by Taiwan, Thailand, Turkey, and Bangladesh. Typically, soybean shipments to China through the port of Rio Grande peak from April to July. About 90 percent of the soybean exports through the Port of Rio Grande originated from Rio Grande do Sul. The next-highest levels of exports originated (in descending order) from the following ports: Paraná, Mato Grosso do Sul, Bahia, Santa Catarina, and Mato Grosso.

## Port of Rio Grande soybean average monthly exports to China, 2017-20

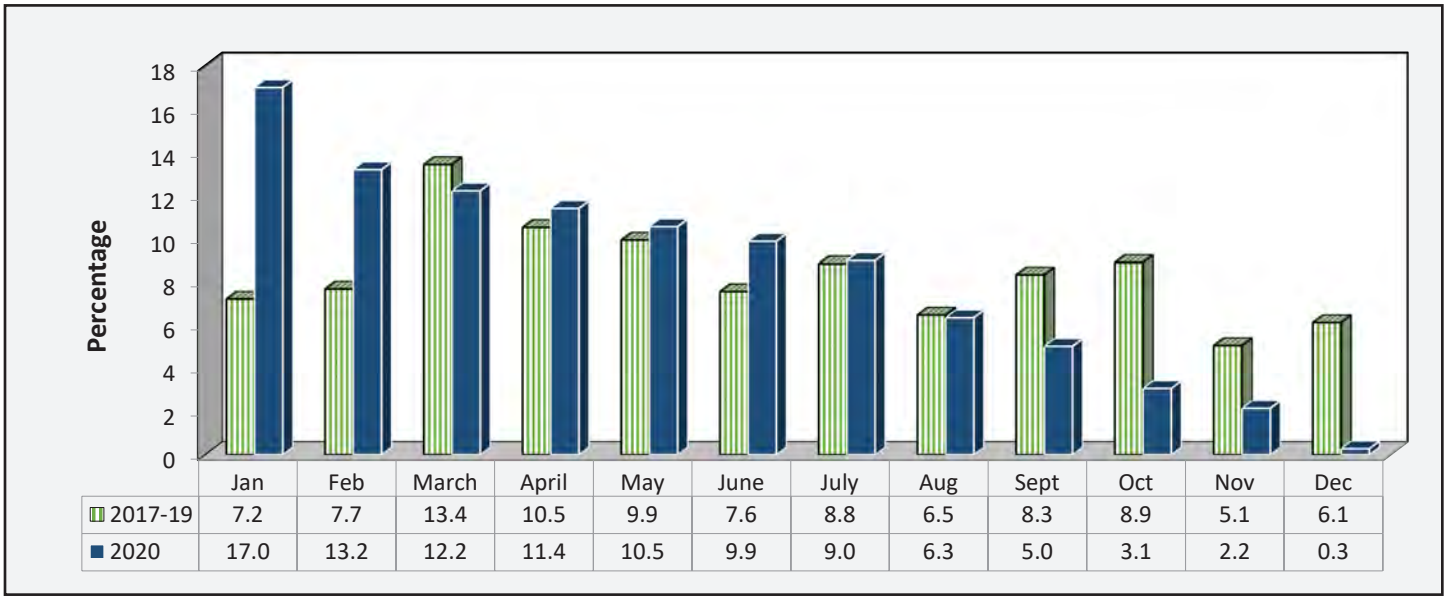



| | Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017-19 | 2.9 | 1.5 | 4.3 | 10.3 | 13.6 | 9.0 | 10.8 | 11.2 | 9.9 | 9.9 | 8.8 | 7.8 |
| 2020 | 2.2 | 1.5 | 5.8 | 18.1 | 20.6 | 16.4 | 18.2 | 10.7 | 5.8 | 0.7 | 0.0 | 0.0 |

Source: Comex Stat, Ministério da Economia.

China was the top Brazilian soybean export destination through the Port of Paranaguá. The next-largest export destinations (in descending order) were the Pakistan, Bangladesh, Thailand, and Norway. Typically, soybean shipments to China from Paranaguá peak from March to May. Sixty-eight percent of Paranaguá exports originated from Paraná. The next-highest levels of Paranaguá exports (in descending order) originated from Mato Grosso do Sul, Mato Grosso, São Paulo, and Goiás.

