Food security: the importance of Brazil production in key commodities for food security in the world

After two challenging years in the face of the impacts of the Covid-19 pandemic, 2022 emerged as a possibility of economic recovery for the countries. Therefore, 2020 and 2021 were both marked by challenges in international trade and its adaptation to interruptions of supply and demand chains, which especially referred to 2020, with its gradual reorganization in 2021.

In that regard, some elements that involve increased costs and logistical delays from 2020 stand out, such as unstructured maritime transport; rising freight costs; and rising raw material costs.

Regarding the agricultural commodities, the inflationary pressure of costs occurred through several channels, such as the increase of energy prices on the second half of 2020, involved in the production and transport of products. In 2021, the rise of fertilizer prices contributed to enlarge such inflationary pressure. According to the World Bank[1], the price surge in fertilizers was driven by strong demand, rising input costs, production curtailments, and trade policies. World Bank projections had already indicated that prices were likely to continue to rise in 2022, even without accounting for the impacts of the war between Russia and Ukraine.

In 2022, the expectation of economic recovery was based on the containment of the pandemic and vaccination plans worldwide, but the war between Russia and Ukraine brought new challenges, with even greater pressure on agricultural commodities and fertilizer prices.

Such pressure sparked a warning about the world's food security capacity, as Ukraine and Russia are among the world's leading producers of various agricultural products and fertilizers. In addition, Ukraine's neighboring countries and trade routes have also been affected, contributing to a reduction in the supply of various products.

According to the World Food Programme[2], the world has been facing a global hunger crisis of unprecedented proportions in 2022 and we are at a critical crossroad. Such situation is the result of a dramatic combination of the conflict, the Covid-19, the climate crisis, and the rising costs.

In this scenario, Brazil emerges as an important agent to ensure the supply of many foods to the world. A study[3] carried out by researchers at Embrapa estimates that the Brazilian production of grains and oilseeds contributes to feeding about 10% of the world population.

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[1] More information: <https://openknowledge.worldbank.org/bitstream/handle/10986/36350/CMO-October-2021.pdf>

[2] More information: <https://www.wfp.org/hunger-catastrophe>

[3] More information: < https://agrorevenda.com.br/wp-content/uploads/2021/03/Populacao-alimentada-pelo-Brasil.pdf>

The Russian invasion of Ukraine represents a major shock to commodity markets. On one hand, Ukraine faces difficulties in carrying out its exports by sea, as its ports are blocked by Russia. On the other hand, Russia suffers from international trade sanctions, which also hampers its exports.

According to World Bank[4], among the most affected products are those which Russia and Ukraine are key exporters. Russia is the world's largest exporter of wheat, pig iron, enriched uranium, natural gas, palladium, and nickel. Furthermore, Russia is responsible for a significant share of exports of coal, platinum, crude oil and refined aluminum. Russia and Belarus are important suppliers of fertilizers, including nitrogen and potash. Ukraine is an important exporter of wheat, pig iron, corn and barley and is the world's largest exporter of sunflower seed oil. Ukraine is also the biggest exporter of neon gas, which is a critical input to make electronic chips.

In such context, Brazil has a remarkable role in the supply of agricultural commodities, through sustainable production patterns and intensive use of technology in order to increase its productivity and keep its fauna and flora protected.

This report analyses products which place Brazil among the main world exporters, highlighting its current contribution to the world supply as well as projections to 2030. The analysed commodities are: maize, soybeans, beef, chicken meat, pork, and sugarcane.

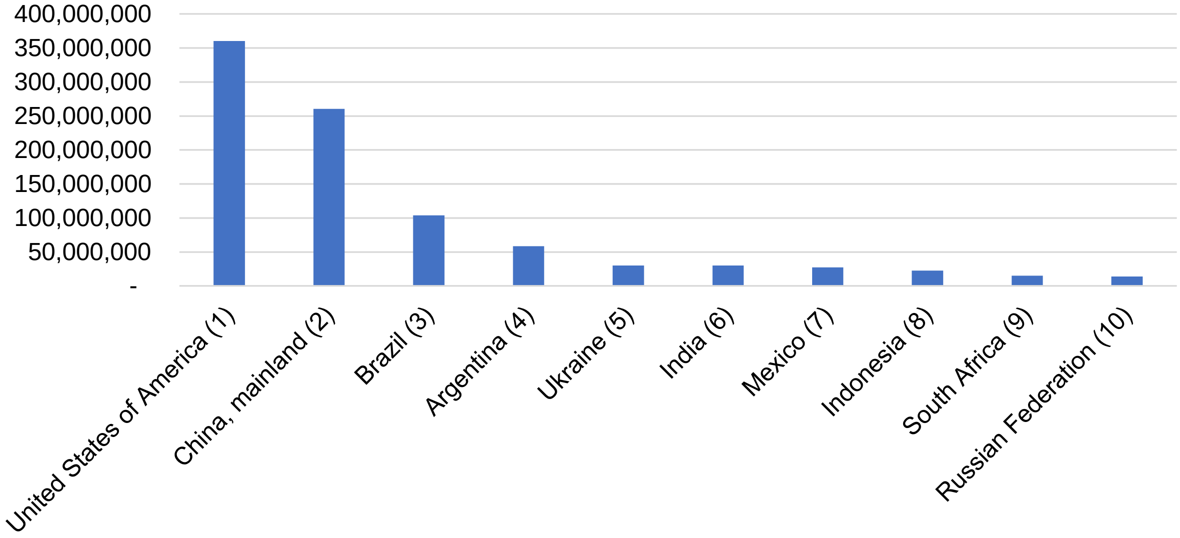
Maize

Brazil is the third-largest producer of maize in the world, according to the FAO ranking in 2020, as the country contributes to 9% of the global production of the cereal.

Ukraine, on the other hand, is the fifth largest producer of maize in the world, contributing to 3% of world production, while Russia is the tenth largest producer of corn in the world, responsible for 1% of the global production.

[4] More information: < https://openknowledge.worldbank.org/bitstream/handle/10986/37223/CMO-April-2022-special-focus.pdf>

Graph 1 - Top 10 maize producing countries in 2020 – Metric tons



Source: FAO (2022).

According to OECD/FAO (2021)[5] projections, maize production in Brazil is expected to reach 120.5 million metric tons in 2030, which is an average growth rate of 1.9% per year, in the period of 2022 through 2030. Among the five main world producers, Brazil is the one with the fastest growth pace.

Such projections were made before the outbreak of the war between Russia and Ukraine and also projected an average annual growth of 1.6% on the Ukrainian production and 2.6% on the Russian production. However, with the conflict, such prediction projection might not be confirmed in 2022 by Ukraine, and possible repercussions are expected for the upcoming years. According to USDA[6], Ukraine's corn production for the 2022/23 commercial year is forecast to be at 25.0 million metric tons, 41% lower than last year. Production is projected at 5.56 metric tons per hectare, corresponding to a drop of 28% compared to last year. The harvested area is estimated to be 4.5 million hectares (mha), a drop of 18% compared to last year.

On the other hand, Russia might continue to face trade sanctions and have its supply capacity jeopardized because it has made the access to foreign inputs difficult.

[5] More information: https://www.fao.org/publications/oecd-fao-agricultural-outlook/2021-2030/en/
[6] More information: < https://apps.fas.usda.gov/psdonline/circulars/production.pdf>

Table 1 - Top 10 maize producing countries – OECD/FAO (2021) Projections – Thousand Metric tons

Country	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average annual growth rate 2022-2030
United States	372,131	375,975	375,475	376,401	378,381	381,546	384,659	386,835	388,847	0.6%
China	273,539	277,720	280,176	282,595	284,903	287,140	289,554	292,071	294,690	0.9%
Brazil	103,763	106,277	107,676	109,453	111,516	113,864	116,214	118,342	120,452	1.9%
European Union	65,674	65,928	66,289	66,621	66,935	67,194	67,467	67,713	67,963	0.4%
Argentina	57,960	58,941	59,317	60,223	61,442	62,627	63,752	64,606	65,577	1.6%
Ukraine	38,872	39,463	39,954	40,625	41,363	42,052	42,715	43,353	44,009	1.6%
India	30,457	30,798	31,336	31,944	32,606	33,218	33,824	34,425	35,035	1.8%
Mexico	28,491	29,004	29,003	29,064	29,195	29,415	29,613	29,765	29,905	0.6%
Indonesia	23,928	24,395	24,734	25,180	25,698	26,150	26,575	27,026	27,459	1.7%
South Africa	17,035	17,260	17,472	17,777	18,139	18,531	18,939	19,372	19,841	1.9%
Russian Federation	15,310	15,765	16,170	16,568	17,015	17,457	17,917	18,360	18,811	2.6%
World	1,201,435	1,218,906	1,227,236	1,239,019	1,253,282	1,268,789	1,284,233	1,298,149	1,312,195	1.1%

Source: OECD/FAO (2021).

