Platts
S&P Global
Energy

Atlas of Food

Global food prices are sensitive to weather and government policy in a few key regions. This updated report highlights those markets and explores the relationship between fertilizer, rice, wheat, corn, soybeans, seafood, pork, beef and poultry.

October 2025

Credits

Authors: Aditya Kondalamahanty, Vivian Iroanya, Samyak Pandey, Victor Pereira de Carvalho, Desiré Sigaudo, Beatriz Baltieri, Graham Style, Renan Araujo, Nuo Geng Chen.
Editor: Valarie Jackson, Meghan Gordon
Design: Content Design

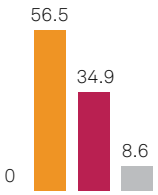
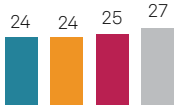
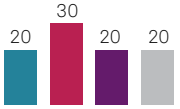
Contents

Introduction

Food prices are a key component of consumer price indexes globally. The price of chicken breast is driven partly by the price of corn, the world's main feed grain. Fertilizer is the main input for many farmers.

Food security concerns every government. Food producers developed the concept of forward sales through agriculture and the crop cycle.

Key properties: Animal protein

	Chicken	Pork	Beef	Shrimp
Selected exporter	Brazil	Spain	Australia	Ecuador
Consumption (per capita/kg per year)	45.1	56.2	26.9	< 5
Feed conversion ratio (kg feed/1 kg weight gain)	1.7	2.05	5-7	1.5
Age at harvest (months)	1.5	6	15-30	3-4
Most-commonly traded form	• Skin-on boneless legs • Skinless boneless breast • Feet and paws • Wings	• Bellies • Loins • Hams	• 90CL lean beef trimmings • Frozen	• Head on shell on • Peeled deveined tail on
Typical feed consumption (%) Wheat Corn Soybean meal Fish meal Others			• Grass • Lot feeding: - Grain (70%-80%) - Cottonseed - Silage - Molasses - Straw - Vegetable oil - Mineral/vitamin premix	

Source: S&P Global Energy

Population growth has increased pressure on the world's stock of arable land, fuelling research into synthetic fertilizers. These enable farmers to enhance yields and produce more grain from a given area of land.

Improvements in crop yields have accelerated since 1913 thanks to the Haber-Bosch process, which synthetically converts atmospheric nitrogen into ammonia.

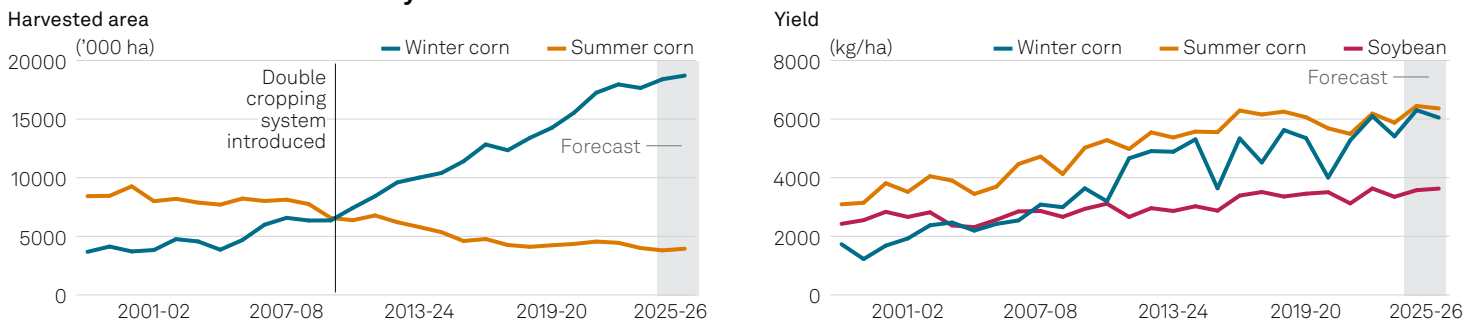
Arid and populous countries like Egypt rely on agricultural imports, and state grain boards in those countries import wheat and provide subsidized bread. Similarly, in China, the government's commitment to stockpiling is informed by lessons learned from several provinces' experiences with famine 65 years ago.

Recent geopolitical events have further underscored the fragility of the agricultural supply chain. Russia's invasion of Ukraine led to the closure of Black Sea ports, which previously handled about 16% of global corn exports. This disruption resulted in a significant price spike for many agricultural commodities, highlighting the entire supply chain's sensitivity to the price of corn, a crucial input for feeding livestock.

Demand for corn, as well as soybeans, has accelerated in response to the rising per capita consumption of proteins. People typically spend more on pork, beef, chicken and seafood as they become more prosperous. The feed conversion ratio for swine and cattle is higher than two – meaning that many pork producers need to give a pig at least 2 kg of feed to produce 1 kg of meat. Among proteins, aquaculture makes the most efficient use of feed inputs, with just 1.2 kg of feed producing 1kg of shrimp

The Atlas of Food charts the recent price history for these key commodities, showing the interconnection between crops and the protein markets for which they are the main inputs. It also shows their sensitivity to government policies on the biofuel sector, where corn and soybean oil are key feedstocks.

Brazil's corn harvested area and yield

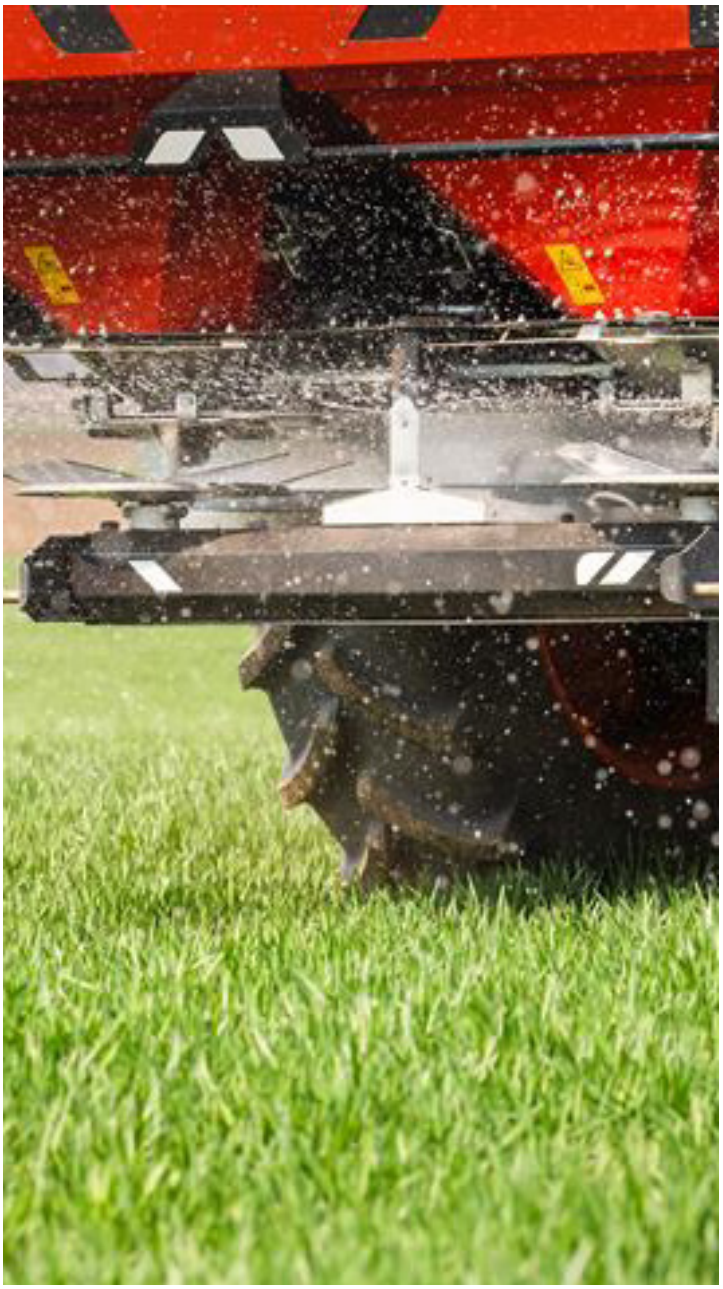


Source: S&P Global Energy

Fertilizer

Authors: Jeffrey McDonald

odern agriculture owes its success to synthetic fertilizers, which have lifted crop yields to meet the demands of a growing population.



Key properties

Three primary nutrients — nitrogen, phosphorus, and potassium — are vital for various physiological processes in plants.

Nitrogen, often supplied through urea, promotes plant growth and enhances photosynthesis; phosphates are key for root development and energy transfer; and potassium contributes to overall plant health, drought resistance, and disease tolerance.

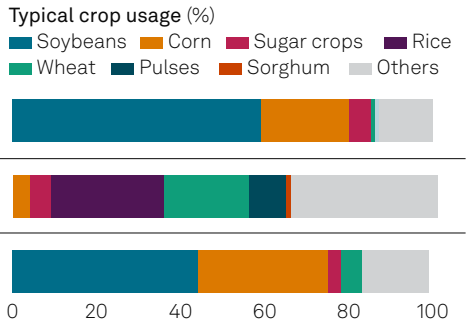
The effective use of fertilizers not only increases crop yields but also supports food security for a growing global population.

Nutrient application has long been appreciated by farmers: manure application, for example, has featured in agrarian societies, providing a natural source of primary nutrients. However, it wasn't until the early 20th century that more concentrated chemical products started to be manufactured and traded globally, eventually leading to the "green revolution" of the 1970s.