## Port of Paranaguá soybean average monthly exports to China, 2017-20

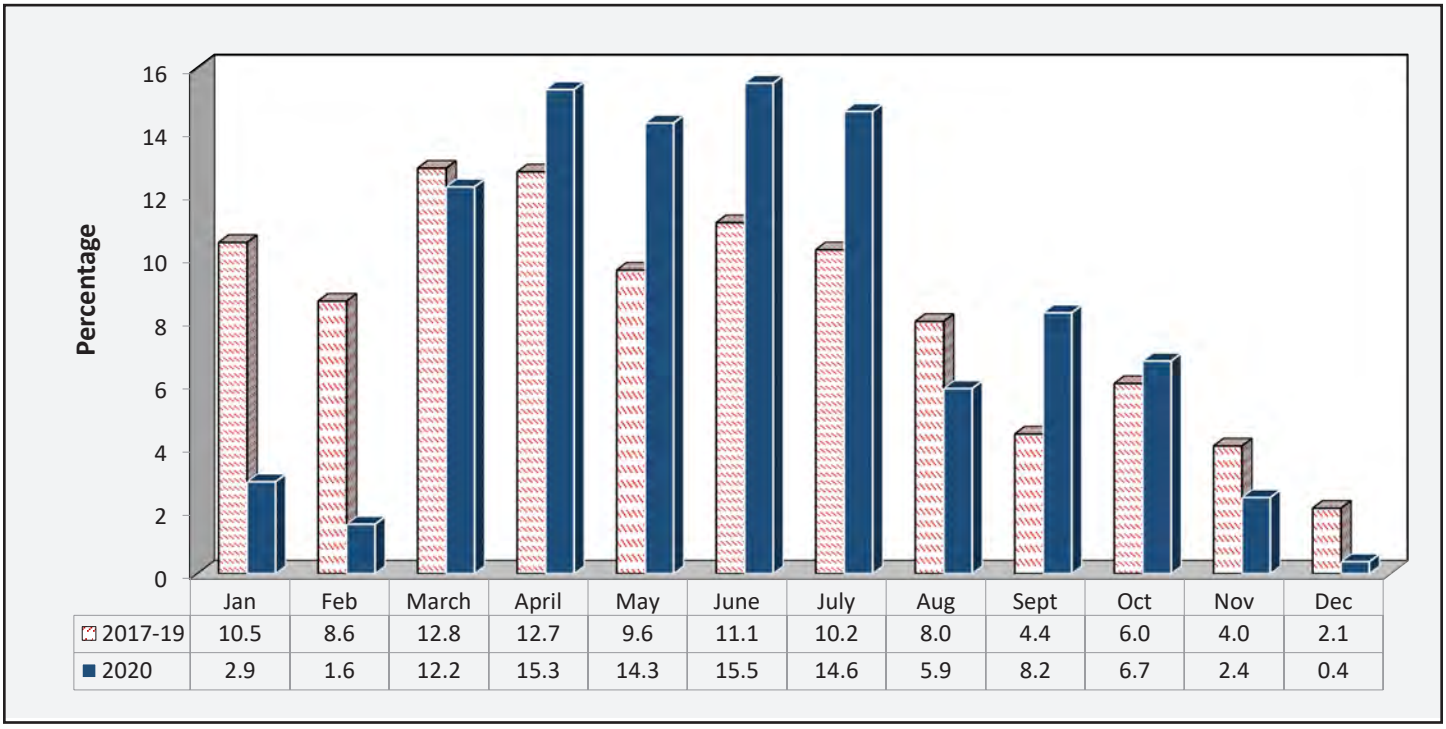



| | Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017-19 | 7.2 | 7.7 | 13.4 | 10.5 | 9.9 | 7.6 | 8.8 | 6.5 | 8.3 | 8.9 | 5.1 | 6.1 |
| 2020 | 17.0 | 13.2 | 12.2 | 11.4 | 10.5 | 9.9 | 9.0 | 6.3 | 5.0 | 3.1 | 2.2 | 0.3 |

Source: Comex Stat, Ministério da Economia.

China was top Brazilian soybean export destination through the Port of São Luís, accounting for nearly 71 percent. The next-largest export destinations (in descending order) were Thailand, Spain, Turkey, and the Netherlands. Typically, soybean shipments to China from the Port of São Luís peak from March to July. São Luís is Brazil's top soybean-exporting port in the northeast, accounting for nearly 11 percent of Brazilian total soybean exports and 10 percent of exports to China. The next-highest levels of exports (in descending order) in the northeast were from the following ports: Barcarena, Vitória, and Salvador. These four ports accounted for nearly 25 percent of the total exports to China. About 53 percent of exports of the port of São Luís originated from Maranhão and Tocantins. The next-highest levels of São Luís exports (in descending order) originated from Mato Grosso, Piauí, Bahia, and Pará.

## Port of São Luís average monthly soybean exports to China, 2017-20

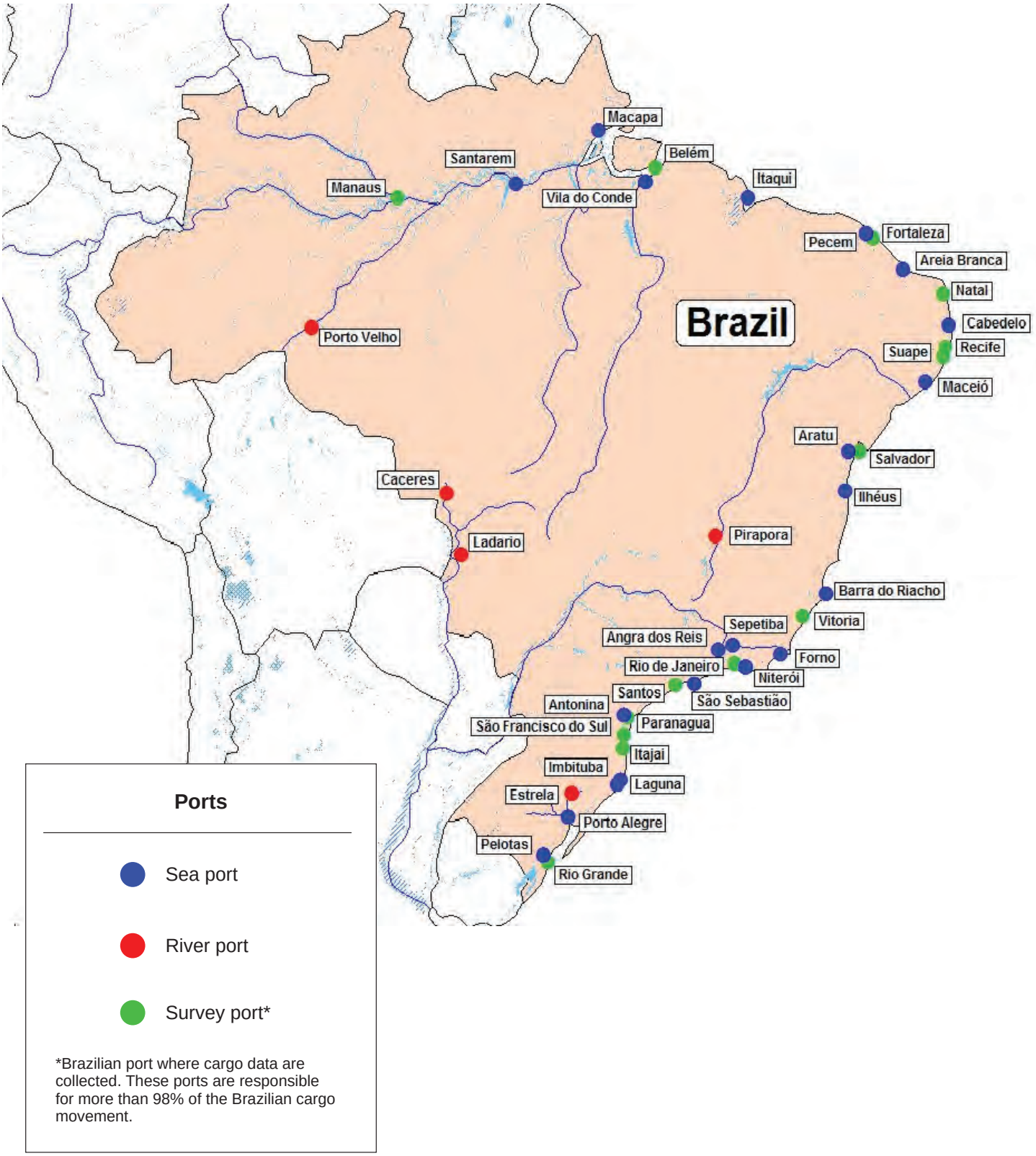



| | Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017-19 | 10.5 | 8.6 | 12.8 | 12.7 | 9.6 | 11.1 | 10.2 | 8.0 | 4.4 | 6.0 | 4.0 | 2.1 |
| 2020 | 2.9 | 1.6 | 12.2 | 15.3 | 14.3 | 15.5 | 14.6 | 5.9 | 8.2 | 6.7 | 2.4 | 0.4 |

Source: Comex Stat, Ministério da Economia.

# Transportation Modes

## Brazilian ports




Sources: Companhia Nacional de Abastecimento (CONAB) and Ministério dos Transportes, Brazil.

## Major rivers of the Amazonian Basin


Source: National Agency for Waterway Transportation (ANTAQ).

Brazil has 39,146 miles of river-lake surface water and 27,340 miles of navigable rivers, but only 12,094 miles are commercially navigated.