According to UN Comtrade data, Brazil was the world's largest corn exporter in 2019, accounting for 23% of world corn exports (42.7 million metric tons). The United States (41.5 million metric tons) was the second main global supplier, followed by Argentina (36.1 million metric tons).

In 2020, Brazil was the third largest world exporter of corn, with a share of close to 20% of the world exports in terms of quantity (34.4 million metric tons). The United States occupied the first place in the ranking, with exports of 51.8 million metric tons (28% global market share), followed by Argentina with 20% of the total (36.9 million metric tons).

Data for 2021 have not yet been consolidated for all markets, but information from the main producers reveals that the United States recorded record exports, with 70 million metric tons, followed by Argentina (36.9 million metric tons). Ukraine, which was the world's fourth largest exporter in 2019 and 2020, ranked third in 2021, with exports totaling 24.5 million metric tons. Brazil appeared next, with exports of 20.4 million metric tons.

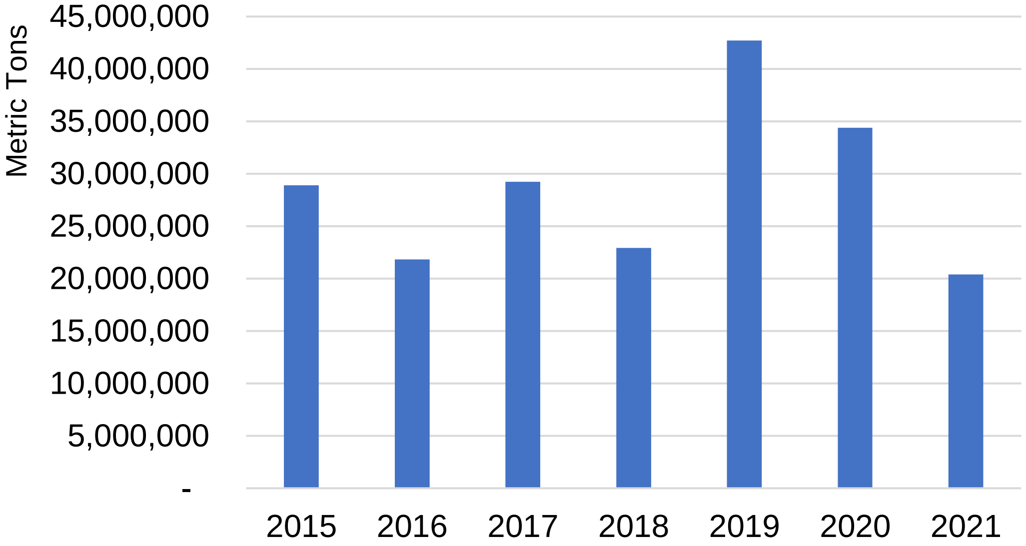
Therefore, it is worth noting that Ukraine is also one of the main world exporters of corn, along with Brazil, the United States and Argentina. However, as already highlighted, projections indicate that Ukraine's corn supply capacity might be considerably reduced in 2022. The likely reduction in the supply of corn in the face of the Russian invasion of Ukraine is already impacting the international prices of the product. World Bank forecast indicate that the price of the cereal might be 19% higher in 2022 than that observed in 2021.

Hence, Brazilian corn production will be even more important in 2022 in order to contribute to the global supply of corn. According to Conab[7], the Brazilian corn production for the marketing year of 2021/2022 is forecast at 115.2 million metric tons, an increase of 32.3% from last year.

[7] More information: June/2022 Forecast https://www.conab.gov.br/info-agro/safras/graos

The following graph illustrates Brazil export data. As one may note, Brazilian corn exports fell by 40.7% in 2021 compared to 2020. Considering the years from 2015 through 2021, Brazilian exports reached their peak in 2019, when the country exported 42.7 million metric tons.

Graph 2 - Brazilian exports of maize - Metric Tons



Source: Comex Stat.

In 2021, more than 30% of Brazilian corn exports were destined to Egypt and Iran. The third main destination was Spain, with 10% of the total volume of corn exported by Brazil. Along with Spain, other European Union countries have also absorbed Brazil foreign sales. The European group altogether was the destination of 17% of Brazilian corn exports in 2021.

According to MacMap of the International Trade Centre, the European Union does not apply import tariff barriers to Brazilian corn. Furthermore, the European Union does not apply any trade remedy on the selected product. However, the European Union applies 16 import requirements[8].

[8] A130 - Systems approach (1); A150 - Authorization requirement for importers for SPS reasons (1); A190 - Prohibitions/restrictions of imports for SPS reasons, not elsewhere specified (n.e.s.) (1); A220 - Restricted use of certain substances in foods and feeds and their contact materials (1); A310 - Labelling requirements (1); A320 - Marking requirements (1); A330 - Packaging requirements (1); A410 - Microbiological criteria of the final product (1); A420 - Hygienic practices during production related to SPS conditions (1); A630 - Food and feed processing (1); A852 - Processing history (1); B310 - Labelling requirements (3); E100 - Non-automatic import-licensing procedures other than authorizations covered under SPS and TBT chapters (2).

Table 2 - Top destinations of Brazilian maize exports - Distribution (%) of tons

Country	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Egypt	7%	7%	11%	9%	8%	9%	16%
Iran	15%	22%	17%	28%	13%	13%	16%
Spain	3%	2%	10%	10%	8%	7%	10%
Japan	10%	12%	10%	1%	16%	12%	9%
South Korea	10%	7%	6%	5%	8%	7%	5%
Taiwan (Formosa)	8%	6%	6%	3%	7%	7%	5%
Vietnam	17%	13%	9%	13%	9%	11%	5%
Colombia	0%	0%	0%	0%	2%	1%	3%
Dominican Republic	2%	2%	2%	2%	2%	2%	3%
Algeria	3%	2%	2%	3%	1%	3%	3%
Others	26%	27%	28%	28%	27%	28%	24%

Source: Comex Stat.

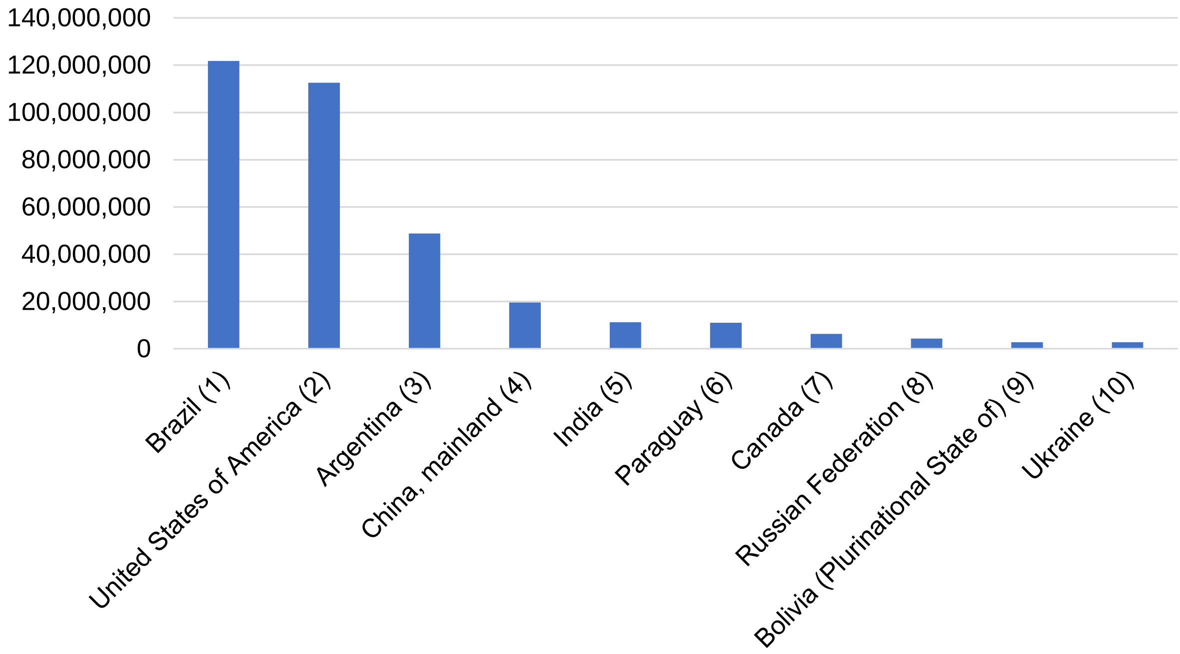
Soybeans

Brazil is the largest global producer of soybeans. In 2020, the country produced approximately 122 million metric tons, or 34% of global production. The second largest producer is the United States, with 32% of global production.