One key component, nitrogen, is often extracted from nitrogen via the Haber-Bosch process, which transformed fertilizer production into a true industry. This process involves the reaction of nitrogen gas from the atmosphere with hydrogen, typically derived from natural gas, under high temperatures and pressures to produce ammonia, which is used in the production of urea, nitrates, and most complex fertilizers such as ammoniated phosphates, NPKs, ammonium sulfate, or potassium nitrate.

Key properties: fertilizer distribution

Fertilizer	Selected exporter and export value (million mt)	Raw materials	Selected importer and import value (million mt)
Nitrogen: Urea	Egypt 4.3	Natural Gas	Brazil 8.1
Phosphates: DAP/MAP	Morocco 7.7	Phosphate Rock, Sulfur, Ammonia	India 4.79
Potash: MOP	Canada 23.87	Mined Potash (potash ore)	US 13.97



Source: S&P Global Energy

Phosphates are produced through the mining and processing of phosphate rock, often through reacting it with a strong industrial acid (typically sulfuric acid) to obtain phosphoric acid, which is then further processed into various downstream products such as diammonium phosphate (DAP), monoammonium phosphate (MAP), or triple superphosphate (TSP).

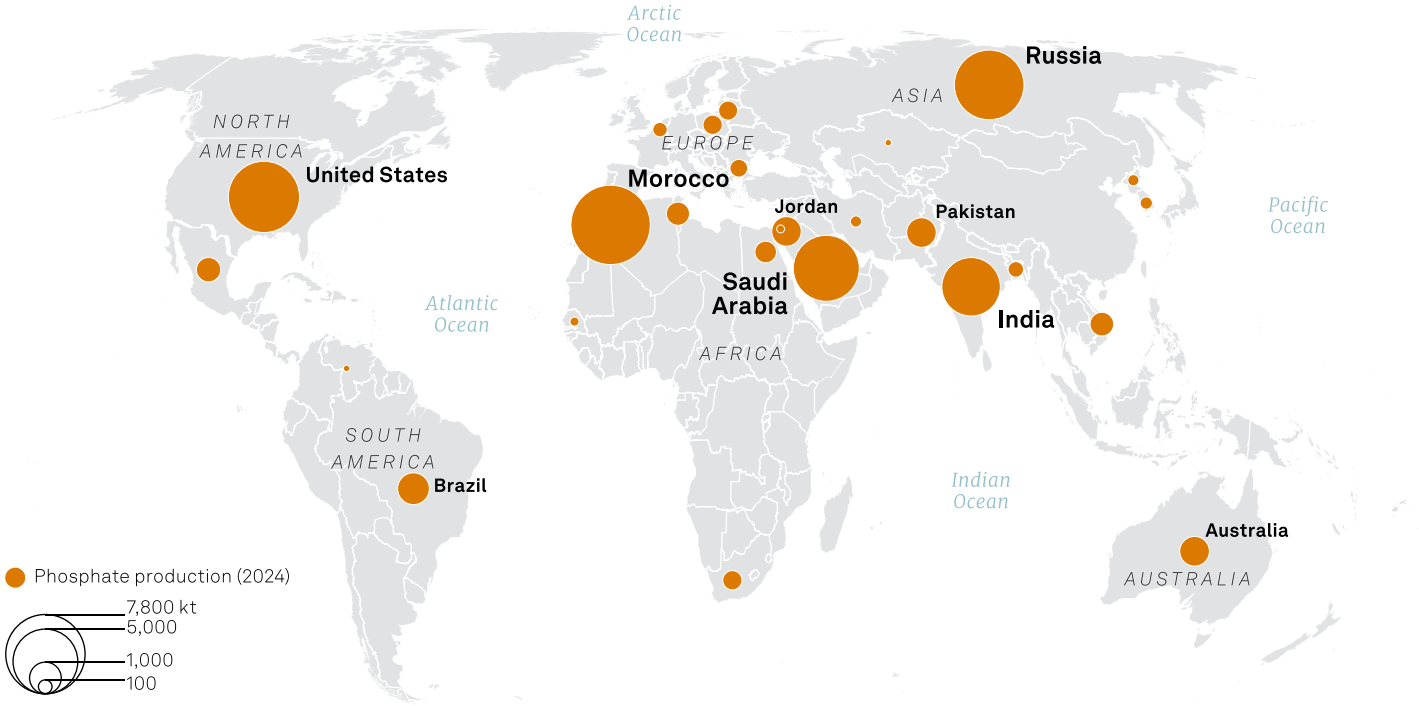
Potash, primarily consisting of potassium, is obtained from ancient sea and lake beds that formed millions of years ago. The extraction process involves mining and refining these deposits, mostly producing potassium chloride, from which a variety of further downstream products are made.

The absence of any of the essential nutrients — nitrogen (N), phosphorus (P), or potassium (K) — can lead to deficiencies in plants, resulting in stunted growth, diminished crop quality, and reduced resilience against drought and diseases.

Global production

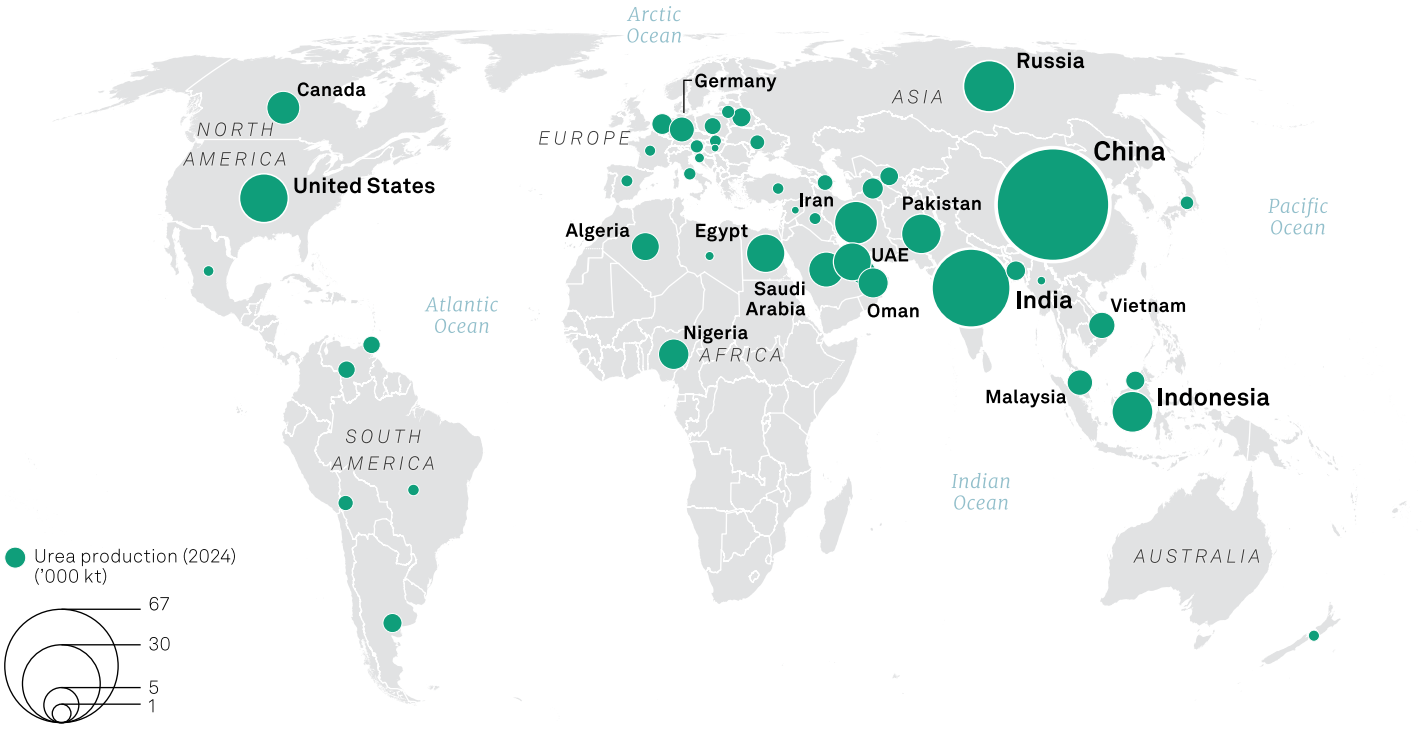
Urea is one of the most widely produced fertilizers worldwide, with production concentrated in regions rich in natural gas. Coal remains an essential feedstock, especially due to the significant growth of coal-based urea production in China.