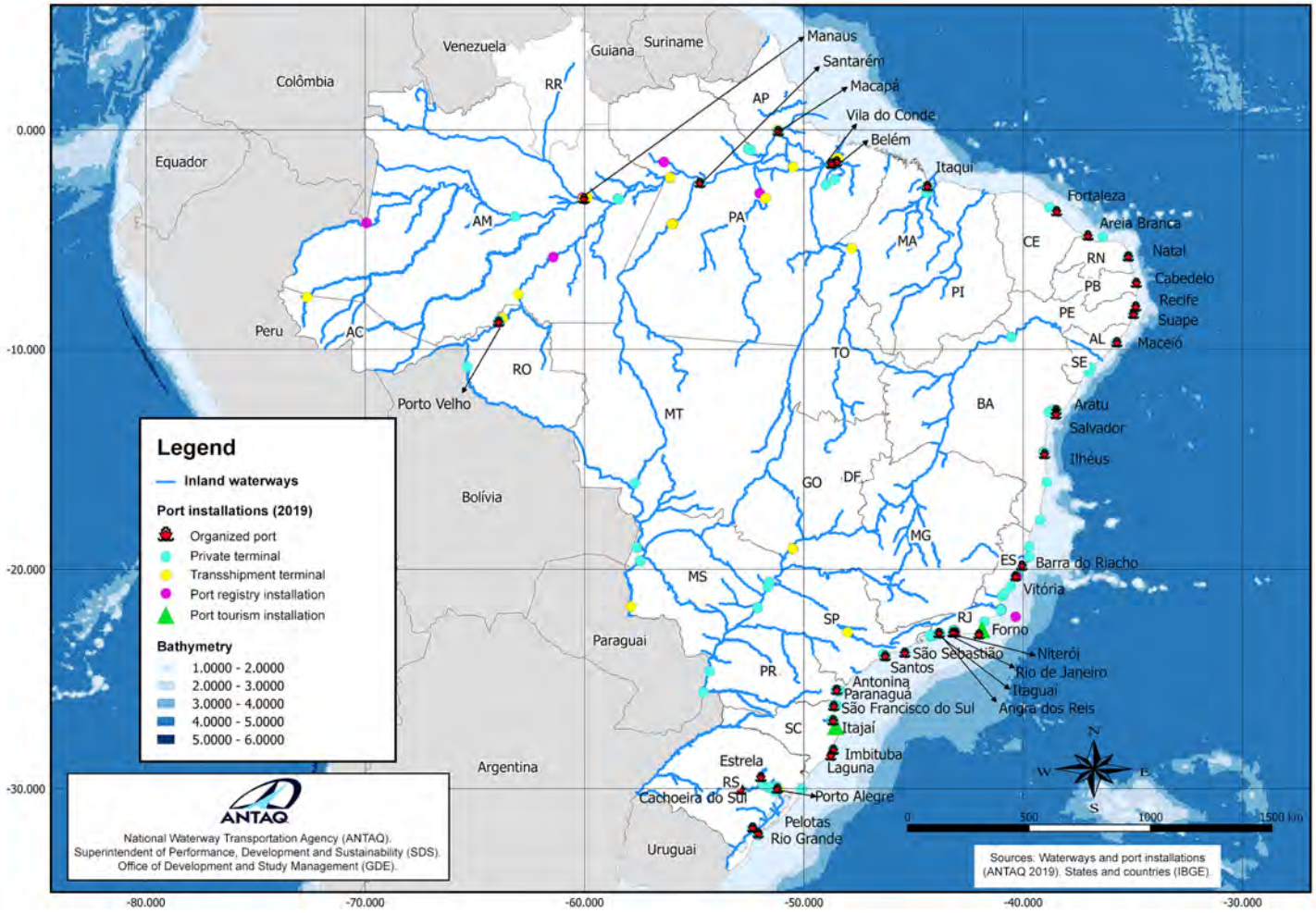
## Brazil waterway system

| Extension | Miles |
|---|---|
| River-lake surface water | 39,146 |
| National river network | 27,340 |
| Naturally navigable waterways | 25,970 (100%) |
| Commercial navigations | 12,094 (47%) |

Sources: Confederação Nacional do Transporte (CNT 2019) and National Agency for Waterway Transporation (ANTAQ 2016).

# Brazilian port installations

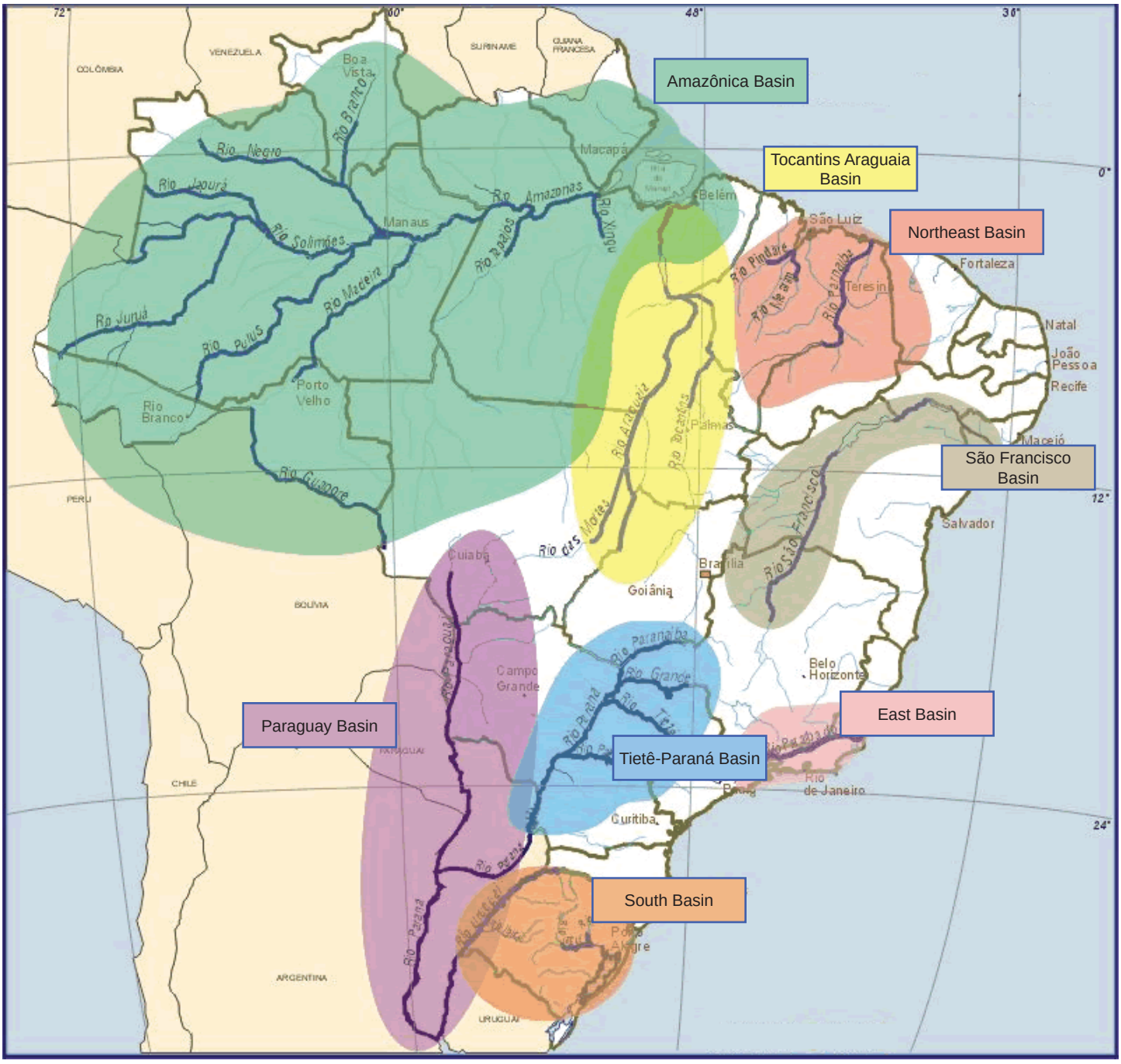
The Port of Manaus access channel is 1,640 ft wide and 114.8 ft deep.  Porto Velho's access channel depth varies from 8.2 to 57.4 ft. The Port of Santarém's access channel is 5,904 ft wide and 49.2 ft deep.