According to FAO 2020 data, Russia is the eighth largest global producer of soybeans, and Ukraineis the tenth largest. Together they comprise 2% of the global production.

Therefore, Ukrainian and Russian soybean productions do not occupy a prominent position on the global scale. Even so, international soybean prices have shown a significant increase in 2022. As estimated by the World Bank, the price might increase 20% in 2022 compared to 2021. Among the reasons for that are the climatic adversities in South America and the increase of demand for animal feed in China after the control of African Swine Fever.

Graph 3 - Top 10 soybean producing countries in 2020 – Metric tons



Source: FAO (2022).

According to OECD/FAO (2021) projections, soybean production in Brazil is expected to grow an average of 1.1% per year in the period of 2022 through 2030. It is the country with the fastest growth pace among the three main world producers, which represent more than 80% of the total soybean global production.

The projections, made before the outbreak of the war between Russia and Ukraine, also estimated an average annual growth of 1.8% in Russian production and 1.9% in Ukrainian production. Once again, because of the conflict, such projections might not be confirmed. In the case of Ukraine, soybean producing regions such as Eastern and Southern Ukraine might suffer from reduced production due to being militarily controlled by Russia or to being in the direction of Russian advances.

Table 3 - Top 10 soybean producing countries – OECD/FAO (2021) Projections – Thousand Metric tons

Country	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average annual growth rate 2022-2030
Brazil	136,496	138,858	140,264	141,684	143,018	144,795	146,326	148,078	149,335	1.1%
United States	116,217	117,136	118,007	118,939	119,702	120,535	121,261	122,287	123,088	0.7%
Argentina	51,187	51,611	52,144	52,834	53,402	53,893	54,250	54,788	55,213	1.0%
China	20,361	20,822	21,208	21,591	21,826	22,079	22,276	22,505	22,671	1.4%
India	12,930	13,087	13,196	13,326	13,496	13,638	13,799	13,945	14,097	1.1%
Paraguay	10,401	10,642	10,819	11,009	11,209	11,430	11,649	11,880	12,104	1.9%
Canada	7,366	7,561	7,770	8,024	8,222	8,452	8,642	8,846	9,038	2.6%
Russian Federation	4,363	4,490	4,575	4,662	4,705	4,793	4,869	4,967	5,042	1.8%
Ukraine	3,179	3,276	3,335	3,395	3,451	3,519	3,584	3,650	3,710	1.9%
European Union	3,049	3,116	3,165	3,219	3,267	3,330	3,390	3,460	3,519	1.8%
World	377,343	382,619	386,657	391,017	394,797	399,148	402,911	407,463	411,052	1.1%

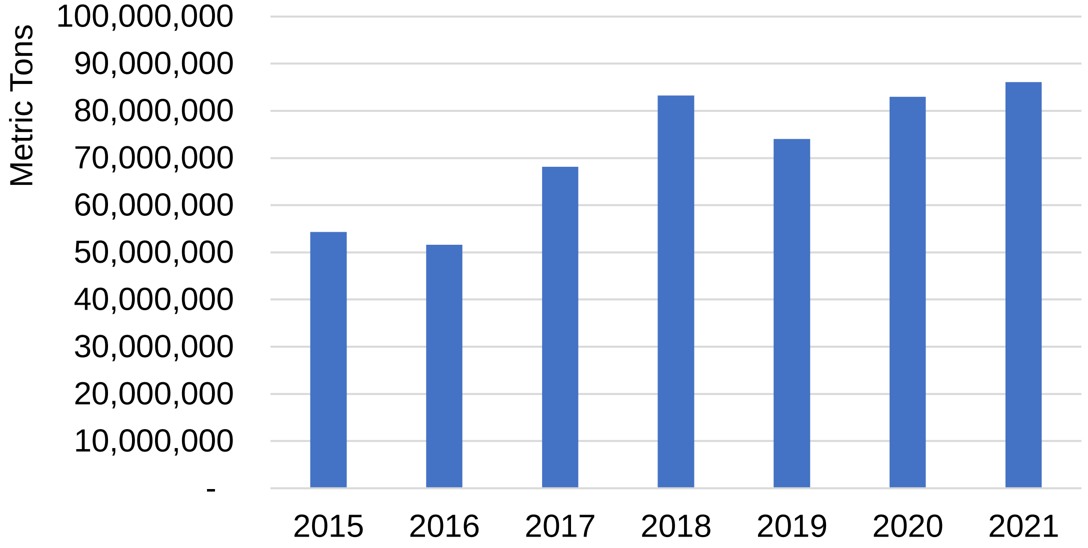
Source: OECD/FAO (2021).

In 2021, the value of Brazil soybean worldwide exports reached a new record at US$ 38.6 billion, 35.3% higher from the previous year. As a result, the country remained the world's largest exporter of the product, with a market share of 48%. In 2021, Brazil exported around 86,1 million metric tons of soybeans, 3.8% higher compared to 2020. China’s strong demand is driving this performance.

As already mentioned, adverse weather conditions have affected the 2021/2022 crop, which is estimated at 124.3 million metric tons, 10.1% lower than the 2020/2021 crop. Despite that, Brazil might remain the world's largest producer of soybeans in 2022, followed by the United States, with a projected[9] production of 120.7 million tons.

[9] More information: https://ipad.fas.usda.gov/cropexplorer/cropview/commodityView.aspx?cropid=2222000&sel_year=2021&rankby=Production

Graph 4 - Brazilian exports of soybeans - Metric Tons



Source: Comex Stat.

In 2021, 70% of Brazilian soybean exports were destined to China. The European Union was the destination of 10% of Brazilian corn exports. Among the countries of the European Union, Spain stands out, which represented 4% of Brazilian soybean foreign sales.

According to MacMap of the International Trade Centre, the European Union does not apply import tariff barriers to Brazilian soybeans (code HS6 120190). Furthermore, the European Union does not apply any trade remedy on the selected product. However, the European Union applies 54 import requirements[10].

[10] A120 - Geographical restrictions on eligibility (1); A130 - Systems approach (3); A140 - Authorization requirement for SPS reasons for importing certain products (1); A150 - Authorization requirement for importers for SPS reasons (3); A190 - Prohibitions/restrictions of imports for SPS reasons, not elsewhere specified (n.e.s.) (1); A210 – Tolerance limits for residues of or contamination by certain (non-microbiological) substances (3); A220 - Restricted use of certain substances in foods and feeds and their contact materials (3); A310 - Labelling requirements (7); A320 - Marking requirements (1); A330 - Packaging requirements (3); A410 - Microbiological criteria of the final product (3); A420 – Hygienic practices during production related to SPS conditions (3); A630 - Food and feed processing (3); A850 - Traceability requirements (2); A851 - Origin of materials and parts (2); A852 - Processing history (3); A853 - Distribution and location of products after delivery (2); B310 - Labelling requirements (7) E100 - Non-automatic import-licensing procedures other than authorizations covered under SPS and TBT chapters (2); E125 - Licensing for the protection of public health (1).