Global phosphate production



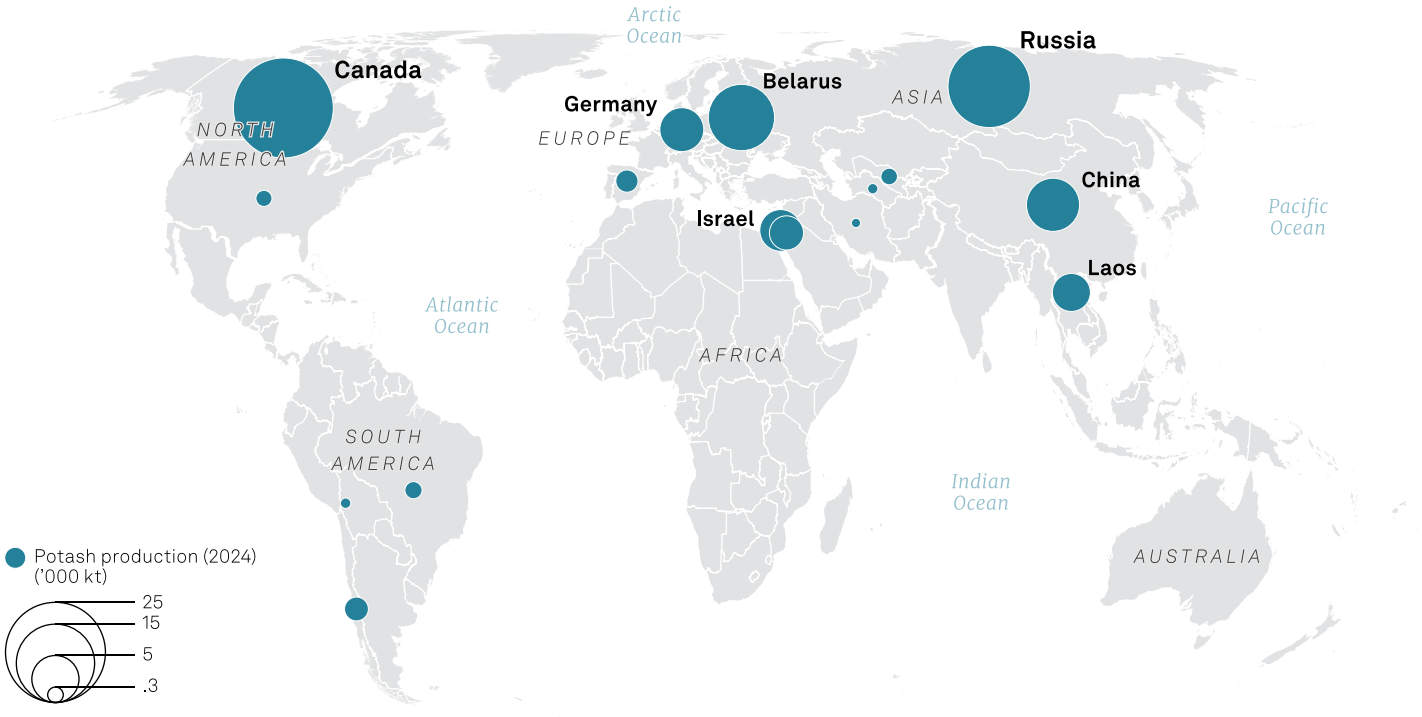
Credit: Content Design
Source: S&P Global Energy

Global urea production



Credit: Content Design
Source: S&P Global Energy

Global potash production



Credit: Content Design
Source: S&P Global Energy

The competitiveness of urea facilities globally is mainly driven by feedstock and logistics costs – with environmental regulations increasingly influencing regions like Europe. Major producers are based in the Middle East, North Africa, Russia, China, and Southeast Asia. European countries, where natural gas prices are generally higher, have traditionally imported urea from cheaper regions. However, rising tariffs on Russian producers and regulatory costs linked to the carbon border adjustment mechanism could make domestic suppliers more competitive.

The production of phosphatic and potassic fertilizers is concentrated in regions with access to mineral deposits, which significantly influence their cost and availability. Phosphate production is primarily dominated by Morocco, the US, Saudi Arabia, Russia, and China, with Morocco holding the largest known reserves of phosphate rock. Mining and processing costs, along with transportation logistics, are key factors affecting the competitiveness of phosphate fertilizers in global markets.

Potash production is highly concentrated in Canada, Russia, and Belarus, with Canada being the largest producer, thanks to its extensive underground potash mines. The extraction process is capital-intensive and requires significant investment in infrastructure.

Fertilizer markets are influenced by global demand fluctuations, agricultural trends, food security concerns, and government policies. Increasing tariffs on imports from major producing countries can shift market dynamics, potentially making domestic production more competitive.

Trade flows

Seasonal factors play a crucial role in fertilizer trade, as demand typically peaks during planting seasons. The recurring north/south wave of seasonal spikes can lead to increased imports by countries preparing for their agricultural cycles, resulting in price volatility during these periods.

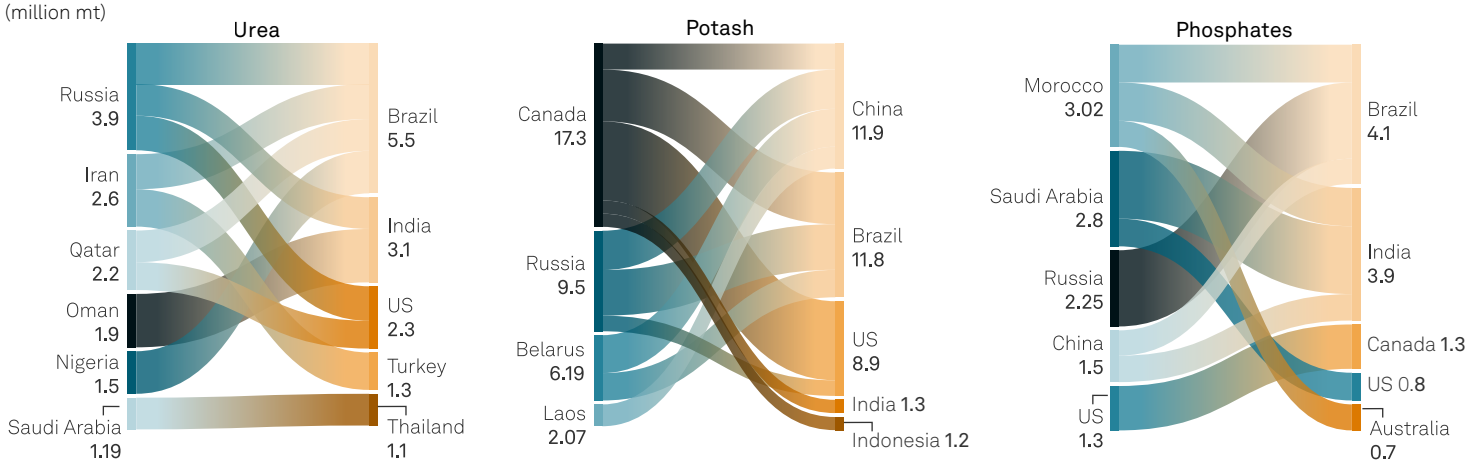
Urea is one of the most traded fertilizers globally. Major exporters of urea include countries in the Middle East, such as Qatar and Saudi Arabia, where abundant natural gas supplies facilitate low production costs. Other key exporters include Russia, China and Egypt. On the import side, countries like Brazil, the US, and several Southeast Asian nations are significant consumers, driven by their large agricultural sectors.

Global trade in phosphates is marked by a high concentration of exports from a few key regions. Morocco is the top exporter of phosphate fertilizers, followed by China, Russia, and Saudi Arabia (2024 data). These countries produce various phosphate fertilizers, including monoammonium phosphate (MAP) and diammonium phosphate (DAP). Major importers include Brazil, India, Europe, and Southeast Asian countries, where agricultural demand is strong. Unlike nitrogen, excess phosphorus applied to soil can remain (to an extent) available for future crop seasons, although this largely depends on rainfall patterns and soil quality.

Potash trade flows are even more concentrated on the supply side, with Canada being the largest producer and exporter, followed by Russia and Belarus. These countries dominate the global market, supplying potash to various regions, including the US, Brazil, and India, which are among the largest importers.

Top 10 trade flows by nutrient type

(million mt)



Source: S&P Global Energy

Price drivers

1. Policy

Government interventions, such as subsidies and export restrictions, can significantly impact supply dynamics and affordability for farmers. For instance, policies aimed at supporting domestic agriculture can enhance demand for fertilizers, while export regulations can create supply constraints that drive prices higher.

September 2021

China restricts exports In early 2021, China announced export restrictions on phosphate and urea to prioritize domestic supply, significantly constraining global availability and leading to increased prices in international markets.

June 2025 China resumes exports China lifts restrictions on fertilizers, allowing for increased availability in global markets and contributing to price stabilization as importing countries replenished their stocks.

January 2026

EU to implement CBAM

The EU is set to implement its Carbon Border Adjustment Mechanism in 2026, forcing fertilizer importers to follow new documentation requirements and raising the costs of urea and NPK fertilizers.

Tariffs

Tariffs imposed on fertilizer imports can significantly alter market dynamics, affecting both supply and pricing. By increasing the cost of imported fertilizers, tariffs can lead to higher prices for domestic consumers, while also influencing trade relationships. The resulting changes in import patterns can create supply shortages or surpluses, further complicating price stability in the market.

October 2023 – present

India maintains lower potash subsidy rates Since 2023, India has maintained historically low subsidies for potash imports, affirming in its 2025 budget subsidy rates for potash fertilizers at Rupee 1,427/mt. This was an 85.1% drop from Rupee 9,547/mt India paid in Kharif 2023, driving up retail prices and lowering consumption.

March 2025

Potash deemed strategic

US President Donald Trump signs an executive order to designate potash as a “strategically important” mineral, protecting farmers from potential impacts of tariffs on higher potash fertilizer prices.

July 2025

EU imposes tariffs The EU announces additional tariffs on fertilizers from Russia and Belarus, restricting imports and leading to supply shortages that push European prices higher.