Sources: Agência Nacional de Transportes Aquaviários (ANTAQ).

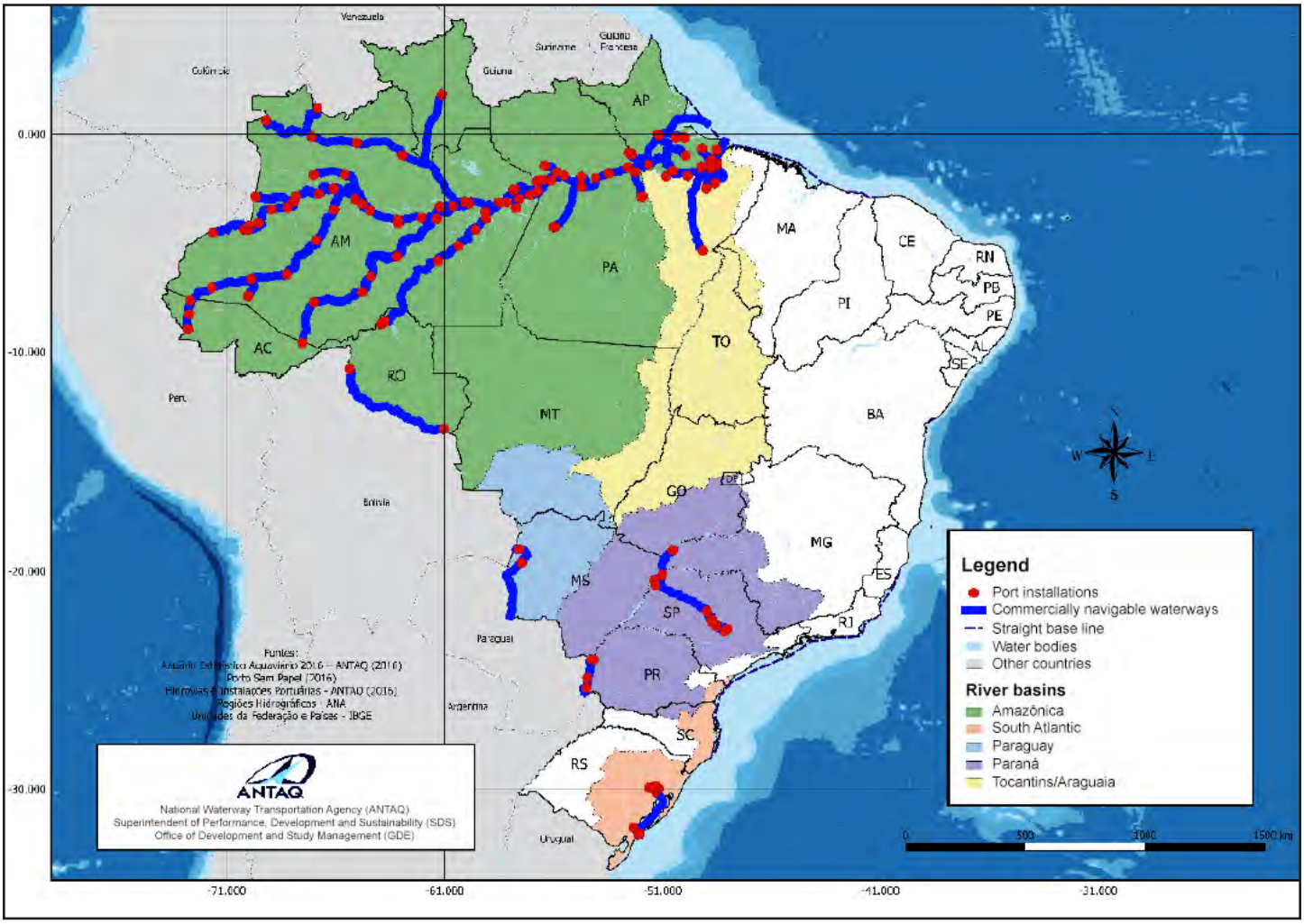
## Brazilian river basins

Brazil's river system comprises eight basins: Amazônica, Northeast, Tocantins Araguaia, São Francisco, East, Tietê-Paraná, Paraguay, and South. The Amazônica and Paraguay Basin account for 72 percent of the total area of the Brazilian basins. The Paraguay Basin serves Argentina, Brazil, Bolivia, Paraguay, and Uruguay. Its navigable portion is comparable with the Mississippi River in the United States and the Rhine River in Europe.




Source: Ministério dos Transportes, Brazil.

# Brazilian commercial inland waterways




Source: Agência Nacional de Transportes Aquaviários.

# Major Brazilian highways


Source: Confederação Nacional do Transporte.

The Brazilian highway system extends 968,863 miles (1,562,682 kilometers), with nearly 14 percent paved. The U.S. highway system consists of 4,124,867 miles (6,638,313 kilometers), with 70 percent paved.

## Brazil highway system, 2019

| | Miles | % Paved | % Unpaved |
|---|---|---|---|
| Federal | 46,961 | 86 | 14 |
| State and county | 921,902 | 10 | 90 |
| **Total (federal + state and county)** | **968,863** | | |
| **All roads** | | **14** | **86** |

Source: Confederação Nacional do Transporte (CNT).