Table 4 - Top destinations of Brazilian soybeans exports - Distribution (%) of tons

Country	2015	2016	2017	2018	2019	2020	2021
China	75%	75%	79%	82%	78%	73%	70%
Spain	4%	3%	3%	2%	3%	3%	4%
Netherlands	3%	3%	2%	2%	2%	4%	3%
Thailand	3%	3%	2%	1%	2%	3%	3%
Turkey	0%	1%	0%	2%	2%	3%	3%
Pakistan	0%	1%	1%	1%	1%	1%	2%
Iran	1%	2%	2%	2%	2%	1%	2%
Mexico	0%	0%	0%	0%	1%	1%	1%
Taiwan (Formosa)	2%	2%	2%	0%	1%	1%	1%
Vietnam	1%	1%	1%	0%	1%	1%	1%
Others	10%	10%	7%	7%	7%	9%	9%

Source: Comex Stat.

Beef

Brazil is the second largest producer of beef and veal in the world, according to the FAO ranking in 2020. The country contributes with 15% of the global production of the meat. In 2020, Brazil production was 10,1 million metric tons. According to USDA estimates[11], Brazilian meat production was 9.5 million metric tons in 2021. Projections for 2022 indicate that Brazil might increase its production up to 9.9 million metric tons, a growth of 4%.

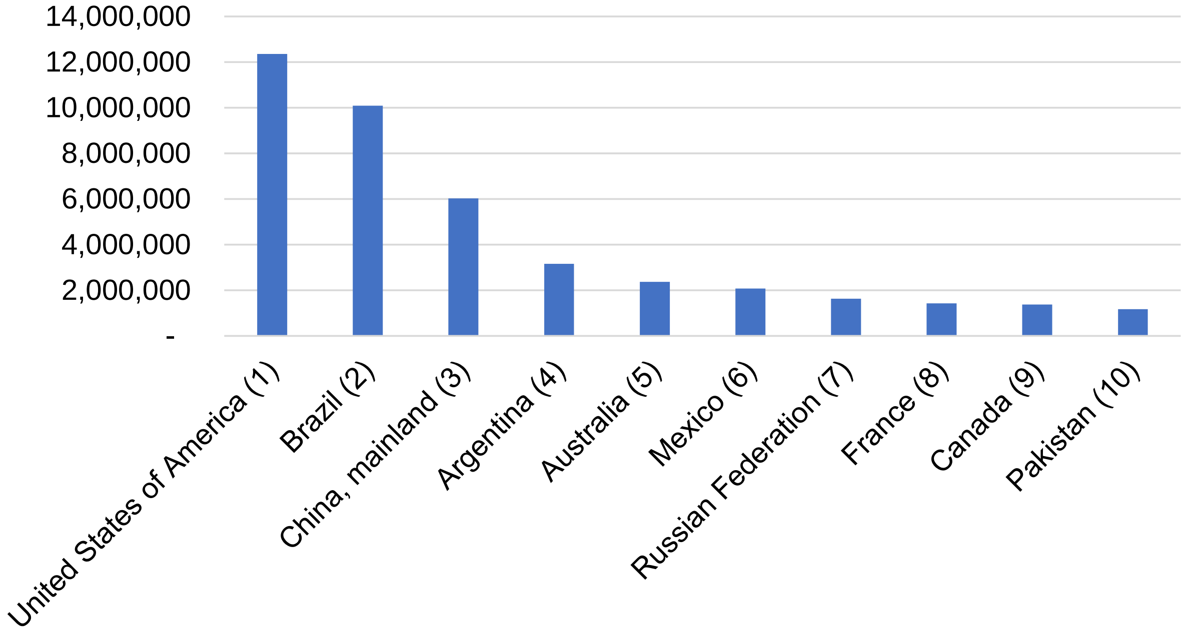
According to Embrapa[12], cattle ranching in Brazil has undergone a revolutionary modernization in the last four decades, sustained by technological advances in production systems and by the organization of the chain, with a clear impact on the quality of the meat. The herd has more than doubled, while the pasture area has advanced little or has even decreased in some regions - a clear indication of an increase in productivity. There has also been an increase in animal birth rates and weight gain, as well as a decrease in mortality and in slaughter time. Such gains were possible due to the growing adoption of technologies by rural producers, especially in the areas of food, genetics, management, and animal health.

Among the programs to improve the meat quality and the commitment to sustainable practices are: the Green Signal Pact for Quality Meat, the Early Beef Program and the Carbon Neutral Meat seal.

[11] https://downloads.usda.library.cornell.edu/usda-esmis/files/73666448x/n5840036r/v979w6960/livestock_poultry.pdf

[12] More information: https://www.embrapa.br/en/qualidade-da-carne/carne-bovina

Graph 5 - Top 10 Beef and veal producing countries in 2020 – Metric tons



Source: FAO (2022).

By the chart, one might observe that Russia is the seventh largest producer in the world, contributing 2% of world production.

The world's largest meat producer is the United States, with a share of 18% of the meat market. According to USDA, the United States produced 12.7 million metric tons in 2021, but in 2022, forecasts indicate that production might decline to 12.6 million metric tons, about 1% lower than the previous year.

As stated by OECD/FAO (2021) projections, beef and veal production in Brazil is expected to grow an average of 0.4% per year in the period 2022-2030.

Such projections were made before the outbreak of the war between Russia and Ukraine and also projected an average annual growth of 0.5% for Russia. Nevertheless, trade sanctions might restrain business due to the conflict.

Table 5 - Top 10 beef and veal producing countries – OECD/FAO (2021) Projections – Thousand Metric tons

Country	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**Average annual growth rate 2022-2030**
United States	12,008	12,083	12,172	12,233	12,311	12,354	12,425	12,497	12,569	0.6%
Brazil	9,475	9,537	9,564	9,598	9,641	9,694	9,739	9,784	9,819	0.4%
European Union	6,969	6,942	6,896	6,851	6,822	6,795	6,762	6,726	6,689	-0.5%
China	6,810	6,841	6,866	6,890	6,929	6,981	7,035	7,085	7,127	0.6%
Argentina	3,191	3,228	3,251	3,273	3,300	3,330	3,360	3,388	3,415	0.9%
Pakistan	2,274	2,332	2,445	2,557	2,621	2,684	2,770	2,860	2,944	3.3%
Australia	2,526	2,594	2,673	2,690	2,730	2,768	2,810	2,852	2,894	1.7%
India	1,749	1,722	1,722	1,721	1,698	1,674	1,653	1,631	1,610	-1.0%
Mexico	2,043	2,076	2,111	2,132	2,160	2,178	2,196	2,212	2,230	1.1%
Russian Federation	1,655	1,665	1,672	1,680	1,688	1,697	1,705	1,713	1,722	0.5%
World	70,707	71,234	71,893	72,417	72,838	73,243	73,761	74,254	74,713	0.7%

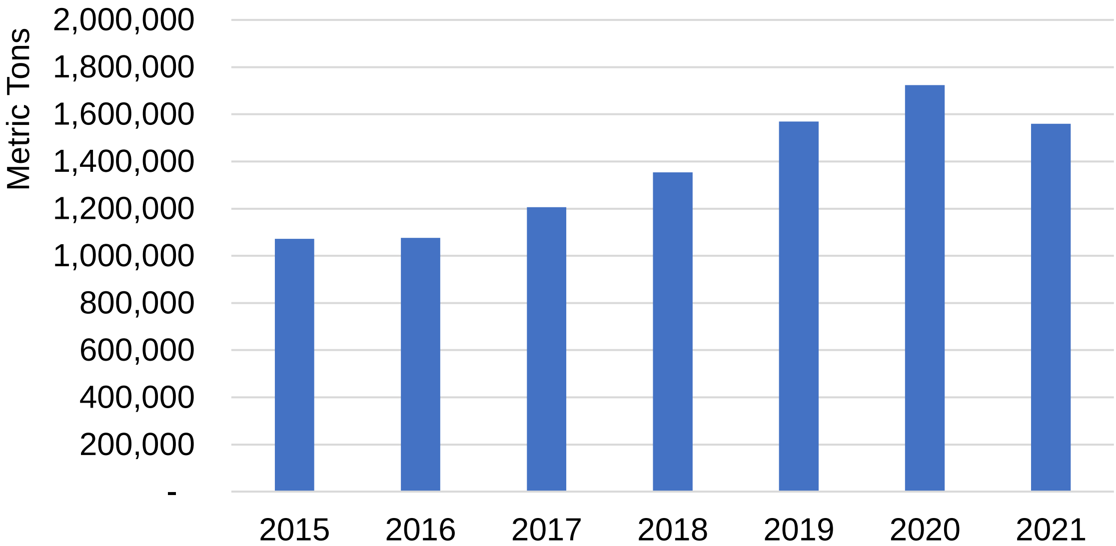
Source: OECD/FAO (2021).