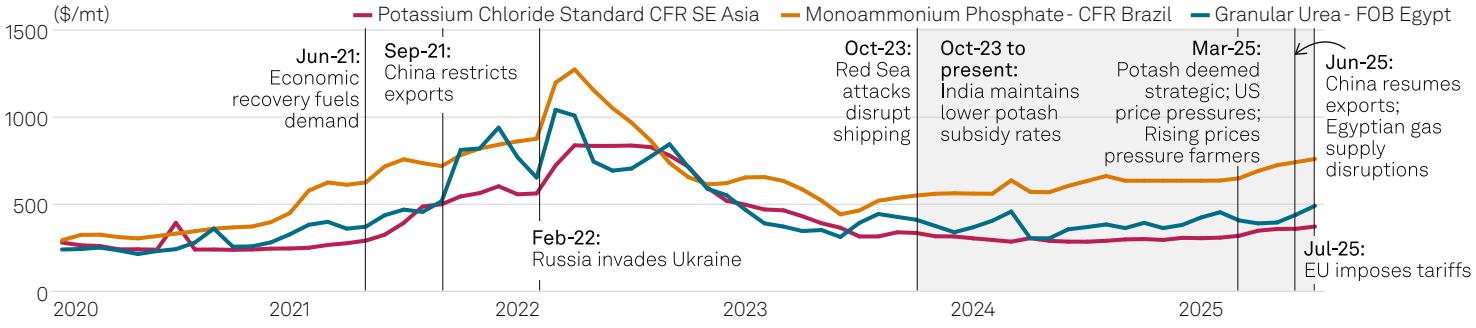
Supply

Supply shocks from geopolitical events, natural disasters, or economic disruptions, can have immediate and significant effects on fertilizer pricing. These shocks can lead to production halts, transportation delays, or changes in trade flows, creating market volatility. Prices often jump when supply is constrained while demand remains steady or increases.

February 2022

Russia invades Ukraine Following Russia’s invasion of Ukraine, key export terminals in the Black Sea halt operations (on top of sanctions and trade restrictions), which immediately disrupts fertilizer supply chains and causes prices to skyrocket as countries seek alternative sources.

Fertilizers: Key price drivers



Source: S&P Global Energy

October 2023

Red Sea attacks disrupt shipping Attacks in the Red Sea disrupt critical shipping routes for fertilizers, leading to delays and increased transportation costs, contributing to rising global prices.

March 2025

US price pressures Rising natural gas prices, coupled with US tariffs on imports, significantly increase fertilizer production costs, leading to higher prices for agricultural inputs as producers pass on the costs to consumers.

June 2025

Egyptian gas supply disruptions Disruptions in Egypt's gas supply lead to temporary halts in urea production, creating immediate supply shortages and driving prices higher as demand remains steady.

Demand

Demand for fertilizers is heavily influenced by external variables such as weather events and farmers' decisions around affordability. Economic factors, such as income levels and input costs, directly impact farmers' ability to buy fertilizers. Government policies aimed at supporting agricultural inputs can enhance affordability, while external factors like geopolitical tensions and supply chain disruptions can create volatility, further complicating the demand landscape.

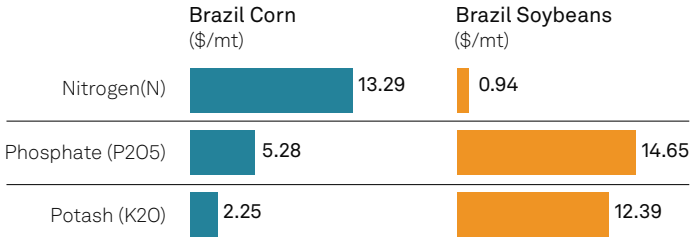
June 2021

Economic recovery fuels demand As economies began recovering from the pandemic, a surge in fertilizer demand coincides with lingering supply constraints, resulting in significant price increases and impacting affordability for farmers.

March 2025

Rising prices pressure farmers Escalating fertilizer prices due to supply chain disruptions and geopolitical tensions raise concerns about affordability among farmers, prompting calls for government intervention to stabilize prices.

Average cost per mt in 2025



Note: This shows how much was spent on each type of fertilizer in 2025 on average. It takes total spending on each and then divides by total mt of the crop produced.
Source: S&P Global Energy

Rice

Authors: Nanditha Kinavoor Madathil

Billions of people eat rice every day. India and China are by far the largest producers. Policies and weather can disrupt complex trade flows.

Key properties

Rice is a staple food for much of Asia, Africa and Latin America, with caloric intake ranging from 50% to 70%. It holds deep cultural significance in many Asian countries.

India and China are the leading rice producers, accounting for over 50% of the world's rice output.

The rice trade even produced the world's first futures contact — in 18th century Japan.

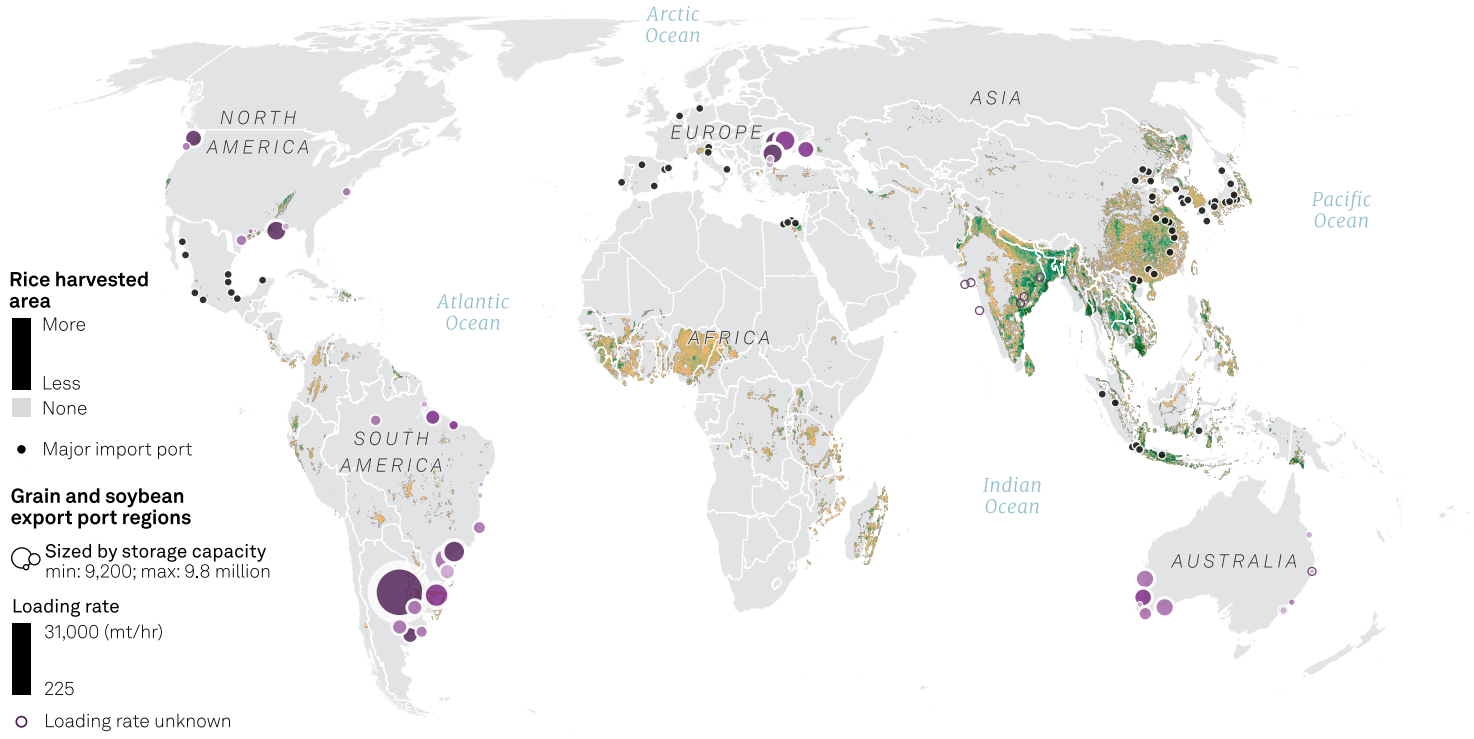
Rice has complex trade routes that are affected by weather, trade policies and other factors.

Global production

India and China are the leading rice producers, accounting for over 50% of the world's rice output. While China consumes more rice than it cultivates, India stands as the largest rice exporter globally, followed by Vietnam and Thailand.