## U.S. highway system, 2019

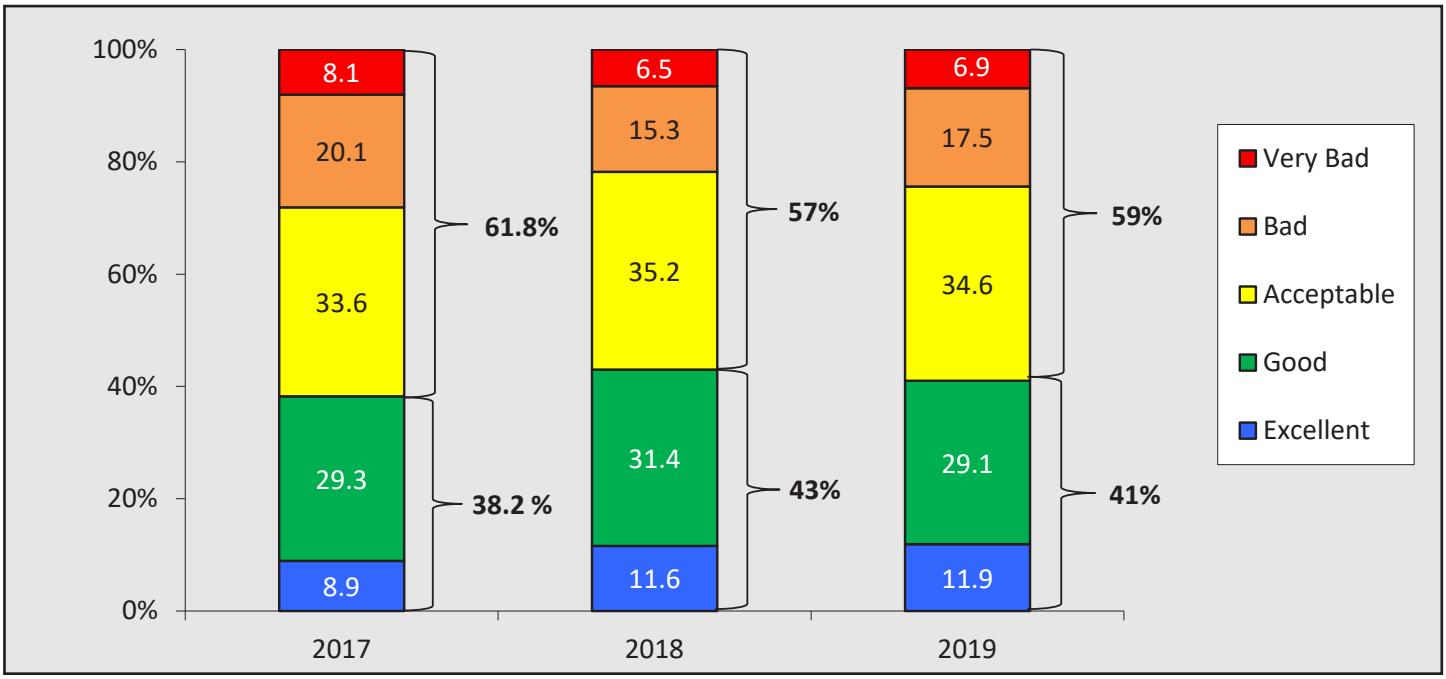
| | Extension[1] (in miles) | % Paved[2] | % Unpaved[2] |
|---|---|---|---|
| Rural | 2,898,307 | 59 | 41 |
| Urban | 1,226,560 | 97 | 3 |
| **Total** | **4,124,867** | **70** | **30** |

[1]Includes the 50 States, Puerto Rico (data may be incomplete), and the District of Columbia. Some differences from other tables may be noted because these are estimated from sample and summary data; some States may have missing/incomplete data.
[2]Paved includes the following categories: Bituminous (bituminous asphalt-concrete (AC) overlaid on existing AC pavement); Concrete (jointed plain concrete pavement (JPCP), jointed reinforced concrete pavement (JRCP), continuously reinforced concrete pavement (CRCP); unbonded jointed concrete overlaid on PCC pavement, bonded PCC overlaid on PCC pavement, other (includes "whitetopping")); and Composite (AC overlaid on jointed concrete pavement, AC (bituminous overlaid on existing CRCP).
Source: Highway Statistics 2018. U.S. Department of Transportation, Federal Highway Administration, Highway Statistics (Washington, DC: Annual Issues).

## Brazilian highways

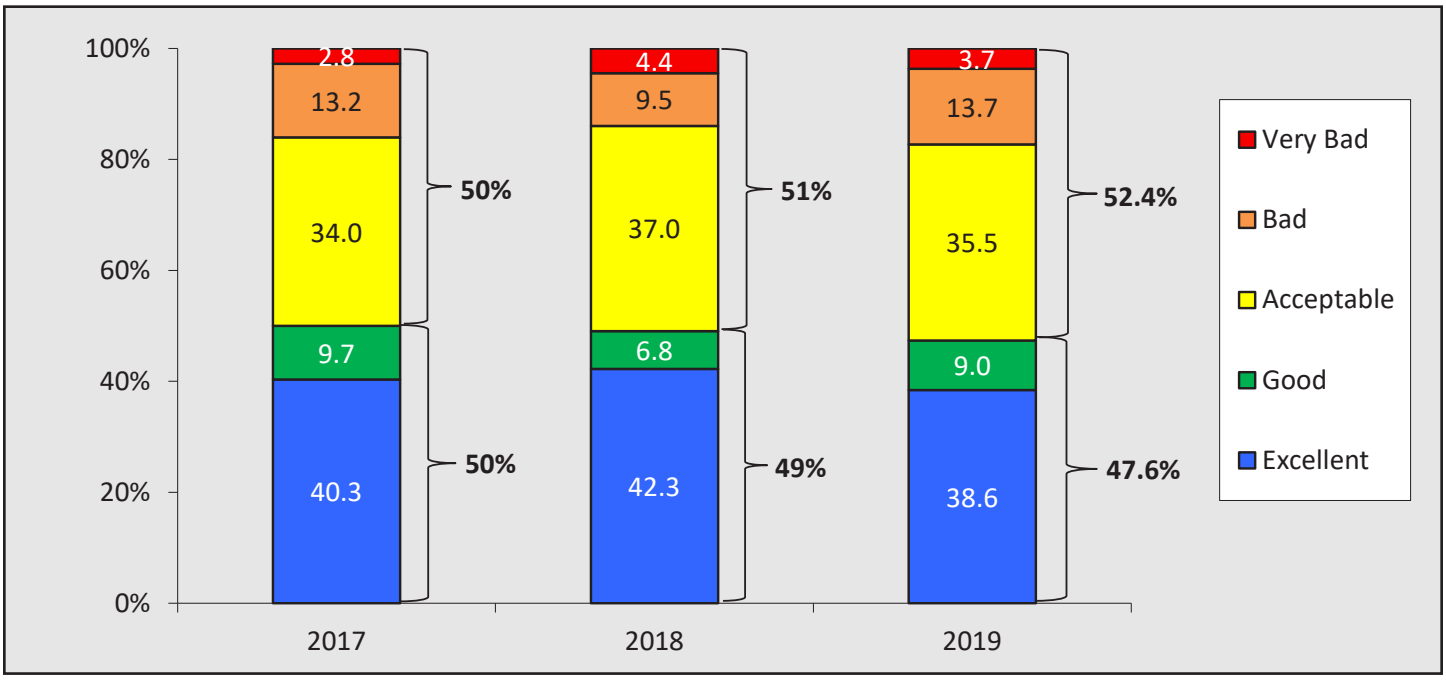
The 2019 Confederação Nacional do Transporte (CNT) survey of the overall highway conditions in Brazil shows that 41 percent of the roads ranged from good to excellent in 2019 (compared to 43 percent in 2018). Still, 59 percent ranged from acceptable to very bad. The survey also shows that 49 percent of the paved roads were in good to excellent condition; 48.1 percent of traffic road signs had problems; and 85.4 percent of the paved roads had only two lanes. The survey sample of paved roads increased 1.6 percent, from 66,440 miles in 2018 to 67,495 miles in 2019.