Despite being the second largest producer of meat in the world, Brazil ranks first in terms of exports. In 2020, Brazil accounted for 17% of the world beef exports, followed by Australia (11%), India (9%) and the United States (9%).

In 2021, Brazil remained the world's largest exporter, although it had a decrease of 9.5% compared to 2020, exporting around 1.6 million metric tons of beef.

Considering the period between 2015 and 2021, Brazilian exports reached their peak in 2020, when the country exported 1.7 million metric tons.

Graph 6 - Brazilian exports of beef[13] - Metric Tons



Source: Comex Stat.

In 2021, almost 50% of Brazilian beef exports were destined to China. The second main destination was Hong Kong. Thus, China and Hong Kong demanded 55% of Brazilian exports in 2021. In the previous year, 2020, the quantity demanded by the two countries was even higher: 62% of all Brazil meat international trade.

The European Union countries acquire only 4% Brazil's foreign sales of beef.

[13] Exports are made up of the aggregate of the following HS6 code products: 020230, 020130, 020220, 020120, 020110, and 020210.

Table 6 - Top destinations of Brazilian beef exports - Distribution (%) of tons

Country	2015	2016	2017	2018	2019	2020	2021
China	9%	15%	18%	24%	32%	50%	46%
Hong Kong	15%	17%	20%	20%	14%	12%	9%
Chile	5%	7%	5%	8%	7%	5%	7%
United States	0%	0%	1%	0%	0%	1%	5%
Egypt	17%	15%	12%	13%	10%	7%	4%
United Arab Emirates	1%	2%	2%	3%	5%	2%	3%
Philippines	1%	2%	1%	2%	2%	2%	3%
Saudi Arabia	0%	3%	3%	3%	3%	2%	3%
Israel	1%	1%	1%	1%	2%	1%	2%
Russia	16%	12%	11%	0%	4%	3%	2%
Others	35%	26%	25%	25%	22%	13%	16%

Source: Comex Stat.

According to ITC (Market Access Map), the European Union applies the following import tariff barriers to Brazilian beef.

Table 7 - Customs tariffs applied to Brazil

Product code	Product description	Applied tariffs to Brazil	Ad Valorem Equivalent estimation	Trade remedies	Regulatory requirements
020110	Meat of bovine animals, fresh or chilled : Carcases and half-carcases	12.8% + 176.8 EUR/100 kg	39.53%	Not apply	No data available
020120	Meat of bovine animals, fresh or chilled : Other cuts with bone in	12.8% + 176.8 EUR/100 kg	25.63%	Not apply	No data available
020130	Meat of bovine animals, fresh or chilled : Boneless	12.8% + 303.4 EUR/100 kg	44.04%	Not apply	No data available
020210	Meat of bovine animals, frozen : Carcases and half-carcases	12.8% + 176.8 EUR/100 kg	24.63%	Not apply	No data available
020220	Meat of bovine animals, frozen : Other cuts with bone in	12.8% + 176.8 EUR/100 kg	61.96%	Not apply	No data available
020230	Meat of bovine animals, frozen : Boneless	12.8% + 221.1 EUR/100 kg	46.24%	Not apply	No data available

Source: ITC (Market Access Map).

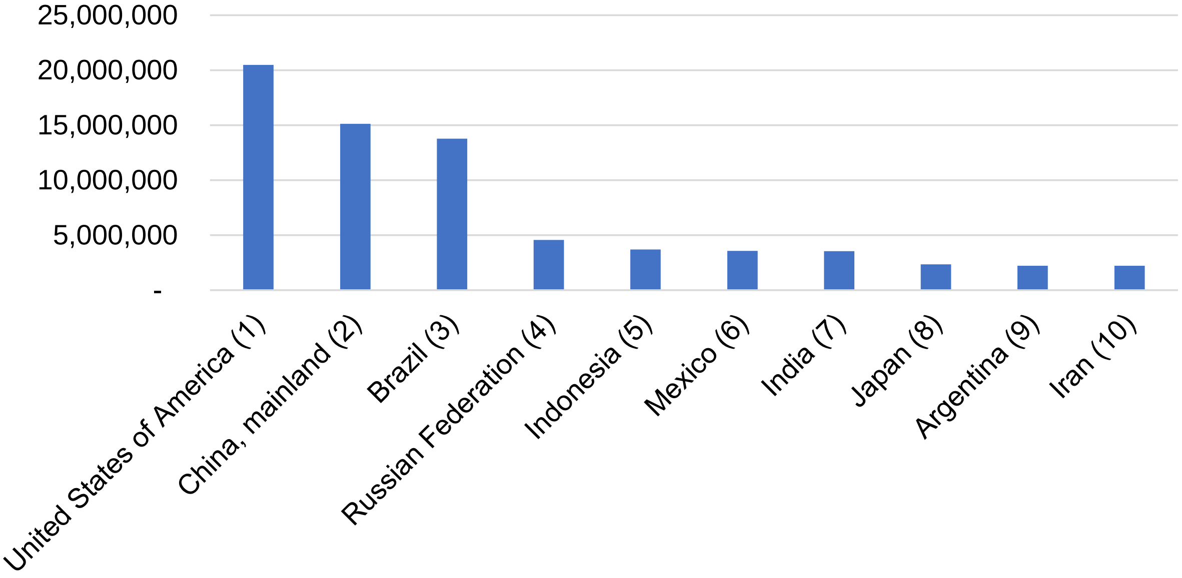
Observation: Tariff differences may occur for some products that have specifications through the codes adopted by the European Union classification

Chicken Meat

Brazil has been the third largest producer of chicken meat in the world, according to the FAO ranking in 2020. That means the country has contributed to 12% of the global production of the chicken meat.

One might also note that Russia is the fourth largest producer in the world, contributing to 4% of world production. According to the USDA[14], Russia production of chicken meat might grow due to the increased availability of feed grains, but product might be directed to the domestic market.

Graph 7 - Top 10 chicken meat producing countries in 2020 – Metric tons



Source: FAO (2022).

As far as OECD/FAO (2021) projections are concerned, poultry meat production in Brazil is expected to grow an average of 1.5% per year in the period of 2022-2030. It is the one with the fastest pace among the four main world producers.

The forecast was made before the outbreak of the war between Russia and Ukraine and it also projected an average annual growth of 0.6% for the Russian production.

Table 8 - Top 10 poultry meat producing countries – OECD/FAO (2021) Projections – Thousand Metric tons

Country	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**Average annual growth rate 2022-2030**
China	24,228	23,447	23,682	23,933	24,167	24,386	24,597	24,804	25,010	0.4%
United States	22,854	23,028	23,347	23,638	23,866	24,107	24,356	24,616	24,880	1.1%
Brazil	14,422	14,708	14,947	15,144	15,336	15,541	15,761	15,999	16,235	1.5%
Russian Federation	4,652	4,676	4,706	4,735	4,761	4,787	4,813	4,841	4,870	0.6%
India	3,812	3,972	4,135	4,298	4,463	4,628	4,796	4,964	5,133	3.8%
Mexico	3,679	3,742	3,805	3,862	3,919	3,982	4,047	4,115	4,183	1.6%
Indonesia	3,157	3,247	3,335	3,426	3,516	3,608	3,697	3,786	3,875	2.6%
Iran	2,440	2,499	2,550	2,603	2,661	2,717	2,774	2,830	2,886	2.1%
Turkey	2,468	2,516	2,563	2,613	2,666	2,721	2,775	2,829	2,882	2.0%
Argentina	2,273	2,317	2,354	2,385	2,417	2,451	2,488	2,525	2,562	1.5%
World	137,280	138,413	140,621	142,773	144,858	146,980	149,124	151,307	153,479	1.4%

Source: OECD/FAO (2021).