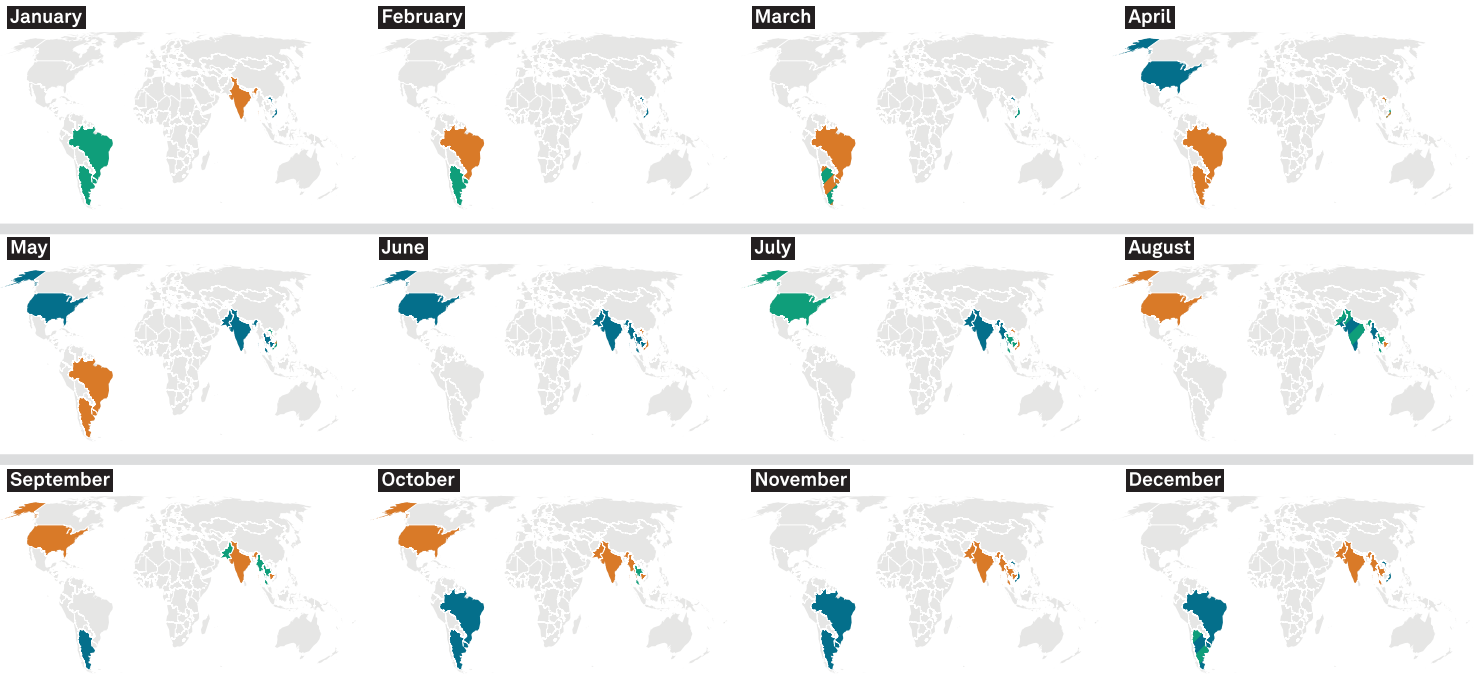
The Philippines ranks as the largest rice importer, with other significant importers including Middle Eastern countries, Nigeria and the EU. The Philippines' archipelagic geography, lacking major river deltas like those in Thailand and Vietnam, is a key factor in its status as a primary importer. In Africa, rapidly growing populations force rice-producing countries to rely on imports.

Global rice production and ports



Credit: Content Design
Source: S&P Global Energy, Tang F. H. M., Nguyen T. H., Conchedda G., Casse L., Tubiello F., and Maggi F. (2023). CROPGRIDS

Rice crop cycle in key producers and exporters



Note: in countries that produce multiple seasonal harvests, the most predominant is shown.

Credit: Content Design
Source: S&P Global Energy, USDA

Rice is grown across the world in different seasons under single or multiple crops per year. Kharif and rabi are the two main crop seasons in the Indian subcontinent. Kharif, also known as monsoon crops, are sown at the beginning of the rainy season, usually from July to October. Rabi, also known as winter crops, are sown after the monsoon has ended, usually from October to April. In Asia, the relationship between rain and rice cultivation is vital, as rice primarily depends on monsoon rains for irrigation. In India, the southwest monsoon from June to September provides essential rainfall for the Kharif rice crop, while in many Asian countries, flooded fields are used to maintain necessary water levels.

Vietnam has three harvest seasons: winter/spring, summer/autumn, and autumn/winter. The country experiences this complex harvest season because of its different regions— the southern delta, known for its warm and humid climate ideal for rice; the northern delta, which has a tropical monsoon climate with cold winters supporting rainfed and flood-prone rice varieties; and the northern highlands, where upland rice varieties are cultivated.

August and September are generally the tightest periods for rice supply, as the main harvests in India and Thailand occur in October and November. During these months, the supply from the previous harvest is running low, and the new crop has not yet been harvested, resulting in a tighter supply and less market activity.

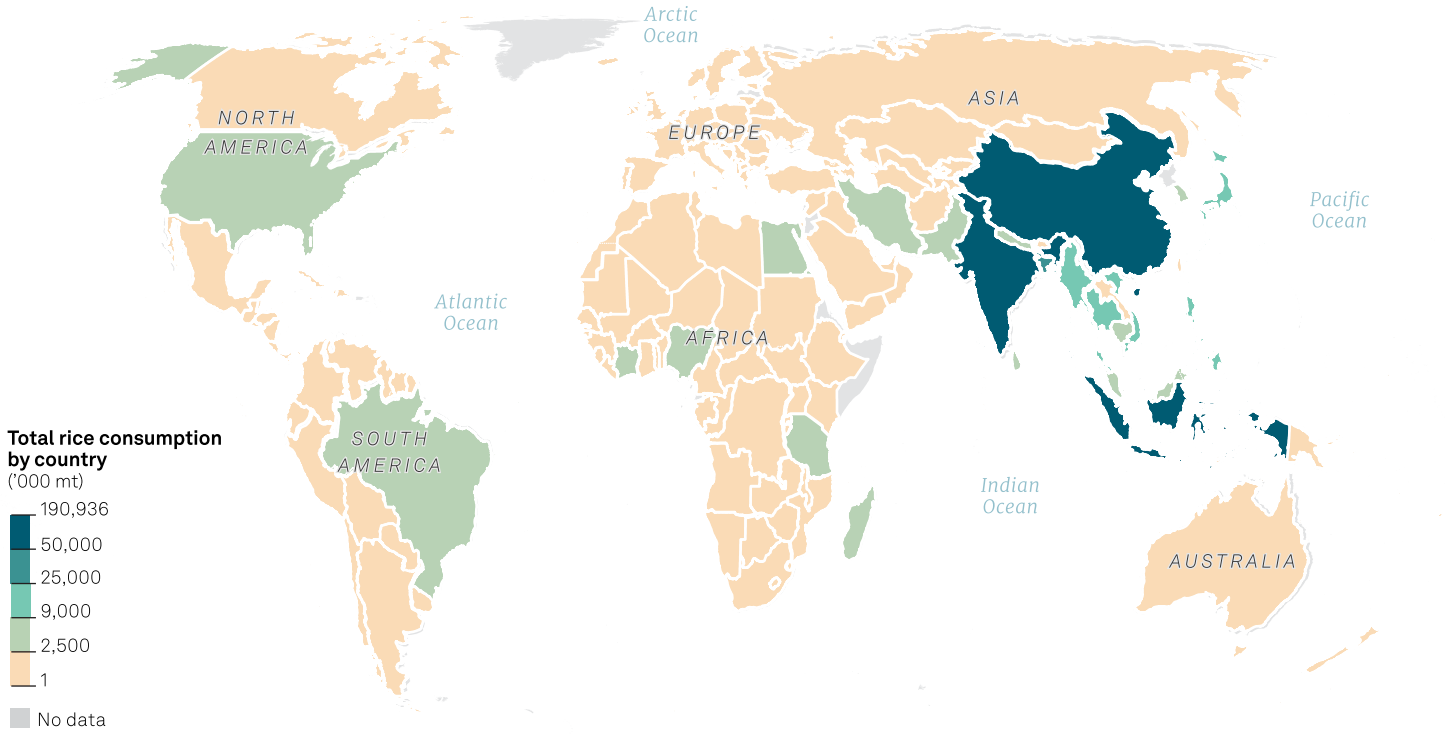
Trade flows

Thailand dominated the global rice market from 1960 until 2011, according to US Department of Agriculture data. In 2012, India lifted its export ban on non-Basmati rice because of a bumper crop. India emerged as the global leader in rice exports, surpassing Thailand.

The major consumers of rice in the world are the major producers like India and China. In 2024, India and China together consumed approximately 52% of global rice supply. The strongest rice trade flows are within Asia. Globally, in the same year, 13.55 million mt was traded in Asian countries, or 23% of the global trade, USDA data showed. Vietnam ranked as the third-largest exporter and second importer globally by the USDA in 2024. Vietnam exports specialty graded rice to the Philippines and imports paddy and broken rice from Cambodia and India, respectively.

The second most significant trade route is from Asia to Africa, with 6.6 million mt, or 12% of global supply, flowing to the continent in marketing year 2024, according to USDA data.

Global rice consumption



Credit: Content Design
Source: S&P Global Energy

Between MY 2018/19 and MY 2023/24, the Middle East was among the world's top three rice-importing regions, with global share of 13% to 17%. Iran, Iraq, and Saudi Arabia are the Middle East's top importers.

Price drivers

1. Policy

Subsidies for farmers, such as India's Minimum Support Price (MSP), drive planting decisions and influence the supply/demand balance. Every May or June, when India's farmers are sowing the kharif crop ahead of the monsoon season, the Commission of Agriculture Cost and Price sets that year's MSP.

June 19, 2024

India lifts MSP again: India raises the MSP again, by 5.4% from 2024-25, which helps raise kharif production.

May 29, 2025

India increases MSP: India raises the MSP by 3% for the 2025-26 kharif crop, which enters the market by late September. The bumper kharif harvest in 2024-25 led India to remove its export ban, contributing to a fall in global rice prices.

2. Tariff and export restrictions

The price of white rice on the global market has surged twice in the last 15 years — both times were linked to an export ban. In 2012, Thailand re-introduced the rice pledging program, and in 2023, India banned white rice exports.