### Brazilian highway conditions, 2017-19



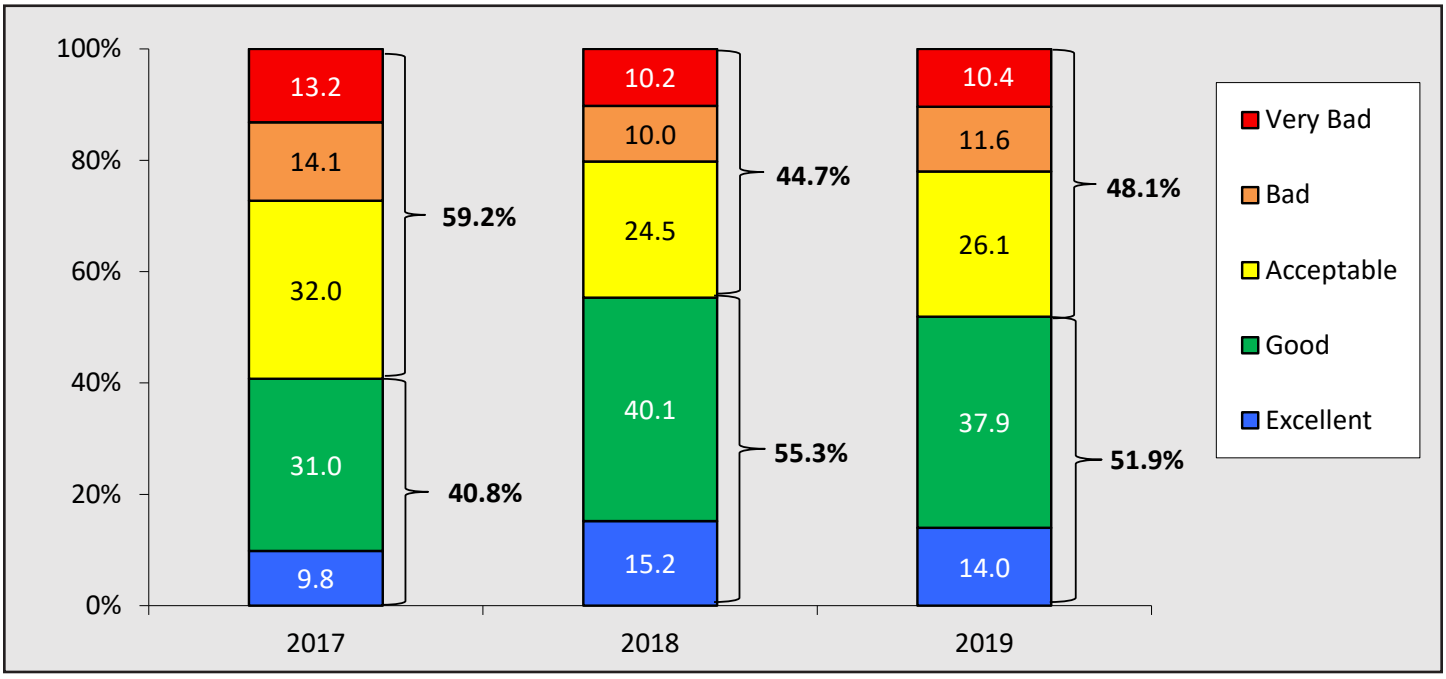

Source: Confederação Nacional do Transporte (CNT).

### Brazilian paved highway conditions, 2017-19




Source: Confederação Nacional do Transporte (CNT).

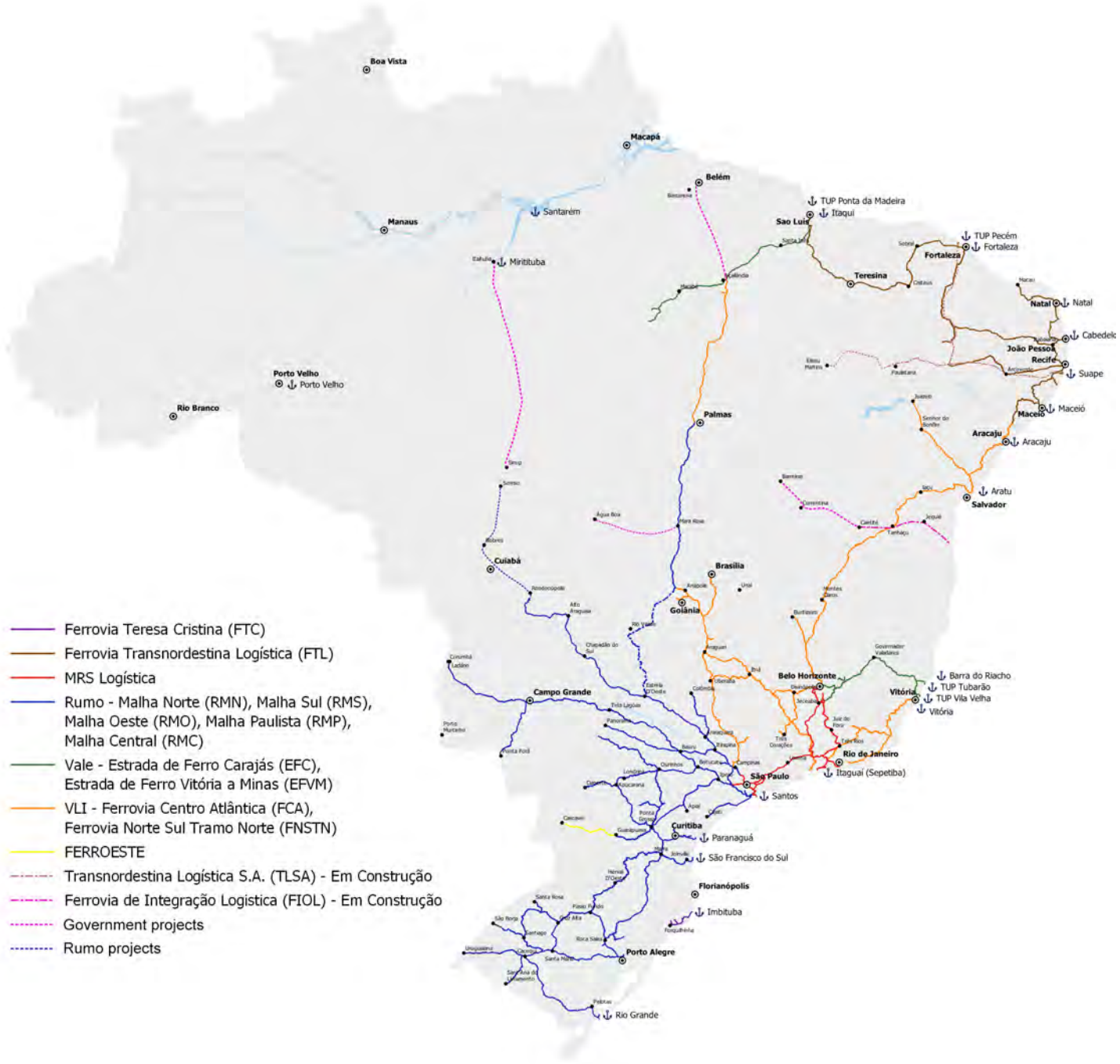
## Brazilian road sign conditions, 2017-19




Source: Confederação Nacional do Transporte (CNT).