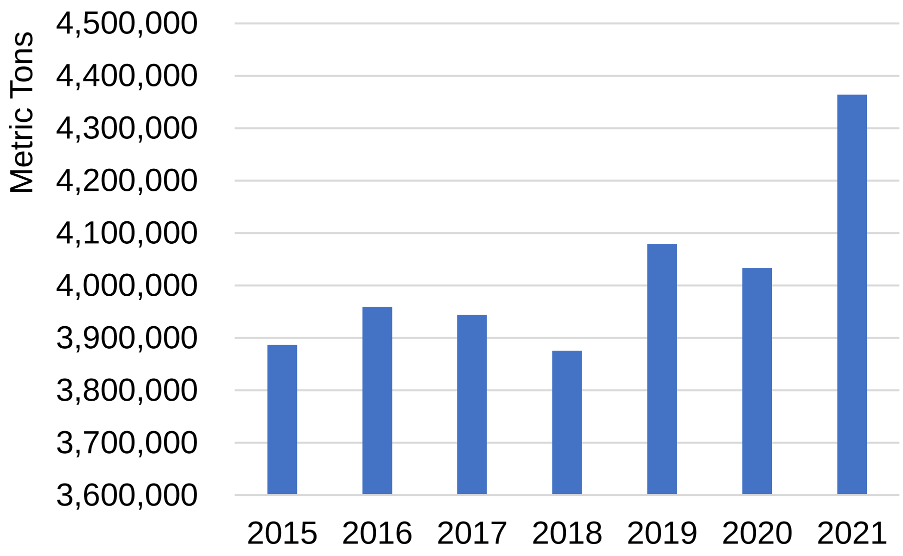
[14] More information: < https://apps.fas.usda.gov/psdonline/circulars/livestock_poultry.pdf>

Considering the 2022 production forecast made by the USDA in April/2022, the production of chicken meat might be practically the same as recorded in 2021, once the increase in the production of countries such as Brazil is expected to be balanced by the decline in Ukraine and China. Among the obstacles to increasing the supply of the product are the rise in the cost of inputs, such as feed.

As with the meat, Brazil is also the world leader in chicken meat exports. In 2019 and 2020, Brazilian exports accounted for 26% of world exports, followed by US exports in terms of quantity. Data for 2021 have not yet been consolidated for all markets, but preliminary data has already indicated that Brazil might remain in the leadership, with a share close to 30% of the market.

In 2021, Brazil exported around 4.4 million metric tons of chicken meat, which was the highest volume between the years of 2015 through 2021, and represented an increase of 8.2% compared to 2020. According to USDA[15], Brazil might substantially increase its production in 2022 to make up for the global demand as Ukraine meat exports cease.

Graph 8 - Brazilian exports of chicken meat[16] - Metric Tons



Source: Comex Stat.

In 2021, more than 30% of Brazilian corn exports were destined to three countries: China, Japan, and United Arab Emirates. The European Union also imports chicken meat from Brazil, demanding 4% of Brazil foreign sales in 2021. Among the countries in the group, the Netherlands was the main destination.

[15] More information: < https://apps.fas.usda.gov/psdonline/circulars/livestock_poultry.pdf>

[16] Exports are made up of the aggregate of the following HS6 code products: 020714, 020712, 021099, 020713, and 020711.

Table 9 - Top destinations of Brazilian chicken meat exports - Distribution (%) of tons

Country	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
China	8%	12%	10%	11%	14%	17%	15%
Japan	11%	10%	11%	10%	10%	10%	10%
United Arab Emirates	8%	8%	8%	8%	8%	8%	9%
Saudi Arabia	20%	19%	15%	13%	12%	12%	8%
South Africa	6%	6%	9%	9%	7%	6%	7%
Philippines	1%	1%	1%	1%	2%	1%	4%
Netherlands	1%	1%	1%	2%	2%	3%	3%
South Korea	2%	2%	2%	3%	3%	3%	3%
Yemen	1%	2%	2%	2%	3%	3%	3%
Russia	2%	2%	2%	2%	2%	2%	2%
Others	40%	38%	40%	39%	37%	36%	37%

Source: Comex Stat.

A relevant aspect that may explain the low access of Brazilian exports to the European Union market is the fact that the economic group is likewise a major producer and world exporter of chicken meat. According to the official website[17] of the European Union, the EU imports high value poultry products, including breast meat and poultry preparations, mainly from Brazil, Thailand, and Ukraine, while it exports poultry products of lower value.

Poultry imports from non-EU countries are subject to import duties. As stated by ITC (Market Access Map), the European Union applies the following import tariff barriers to Brazilian chicken meat.

Table 10 - Customs tariffs applied to Brazil

Product code	Product description	Applied tariffs to Brazil	Ad Valorem Equivalent estimation	Trade remedies	Regulatory requirements
020711	Meat and edible offal, of the poultry of heading 0105, fresh, chilled or frozen : Of fowls of the species Gallus domesticus : Not cut in pieces, fresh or chilled	26.2 EUR/100 kg	8.65%	Not apply	37 import requirements
020712	Meat and edible offal, of the poultry of heading 0105, fresh, chilled or frozen : Of fowls of the species Gallus domesticus : Not cut in pieces, frozen	29.9 EUR/100 kg	19.43%	Not apply	37 import requirements
020713	Meat and edible offal, of the poultry of heading 0105, fresh, chilled or frozen : Of fowls of the species Gallus domesticus : Cuts and offal, fresh or chilled	102.4 EUR/100 kg	32.98%	Not apply	37 import requirements
020714	Meat and edible offal, of the poultry of heading 0105, fresh, chilled or frozen : Of fowls of the species Gallus domesticus : Cuts and offal, frozen	102.4 EUR/100 kg	39.98%	Not apply	37 import requirements

[17] More information: https://ec.europa.eu/info/food-farming-fisheries/animals-and-animal-products/animal-products/poultry_en

021099	Meat and edible meat offal, salted, in brine, dried or smoked; edible flours and meals of meat or meat offal : Other, including edible flours and meals of meat or meat offal : Other	6.40%	6.40%	Not apply	32 import requirements

Source: ITC (Market Access Map).

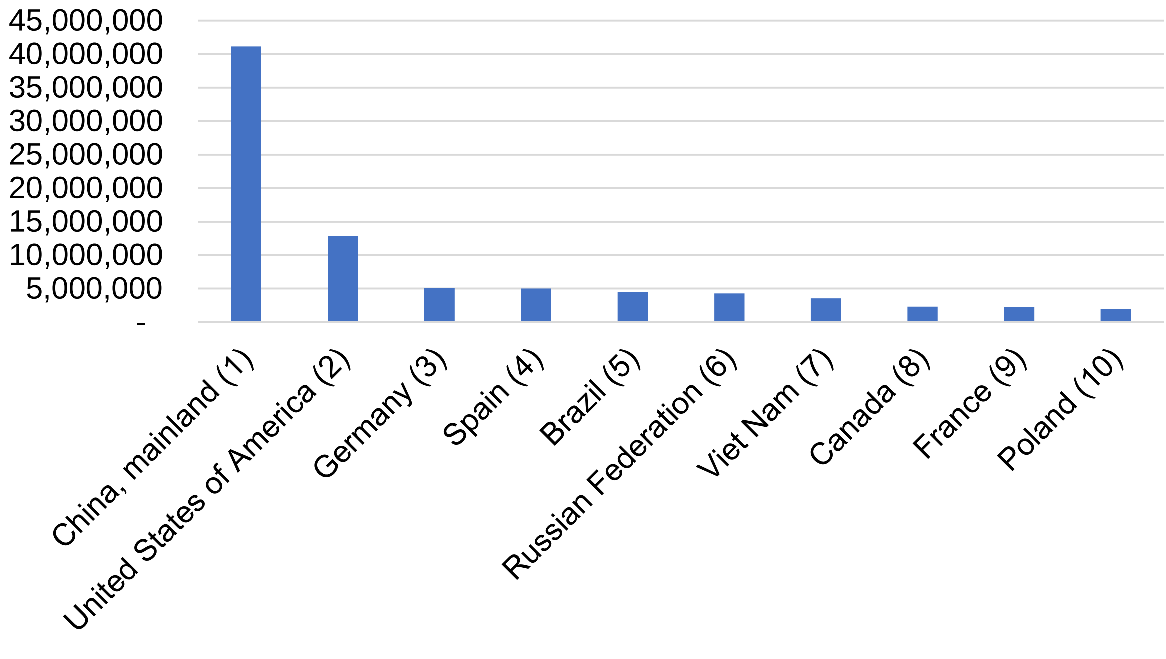
Observation: Tariff differences may occur for some products that have specifications through the codes adopted by the European Union classification

Pork

Brazil is the fifth largest producer of pork in the world, as per the FAO ranking in 2020. The country contributes to 4% of the global production of the pork meat. It is worth noting that Brazil becomes the third largest producer of pork in the world when considering the countries of the European Union as a whole.