July 20, 2023

India imposes export ban: India imposes a ban on the export of non-Basmati white rice to ensure adequate domestic supply and control rising prices.

Sept. 28, 2024

India lifts export ban: India lifts the ban following a bumper kharif crop in 2024. At the same time, it introduces a minimum export price (MEP) of $490/mt.

Oct. 23, 2024

India lifts MEP: After record crop production boosts supplies, India removes the minimum export price to make prices more competitive.

3. Weather

Every June and July, the world's rice importers focus on the start of India's monsoon season. The earlier it starts, the larger the expected crop and the more surplus rice available for export.

May 2022-May 2025

June 2024

Normal monsoon and timely rice planting improves crop growth and yields: An above-average monsoon, timely planting of rice and adequate rainfall in August and September enhance crop growth and yield prospects compared to previous years.

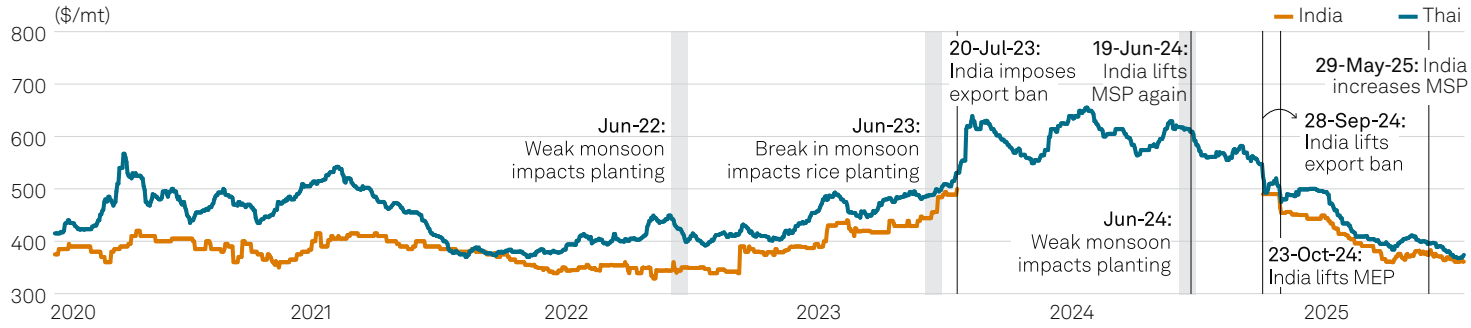
June 2023

Break in monsoon impacts rice planting: An early three-week break of the monsoon interferes with rice planting, resulting in about 2.7 million hectares by the end of the month, down 10% year over year.

June 2022

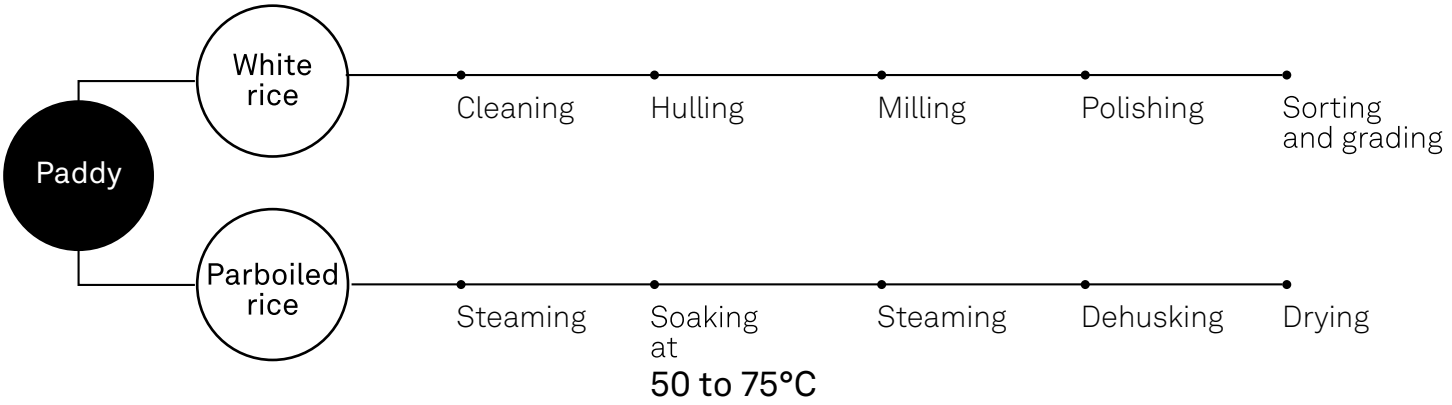
Weak monsoon impacts planting: A weak southwest monsoon during the first half of the month delays the planting of kharif (fall-harvested) crops.

Rice: Key price drivers



Source: S&P Global Energy

Rice processing



Paddy processing

After the paddy is harvested, it is then subjected to cleaning, hulling, milling, polishing or whitening and grading. About 70%-80% of the paddy is milled into rice globally, the remaining is used for animal feed and seed purposes.

The major products are white rice, parboiled rice, and rice bran. White rice is produced by the above methods, whereas the cleaned rice is then soaked at 50-75°C for shorter durations, steamed to gelatinize the starch, and dried. Bran is the byproduct from both rice varieties. It is a nutrient-rich byproduct used as a nutritional supplement, in animal feed, and in food products like baked goods and cereals.

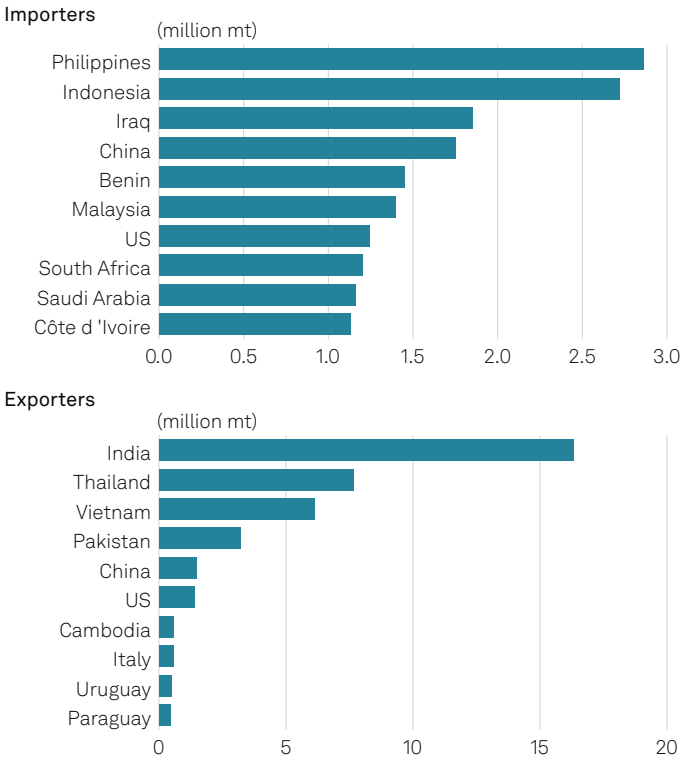
In Asia rice is most often consumed in the form of cooked rice. It is also processed into various products such as rice flour, rice noodles, rice cakes, and rice bran oil, which are widely used in culinary applications.

Milled rice (white rice)

India is the largest exporter of white rice in the world, followed by Thailand. Globally, Asian countries importing 69 million mt, followed by Middle East countries, African countries, the US and Canada.

White rice milling typically produces a significant amount of rice bran and broken rice that are commonly used in animal feed. Rice bran, rich in protein, fat, and fiber, is commonly used for livestock and poultry feed, also for making rice bran oil. Broken rice, which consists of fragments from milling, serves as a source of carbohydrates and energy. Both of them are considered cost-effective feed options for livestock.

Milled rice: Top 10 importers and exporters



Source: S&P Global Energy

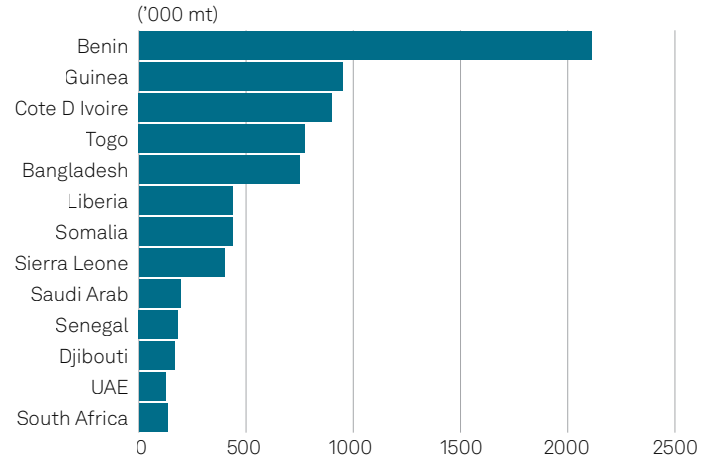
Parboiled rice

Parboiling is a hydrothermal process applied to paddy before milling, involving soaking, steaming, and drying. Its main goal is to enhance rice quality and increase milling yield. Parboiled rice offers several benefits over unparboiled rice, such as stronger

kernels, higher recovery during milling, preservation of nutrients, and longer shelf life due to better resistance to insects and mold.