# Brazilian railway expansion: ongoing projects

The Brazilian railroad system consists of 12 railroads, with an extension of 18,943 miles, mostly concentrated in the South, Southeast, and Northeast.




Source: Agência Nacional de Transportes Terrestres (ANTT).

## Brazilian rail system: gauge sizes

The gauge system (distance between two rails) varies by region, creating difficulties in integrating the system in regions like North America, which uses a standard gauge. There are three types of gauges: metric (39”), broad (63”), and mixed (39”- 63”). The metric gauge accounts for 76 percent of total Brazilian rail miles and predominates in the Southern region. The broad gauge accounts for 22 percent of total railroads and prevails in the Southeast region, leaving about 2 percent as mixed gauge.


Source: Grupo de Pesquisa e Extensão em Logística Agroindustrial (ESALQ-LOG)/University of São Paulo, Brazil, based on data from the Agência Nacional de Transportes Terrestres (ANTT) 2018.

# Reference Material

## Quarterly costs of transporting U.S. soybeans to Hamburg, Germany, via U.S. Gulf, 2020

| | Minneapolis, Minnesota (US$/mt) | | | | |
|---|---|---|---|---|---|
| | 2020 1st qtr | 2020 2nd qtr | 2020 3rd qtr | 2020 4th qtr | 2020 Average |
| Truck | 10.70 | 9.70 | 12.38 | 11.38 | 11.04 |
| Rail[1] | 36.73 | - | - | - | 36.73 |
| Barge[2] | 9.02 | 24.29 | 29.89 | 41.35 | 26.14 |
| Ocean[3] | 14.82 | 13.18 | 19.41 | 19.02 | 16.61 |
| Total transportation | 71.27 | 47.17 | 61.68 | 71.75 | 62.97 |
| Farm price[4] | 289.79 | 299.71 | 331.43 | 364.86 | 321.45 |
| Landed cost[5] | 361.06 | 346.88 | 393.11 | 436.61 | 384.42 |
| Transport % of landed cost | 19.7 | 13.6 | 15.7 | 16.4 | 16.4 |
| | **Davenport, Iowa (US$/mt)** | | | | |
| | 2020 1st qtr | 2020 2nd qtr | 2020 3rd qtr | 2020 4th qtr | 2020 Average |
| Truck | 10.70 | 9.70 | 12.38 | 11.38 | 11.04 |
| Rail[1] | 33.03 | - | - | - | 33.03 |
| Barge[2] | 9.02 | 17.30 | 21.58 | 32.31 | 20.05 |
| Ocean[3] | 14.82 | 13.18 | 19.41 | 19.02 | 16.61 |
| Total transportation | 67.57 | 40.18 | 53.37 | 62.71 | 55.96 |
| Farm price[4] | 315.02 | 305.10 | 322.85 | 377.11 | 330.02 |
| Landed cost[5] | 382.59 | 345.28 | 376.22 | 439.82 | 385.98 |
| Transport % of landed cost | 17.7 | 11.6 | 14.2 | 14.3 | 14.4 |

[1]Rail rates include fuel surcharges, but do not include the cost of purchasing empty rail cars in the secondary rail markets, which could exceed the rail tariff rate plus fuel surcharge shown in the table.

[2]The Mississippi River closes from Minneapolis to just north of St. Louis during mid-December to late March.

[3]Source for the U.S. ocean freight rates: O'Neil Commodity Consulting.

[4]Source for the U.S. farm prices: USDA, National Agricultural Statistics Service.

[5]Landed cost is transportation cost plus farm price.

Note: qtr. = quarter; yr. = year; mt = metric ton; total may not add exactly due to rounding.

Source: Compiled by the USDA, Agricultural Marketing Service.

# Quarterly costs of transporting U.S. soybeans to Shanghai, China, via U.S. Gulf, 2020

| | Minneapolis, Minnesota (US$/mt) | | | | |
|---|---|---|---|---|---|
| | 2020 1st qtr | 2020 2nd qtr | 2020 3rd qtr | 2020 4th qtr | 2020 Average |
| Truck | 10.70 | 9.70 | 12.38 | 11.38 | 11.04 |
| Rail[1] | 36.73 | - | - | - | 36.73 |
| Barge[2] | 9.02 | 24.29 | 29.89 | 41.35 | 26.14 |
| Ocean[3] | 41.98 | 35.40 | 42.14 | 40.79 | 40.08 |
| Total transportation | 98.43 | 69.39 | 84.41 | 93.52 | 86.44 |
| Farm price[4] | 289.79 | 299.71 | 331.43 | 364.86 | 321.45 |
| Landed cost[5] | 388.22 | 369.10 | 415.84 | 458.38 | 407.89 |
| Transport % of landed cost | 25.4 | 18.8 | 20.3 | 20.4 | 21.2 |
| | Davenport, Iowa (US$/mt) | | | | |
| | 2020 1st qtr | 2020 2nd qtr | 2020 3rd qtr | 2020 4th qtr | 2020 Average |
| Truck | 10.70 | 9.70 | 12.38 | 11.38 | 11.04 |
| Rail[1] | 33.03 | - | - | - | 33.03 |
| Barge[2] | 9.02 | 17.30 | 21.58 | 32.31 | 20.05 |
| Ocean[3] | 41.98 | 35.40 | 42.14 | 40.79 | 40.08 |
| Total transportation | 94.73 | 62.40 | 76.10 | 84.48 | 79.43 |
| Farm price[4] | 315.02 | 305.10 | 322.85 | 377.11 | 330.02 |
| Landed cost[5] | 409.75 | 367.50 | 398.95 | 461.59 | 409.45 |
| Transport % of landed cost | 23.1 | 17.0 | 19.1 | 18.3 | 19.4 |

[1]Rail rates include fuel surcharges, but do not include the cost of purchasing empty rail cars in the secondary rail markets, which could exceed the rail tariff rate plus fuel surcharge shown in the table.

[2]The Mississippi River closes from Minneapolis to just north of St. Louis during mid-December to late March.

[3]Source for the U.S. ocean freight rates: O'Neil Commodity Consulting.

[4]Source for the U.S. farm prices: USDA, National Agricultural Statistics Service.

[5]Landed cost is transportation cost plus farm price.

Note: qtr. = quarter; yr. = year; mt = metric ton; total may not add exactly due to rounding.

Source: Compiled by the USDA, Agricultural Marketing Service.