Russia, on the other hand, is the sixth largest producer in the world, contributing to 4% of world production.

Graph 9 - Top 10 pork producing countries in 2020 – Metric tons



Source: FAO (2022).

According to OECD/FAO (2021) projections, pork production in Brazil is expected to grow an average of 0.5% per year in the period of 2022 through 2030.

Such projections were made before the outbreak of the war between Russia and Ukraine and also estimated an average annual growth of 0.4% in Russian production.

According to projections 2022-2030, Russia stands on fourth in the ranking of world pork producers, although such scenario might change in the face of trade sanctions. The difficulty in accessing feed inputs, among other aspects, might negatively affect the country production. In addition, as already pointed out by USDA analysis, the Russian production might be aimed mainly at serving the domestic population throughout 2022, what might keep occurring in the upcoming years depending on the evolution of the conflict with Ukraine. That means that the country availability to offer the product to other countries might be damaged.

Thus, once again, Brazil role might gain relevance, given its capacity to produce grains for animal feed, and all its productive infrastructure dedicated to the production of pork.

Table 11 - Top 10 pork producing countries – OECD/FAO (2021) Projections – Thousand Metric tons

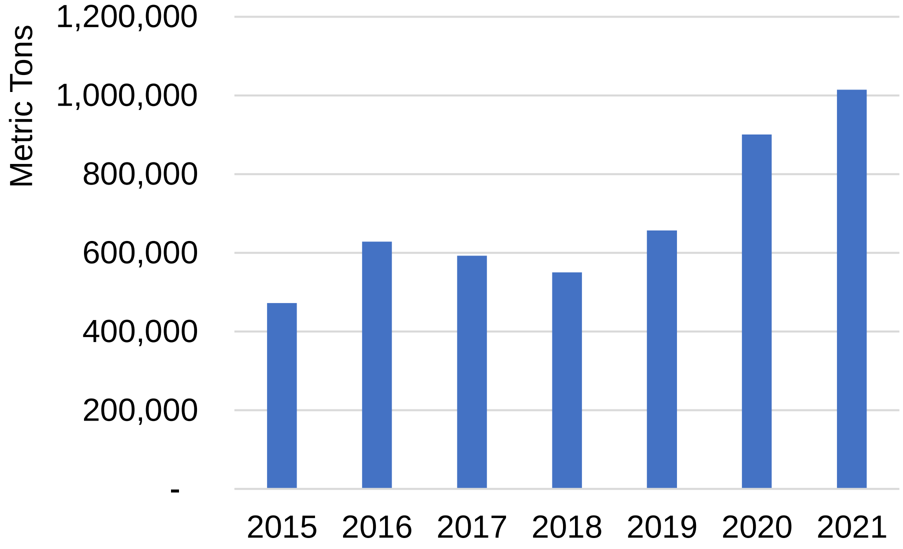
Country	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average annual growth rate 2022-2030
China	50,053	54,570	54,920	55,286	55,682	56,095	56,501	56,898	57,295	1.7%
European Union	22,553	22,267	22,147	22,029	21,969	21,893	21,854	21,800	21,746	-0.5%
United States	12,760	12,682	12,700	12,728	12,855	12,883	12,912	12,948	12,990	0.2%
Russian Federation	4,216	4,227	4,230	4,248	4,273	4,294	4,312	4,330	4,350	0.4%
Brazil	4,151	4,158	4,168	4,177	4,193	4,216	4,245	4,276	4,312	0.5%
Viet Nam	3,707	3,786	3,913	4,041	4,167	4,292	4,417	4,539	4,665	2.9%
Canada	2,162	2,184	2,207	2,211	2,211	2,226	2,246	2,265	2,281	0.7%
Mexico	1,679	1,689	1,716	1,746	1,777	1,810	1,842	1,875	1,908	1.6%
Korea	1,373	1,359	1,354	1,352	1,352	1,353	1,353	1,355	1,356	-0.2%
Philippines	1,267	1,321	1,357	1,385	1,406	1,424	1,444	1,463	1,483	2.0%
World	117,799	122,346	122,986	123,627	124,421	125,106	125,833	126,543	127,278	1.0%

Source: OECD/FAO (2021).

Brazil is the fourth largest exporter of pork in the world. The largest is the European Union, followed by the United States and Canada.

In 2021, Brazil exported around 1 million metric tons of pork meat, an increase of 12.7% compared to 2020. Brazil share of world exports is close to 5%.

Graph 10 - Brazilian exports of pork[18] - Metric Tons



Source: Comex Stat.

In 2021, half of Brazilian pork exports were destined for China and the previous year such percentage was even higher: 55%. The opening of the Chinese market to Brazilian products happened due to the problems faced by China regarding the African Swine Fever, which took place in 2018.

The European Union is one of the largest producers and exporters of pork in the world. Therefore, the group countries imports little from Brazil, having demanded only 0.023% of Brazilian exports in 2021.

[18] Exports are made up of the aggregate of the following HS6 code products: 020329, 020322, 020321, 020319, 020311, and 020312.

Table 12 - Top destinations of Brazilian pork exports - Distribution (%) of tons

Country	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
China	1%	14%	8%	28%	38%	55%	50%
Hong Kong	18%	17%	16%	20%	17%	12%	12%
Chile	2%	4%	4%	6%	7%	5%	6%
Singapore	6%	5%	5%	8%	5%	6%	5%
Vietnam	0%	0%	0%	1%	2%	4%	4%
Uruguay	4%	4%	5%	6%	6%	4%	4%
Argentina	2%	4%	5%	7%	5%	2%	4%
Philippines	0%	0%	0%	2%	1%	0%	3%
Angola	5%	3%	4%	5%	2%	2%	2%
Japan	0%	0%	0%	0%	1%	1%	1%
Others	61%	47%	52%	17%	17%	8%	10%

Source: Comex Stat.

According to ITC (Market Access Map), the European Union applies the following import tariff barriers to Brazilian pork.

Table 13 - Customs tariffs applied to Brazil

Product code	Product description	Applied tariffs to Brazil	Ad Valorem Equivalent estimation	Trade remedies	Regulatory requirements
020311	Meat of swine, fresh, chilled or frozen : Fresh or chilled : Carcases and half-carcases	53.6 EUR/100 kg	19.04%	Not apply	34 import requirements
020312	Meat of swine, fresh, chilled or frozen : Fresh or chilled : Hams, shoulders and cuts thereof, with bone in	77.8 EUR/100 kg	31.87%	Not apply	34 import requirements
020319	Meat of swine, fresh, chilled or frozen : Fresh or chilled : Other	60.1 EUR/100 kg	12.83%	Not apply	34 import requirements
020321	Meat of swine, fresh, chilled or frozen : Frozen : Carcases and half-carcases	53.6 EUR/100 kg	27.58%	Not apply	34 import requirements
020322	Meat of swine, fresh, chilled or frozen : Frozen : Hams, shoulders and cuts thereof, with bone in	77.8 EUR/100 kg	46.86%	Not apply	34 import requirements
020329	Meat of swine, fresh, chilled or frozen : Frozen : Other	60.1 EUR/100 kg	25.41%	Not apply	34 import requirements

Source: ITC (Market Access Map).