India is the top producer and exporter of parboiled rice worldwide. Africa is a major importer for India, especially Benin. Benin imported 2.11 million mt in MY 2024-25, constituting 22% of the total imports to Africa. Long-grain parboiled rice is commonly imported by African countries and is featured in various popular African dishes, including Jollof rice and fried rice.

Parboiled rice: Major importers



Source: S&P Global Energy

Wheat

Authors: Aditya Kondalamahanty and Vivian Iroanya (Contributors)

Wheat is the world's most important grain for human consumption. The Middle East and North Africa are supplied from the Black Sea.

Key properties

Wheat is the world's most important grain for human consumption. It requires a temperate climate with moderate rainfall during the growing season from autumn to spring. In the months before it is harvested, temperatures should be around 20°C to 25°C.

China and the EU are the world's largest wheat producers , producing a third of the global total between them. China still consumes more wheat than it grows, while the EU is the world's second largest exporter behind Russia, whose southern region is well suited for growing wheat and sparsely populated.

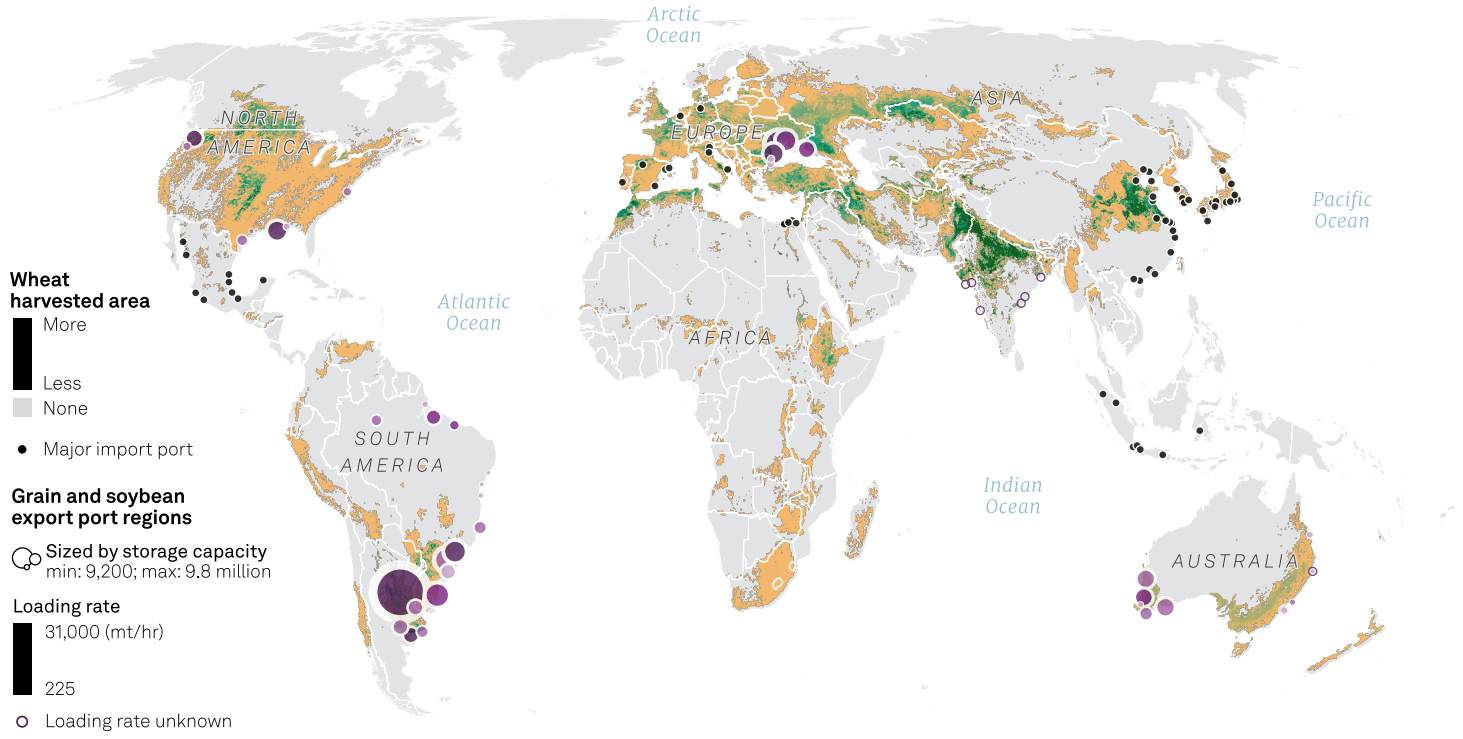
Those exports are important for the Middle East and Africa, where the needs of large populations cannot be met with the meager output from arid land and excess heat. Here, state grain boards are often responsible for procuring imports and underwriting subsidies programs. In Asia, Indonesia also has a similar imbalance between consumption and production thanks to a tropical climate that does not support wheat.

Global production

The Black Sea is particularly important for global wheat trade. Wheat here is planted from September to October and harvested in July.

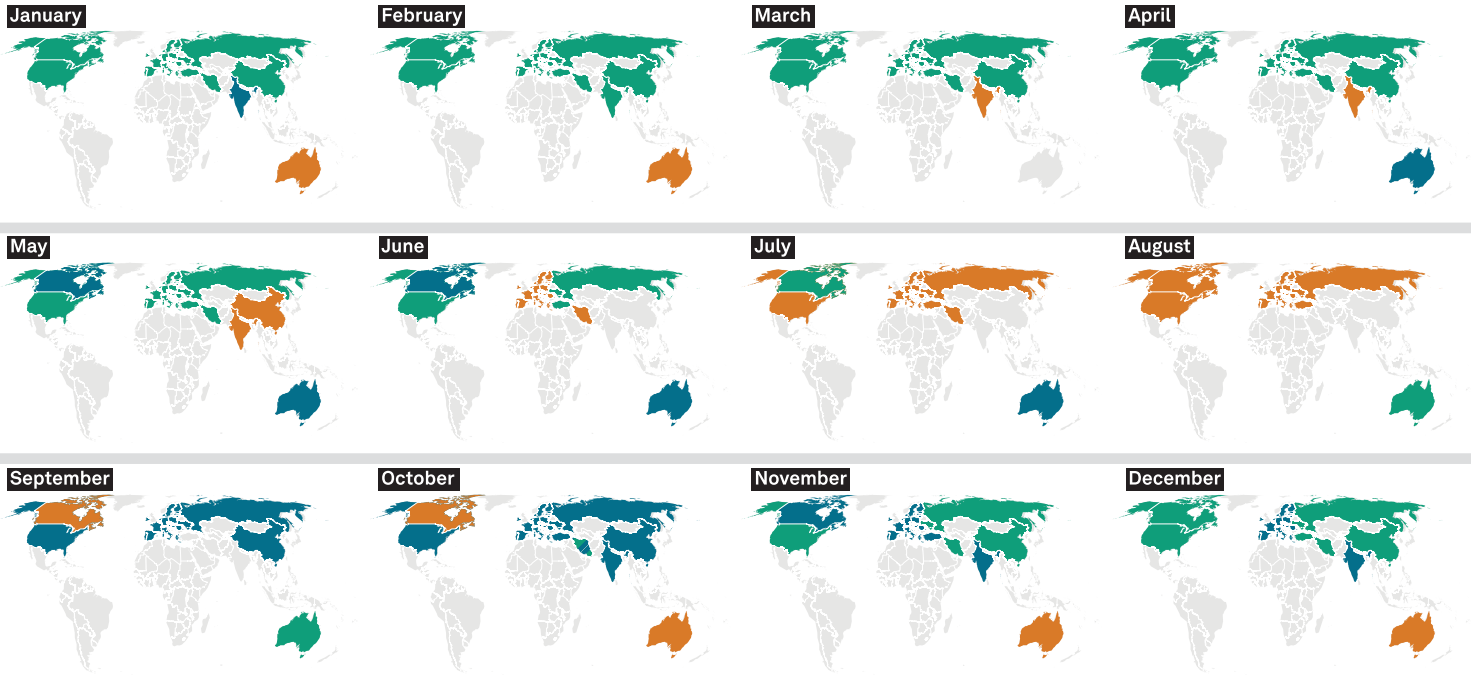
Global wheat supply is often tightest between April and June, as old-crop stocks dwindle and uncertainty about weather conditions looms over the upcoming harvest. During this period, prices can spike dramatically.

Global wheat production and ports



Credit: Content Design
Source: S&P Global Energy, Tang F. H. M., Nguyen T. H., Conchedda G., Casse L., Tubiello F., and Maggi F. (2023). CROPGRIDS

Wheat crop cycle in key producers and exporters



Note: in countries that produce multiple seasonal harvests, the most predominant is shown.