# Quarterly costs of transporting U.S. soybeans to Shanghai, China, via PNW, 2020

| | Fargo, North Dakota (US$/mt) | | | | |
|---|---|---|---|---|---|
| | 2020 1st qtr | 2020 2nd qtr | 2020 3rd qtr | 2020 4th qtr | 2020 Average |
| Truck | 10.70 | 9.70 | 12.38 | 11.38 | 11.04 |
| Rail[1] | 57.10 | 57.10 | 57.10 | 57.10 | 57.10 |
| Ocean[2] | 22.28 | 18.20 | 22.37 | 22.65 | 21.38 |
| Total transportation | 90.08 | 85.00 | 91.85 | 91.13 | 89.52 |
| Farm price[3] | 288.44 | 278.03 | 305.83 | 352.13 | 306.11 |
| Landed cost[4] | 378.52 | 363.03 | 397.68 | 443.26 | 395.62 |
| Transport % of landed cost | 23.8 | 23.4 | 23.1 | 20.6 | 22.7 |
| | Sioux Falls, South Dakota (US$/mt) | | | | |
| | 2020 1st qtr | 2020 2nd qtr | 2020 3rd qtr | 2020 4th qtr | 2020 Average |
| Truck | 10.70 | 9.70 | 12.38 | 11.38 | 11.04 |
| Rail[1] | 58.09 | 58.09 | 58.09 | 58.09 | 58.09 |
| Ocean[2] | 22.28 | 18.20 | 22.37 | 22.65 | 21.38 |
| Total transportation | 91.07 | 85.99 | 92.84 | 92.12 | 90.51 |
| Farm price[3] | 304.97 | 290.40 | 310.36 | 356.29 | 315.51 |
| Landed cost[4] | 396.04 | 376.39 | 403.20 | 448.41 | 406.01 |
| Transport % of landed cost | 23.0 | 22.8 | 23.0 | 20.5 | 22.4 |

[1]Rail rates include fuel surcharges, but do not include the cost of purchasing empty rail cars in the secondary rail markets, which could exceed the rail tariff rate plus fuel surcharge shown in the table.
[2]Source for the U.S. ocean freight rates: O'Neil Commodity Consulting.
[3]Source for the U.S. farm prices: USDA, National Agricultural Statistics Service.
[4]Landed cost is transportation cost plus farm price.
Note: qtr. = quarter; yr. = year; mt = metric ton; total may not add exactly due to rounding.
Source: Compiled by the USDA, Agricultural Marketing Service.

## Average quarterly exchange rate, 2014-20

| Quarter | Real per US$ |
|---|---|
| 1st | 2.2735 |
| 2nd | 2.2296 |
| 3rd | 2.2745 |
| 4th | 2.5437 |
| **2014 Average** | **2.3303** |
| 1st | 2.8637 |
| 2nd | 3.0722 |
| 3rd | 3.5480 |
| 4th | 3.8426 |
| **2015 Average** | **3.3316** |
| 1st | 3.8999 |
| 2nd | 3.5076 |
| 3rd | 3.2912 |
| 4th | 3.2953 |
| **2016 Average** | **3.4985** |
| 1st | 3.1429 |
| 2nd | 3.2137 |
| 3rd | 3.1639 |
| 4th | 3.2506 |
| **2017 Average** | **3.1928** |
| 1st | 3.2425 |
| 2nd | 3.7732 |
| 3rd | 3.9505 |
| 4th | 3.8084 |
| **2018 Average** | **3.6936** |
| 1st | 3.7684 |
| 2nd | 3.9221 |
| 3rd | 3.9736 |
| 4th | 4.1144 |
| **2019 Average** | **3.9446** |
| 1st | 4.4651 |
| 2nd | 5.3848 |
| 3rd | 5.3766 |
| 4th | 5.3915 |
| **2020 Average** | **5.1545** |

Source:Banco Central do Brasil

## Selected quarterly Brazilian farm prices, 2016-20 (US$/metric ton)

| Quarter | Rio Grande do Sul | Mato Grosso | Goiás | Paraná | Piauí | Pará | Maranhão |
|---|---|---|---|---|---|---|---|
| 1st | 308.73 | 268.28 | 278.59 | 298.84 | 281.05 | 264.90 | 310.69 |
| 2nd | 358.57 | 347.59 | 337.86 | 353.78 | 342.05 | 329.13 | 378.45 |
| 3rd | 373.12 | 367.25 | 359.07 | 362.80 | 378.98 | 384.42 | 447.42 |
| 4th | 352.69 | 344.51 | 341.08 | 347.53 | 377.05 | 355.82 | 370.99 |
| **2016 Avg** | **348.28** | **331.91** | **329.15** | **340.74** | **344.78** | **333.57** | **376.89** |
| 1st | 347.99 | 314.10 | 332.40 | 344.08 | 210.49 | 362.30 | 356.01 |
| 2nd | 302.06 | 275.60 | 281.73 | 304.50 | 304.16 | 313.78 | 327.17 |
| 3rd | 317.17 | 288.62 | 291.58 | 313.53 | 306.34 | 324.84 | 340.58 |
| 4th | 321.99 | 296.10 | 302.26 | 324.03 | 311.19 | 339.05 | 349.81 |
| **2017 Avg** | **322.30** | **293.60** | **301.99** | **321.54** | **283.05** | **334.99** | **343.39** |
| **Quarter** | **Rio Grande do Sul** | **Mato Grosso** | **Goiás** | **Paraná** | **Piauí** | **Pará** | **Maranhão** |
| 1st | 334.43 | 305.85 | 318.87 | 338.61 | 321.69 | 344.84 | 357.97 |
| 2nd | 343.90 | 323.46 | 313.65 | 347.41 | 320.70 | 343.23 | 342.78 |
| 3rd | 326.13 | 301.39 | 302.33 | 330.85 | 290.62 | 323.15 | 305.07 |
| 4th | 328.39 | 293.43 | 314.40 | 319.39 | 292.04 | 344.82 | 326.30 |
| **2018 Avg** | **333.21** | **306.03** | **312.31** | **334.06** | **306.26** | **339.01** | **333.03** |
| 1st | 308.52 | 275.38 | 296.01 | 304.16 | 292.96 | 317.97 | 298.43 |
| 2nd | 294.72 | 271.70 | 281.40 | 292.33 | 285.28 | 294.15 | 278.70 |
| 3rd | 304.20 | 286.87 | 286.67 | 300.23 | 288.35 | 303.50 | 300.20 |
| 4th | 314.81 | 307.47 | 301.77 | 313.72 | 316.88 | 316.00 | 310.87 |
| **2019 Avg** | **305.56** | **285.35** | **291.46** | **302.61** | **295.87** | **307.90** | **297.05** |
| 1st | 300.04 | 282.59 | 285.74 | 301.23 | 302.03 | 302.01 | 300.23 |
| 2nd | 297.17 | 287.53 | 262.95 | 285.62 | 286.59 | 283.28 | 294.95 |
| 3rd | 367.58 | 367.89 | 333.43 | 343.91 | 344.92 | 346.83 | 359.63 |
| 4th | 453.49 | 490.89 | 441.91 | 442.13 | 436.03 | 444.28 | 458.37 |
| **2020 Avg** | **354.57** | **357.23** | **331.01** | **343.22** | **342.39** | **344.10** | **353.30** |

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

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