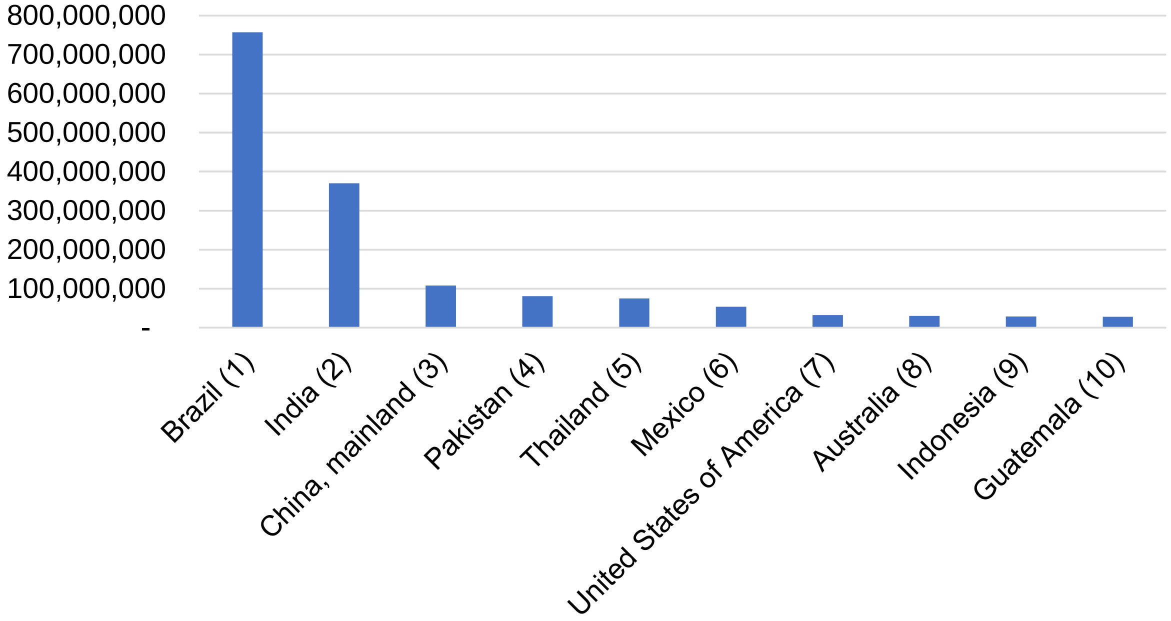
Observation: Tariff differences may occur for some products that have specifications through the codes adopted by the European Union classification

Sugarcane

As per the FAO ranking in 2020, Brazil is the largest producer of sugarcane in the world, contributing to. 40% of the global production of sugarcane.

According to Conab estimates[19], the 2021/2022 sugarcane crop has resulted in the production of 585.2 million metric tons, and the 2022/2023 crop might be 1.9% higher and reach 596.1 million metric tons. 44.4% of the 2021/2022 harvest has been allocated to sugar production and 55.6% to ethanol production. In the 2022/2023 harvest, 49.8% might be used for sugar production and 50.2% for ethanol production.

Graph 11 - Top 10 sugarcane producing countries in 2020 – Metric tons



Source: FAO (2022).

As predicted by OECD/FAO (2021),sugarcane production in Brazil is expected to grow an average of 1.3% per year, in the period of 2022 through 2030. Among the five main world producers, it is the one with the fastest pace alongside Pakistan.

[19] More information: https://www.conab.gov.br/info-agro/safras/cana

Table 14 - Top 10 sugarcane producing countries – OECD/FAO (2021) Projections – Thousand Metric tons

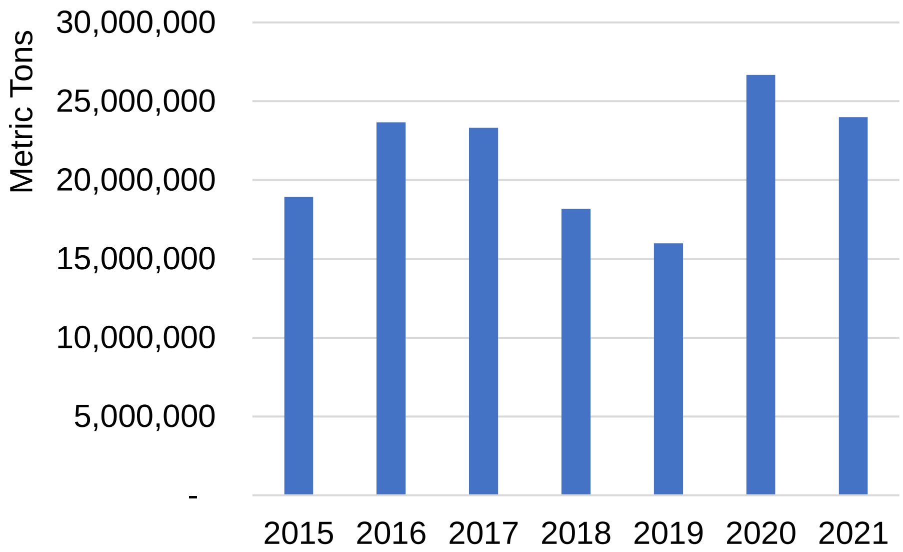
Country	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average annual growth rate 2022-2030
Brazil	636,686	643,734	651,699	660,163	669,834	677,896	685,666	694,501	705,163	1.3%
India	406,252	408,682	414,672	418,968	424,504	428,266	433,136	437,398	443,064	1.1%
China	108,902	109,974	110,847	111,729	112,394	113,051	113,703	114,349	114,994	0.7%
Pakistan	69,895	70,682	71,743	72,797	73,716	74,548	75,429	76,348	77,369	1.3%
Thailand	75,680	76,407	77,169	77,924	78,580	79,208	79,858	80,555	81,290	0.9%
Mexico	55,082	55,236	55,392	55,502	55,491	55,430	55,394	55,390	55,420	0.1%
Colombia	37,097	37,259	38,269	38,678	38,712	38,571	38,720	39,093	39,542	0.8%
Australia	31,892	32,070	32,283	32,465	32,518	32,494	32,501	32,568	32,691	0.3%
United States	29,423	29,619	29,859	30,120	30,333	30,418	30,515	30,640	30,853	0.6%
Philippines	25,912	26,035	26,236	26,412	26,545	26,661	26,778	26,907	27,059	0.5%
World	1,802,157	1,817,956	1,840,842	1,861,710	1,882,647	1,899,180	1,917,142	1,936,364	1,959,804	1.1%

Source: OECD/FAO (2021).

In 2021, Brazil exported around 24.0 million metric tons of raw sugar, which represented a decrease of 10% compared to 2020. Even though, Brazil remained the leader in global raw sugar exports. In 2020 and 2021, the market share is expected to be close to 70%.

Between the years of 2015 and 2021, Brazilian exports reached their peak in 2020, when the country exported 26.7 million metric tons.

Graph 12 - Brazilian exports of raw sugar[20] - Metric Tons



Source: Comex Stat.

[20] Exports are made up of the aggregate of the following HS6 code products: 170113 and 170114.

In 2021, more than 30% of Brazilian raw sugar exports were destined to China, Algeria, and Nigeria. The European Union also imports raw sugar from Brazil. In 2021, the group imported 2% of the Brazil total exports.

Table 15 - Top destinations of Brazilian raw sugar exports - Distribution (%) of tons

Country	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
China	13%	10%	1%	4%	9%	17%	18%
Algeria	9%	9%	9%	13%	14%	9%	10%
Nigeria	5%	6%	5%	7%	10%	6%	8%
Bangladesh	13%	8%	12%	10%	11%	8%	7%
Malaysia	5%	6%	7%	6%	2%	5%	6%
Saudi Arabia	3%	4%	4%	6%	9%	5%	6%
Morocco	4%	4%	5%	5%	5%	5%	5%
Canada	4%	3%	4%	5%	3%	4%	5%
Indonesia	2%	6%	4%	1%	0%	6%	5%
Egypt	5%	4%	6%	4%	4%	4%	4%
Others	37%	40%	41%	39%	34%	30%	27%

Source: Comex Stat.

According to ITC (Market Access Map), the European Union applies the following import tariff barriers to Brazilian raw sugar.

Table 16 - Customs tariffs applied to Brazil

Product code	Product description	Applied tariffs to Brazil	Ad Valorem Equivalent estimation	Trade remedies	Regulatory requirements
170113	Cane or beet sugar and chemically pure sucrose, in solid form : Raw sugar not containing added flavouring or colouring matter : Cane sugar specified in subheading note 2 to this chapter	33.9 EUR/100 kg	21.03%	Not apply	33 import requirements
170114	Cane or beet sugar and chemically pure sucrose, in solid form : Raw sugar not	33.9 EUR/100 kg	99.19%	Not apply	33 import requirements

	containing added flavouring or colouring matter : Other cane sugar				

Source: ITC (Market Access Map).

Observation: Tariff differences may occur for some products that have specifications through the codes adopted by the European Union classification