Credit: Content Design
Source: S&P Global Energy, USDA

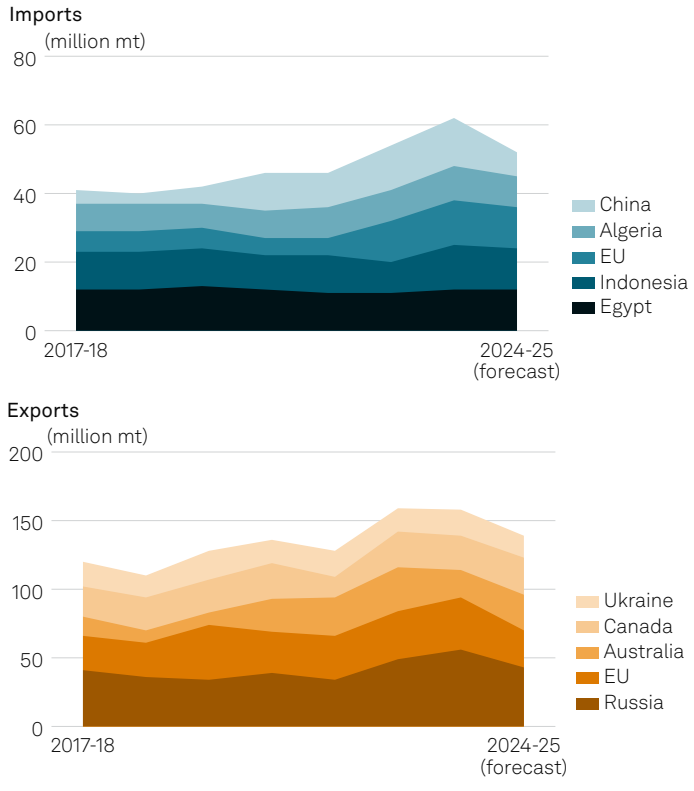
Trade flow

Around 220 million mt of wheat was traded between countries in the 12 months to June 30, 2024. The five largest exporters – Russia, the EU, Australia, Canada and Ukraine – supplied the bulk of globally traded wheat. Trade is less concentrated on the import side, with the five buyers – Egypt, Indonesia, Algeria, the EU and China – accounting for 28%. Russia has been the world's largest exporter of wheat since MY 2017-18. That followed a surge in production, with yields almost doubling between 2000 and 2017, as the country's farmers applied the latest technology, including pesticides and sensor-equipped tractors.

Russia's share of exports has mostly continued to grow since then. Its most significant customer is Egypt, which captured 8.2 million mt in MY 2023-24, or roughly 3.7% of global trade. Over the past five years, Russia has consistently been the largest exporter of wheat to Egypt, averaging 6.72 million mt annually and accounting for more than half of Egypt's total wheat imports. Despite the ongoing Russia-Ukraine war, Egypt has increasingly relied on Russian wheat due to its competitive pricing and high quality compared to other global sources.

When the Russian government imposed an unofficial price floor to prevent the sale of low-priced wheat, Egypt faced some challenges in its procurement strategy in tenders. During this period, the Egyptian state, which buys half of the country's wheat imports, sought alternative, cheaper sources from Ukraine, Bulgaria, and Romania. However, even with these challenges, Russia continues to be the most significant supplier of wheat to Egypt.

Wheat: largest importers and exporters



Source: USDA, S&P Global Energy

Key wheat price drivers

1. Policy

Russia and Ukraine together account for more than a third of the global wheat trade. The war, financing constraints and their respective relationships with other countries has driven price moves since 2022. Russia's wish to ensure profits for domestic farmers has also become a concern for importers who rely on this supply.

Feb. 24, 2022 (ongoing)

Russia-Ukraine war began. Within a week of Russia's February 2022 invasion, Platts-assessed Russian and Ukraine wheat export prices surged by 26% amid fears of tightening supply.

March 28, 2023 (ongoing)

First talks of a Russian wheat price floor. In March 2023, an unofficial price floor for Russian wheat set by the government led to higher state tender prices, causing buyers like the Egyptian state to seek alternative origins such as Romania, Bulgaria and Ukraine wheat. To circumvent the FOB restrictions, exporters began offering discounted CNF prices in private deals.

Aug. 1, 2024 (ongoing)

China's increasing domestic self-sufficiency strategy. A bigger domestic wheat crop in China, on top of slow downstream demand, resulted in smaller imports of Australian wheat in late 2024 and into 2025, adding pressure to Australian wheat prices and narrowing the Australia-Russia price spread.

2. Tariffs and quotas

Wheat policy is intertwined with geopolitics, given its importance to food security, trade and potential conflict. Rising wheat prices were the backdrop for protests in the Middle East in the early 2010s. Governments use trade restrictions and subsidies to provide farmers with a stable income or consumers with cheaper bread.

April 1, 2020

Russia annual export quota. Russia introduced an export quota, effective from February to June each year, to maintain adequate wheat supplies domestically and prevent price increases. This often leads wheat sellers to accelerate exports in the first half of the season, resulting in lower export prices.

June 2, 2021

Russia weekly export tax. Russia also introduced an export tax to stabilize domestic prices, combat food inflation and increase availability of wheat domestically. This is published every week using a base price of Rb 18,000/mt and average FOB export prices for the past 60 days.

Wheat: Key price drivers

Source: S&P Global Energy

May 13, 2022

India banned wheat exports. Wheat prices surged again in 2022, just three months into the Russia-Ukraine war, when India banned exports after an extreme heat wave affected the local crop. Platts-assessed Australian APW and Russian wheat surged 3.4% and 6.2%, respectively, within a week of the ban.

June 21, 2024

Turkey banned wheat imports. Citing a need to protect domestic production, Turkey suspended wheat imports starting June 21, then introduced a series of import quota measures from Oct. 15, 2024 to March 19, 2025. Platts-assessed CIF Marmara, Turkey 12.5% fell 8.33% when the import ban was in effect.

3. Weather

As wheat develops, it is sensitive to weather conditions. Extreme cold during winter dormancy can lead to winterkill, while drought can significantly reduce yields. Frosts late in the crop year are also a problem, as France experienced in May 2024, weakening demand from its top importer Morocco.

Jan. 1, 2024

Favorable weather increases Australian output. Australia's production increased 31% for MY 2024-25 (October-September), driven by favorable weather throughout 2024, particularly October rainfall that boosted crop prospects in Western Australia. However, average protein content declined despite improved yields.

May 1, 2024 - June 30, 2024

Frosts impact Russia's wheat crop. Russia's production fell nearly 10% due to May 2024 frosts. Platts-assessed Russian 12.5% rose 18% that month as a result.

July 2025 – present

Drought delays Russian 2025 harvest. Russian wheat prices rise over 6% since the start of the new season in July, due to a delayed harvest caused by drought in Southern Russia since June. This has resulted in demurrage and congestion at loading ports. July exports fall to 2 million mt, halving compared to last year.

Processing wheat

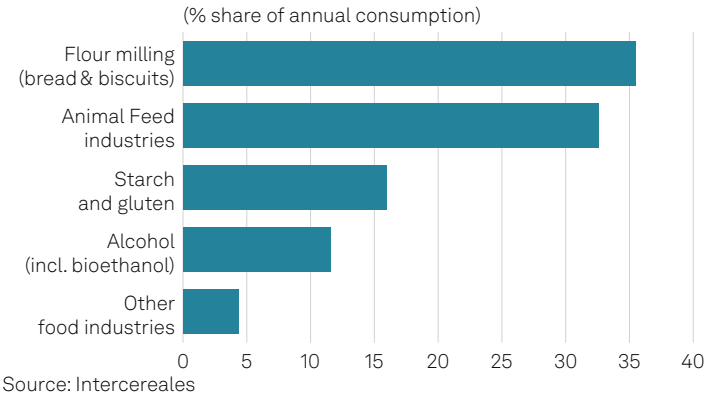
Wheat is processed into two main products: flour and bran. The milling process begins with cleaning the wheat grains to remove impurities, followed by conditioning to ensure optimal moisture content. The grains are then ground into flour, separating the endosperm from the bran and germ. The main products derived from this process are flour for human consumption, and bran, commonly used as animal feed.

In the European market, a significant portion of wheat is also allocated for biofuel production, in countries like Germany and France, where sustainability initiatives have increased the demand for biofuels.

Egypt imports about 12 million mt of wheat annually for flour processing. The imports are split evenly between the state and private sectors. The state imports wheat to subsidize flour for Baladi bread, a staple for most Egyptians, while private importers cater to various sectors: about 15% for flour exports, 33% for industrial uses like pasta and biscuits, and 53% for bakeries and direct consumers.

When milling one metric ton of wheat, a privately owned mill in Egypt produces around 720 kg of flour and 280 kg of bran. In contrast, state-owned mills, which focus on Baladi bread, achieve a higher extraction rate of 870 kg of flour.

Food, feed and fuel: Wheat consumption in France (2023-24)



Source: Intercereales

Alongside bran, lower protein wheat plays a crucial role in animal feed. It is an important component due to its high energy content and digestibility, making it a valuable ingredient in livestock diets like poultry and swine, as it supports growth and development during critical stages. For example, young chicks and piglets benefit from wheat's energy-dense properties, promoting healthy growth and weight gain. In some countries, such as Indonesia 2.6 million mt is utilized for this purpose.

France is the largest wheat producer in the EU. France's wheat processing is pivotal for domestic use in flour milling, animal feed, starch and gluten manufacturing, and alcohol production, including bioethanol.

Corn

Authors: Samyak Pandey, Victor Pereira de Carvalho (Corn); Paola Caballeros (DDGS)

Corn is the world's most widely produced crop. Most of it is used for feeding livestock. In a normal year, the US is the largest exporter.

Global trade of corn is more diversified than for soybeans, the other key input for most animals. China produces 300 million mt of corn compared with less than 20 million mt of soybeans, so is a far less significant importer.

A wider pool of key exporters – the US, Brazil, Argentina and Ukraine – have a greater choice of customers, including Mexico, the EU, Japan and South Korea.

Large-scale cultivation of corn requires more fertilizer than soybeans.

As with other crops, Brazil's share of trade has trended higher as farmers bring more land into cultivation and improve yields

Key properties

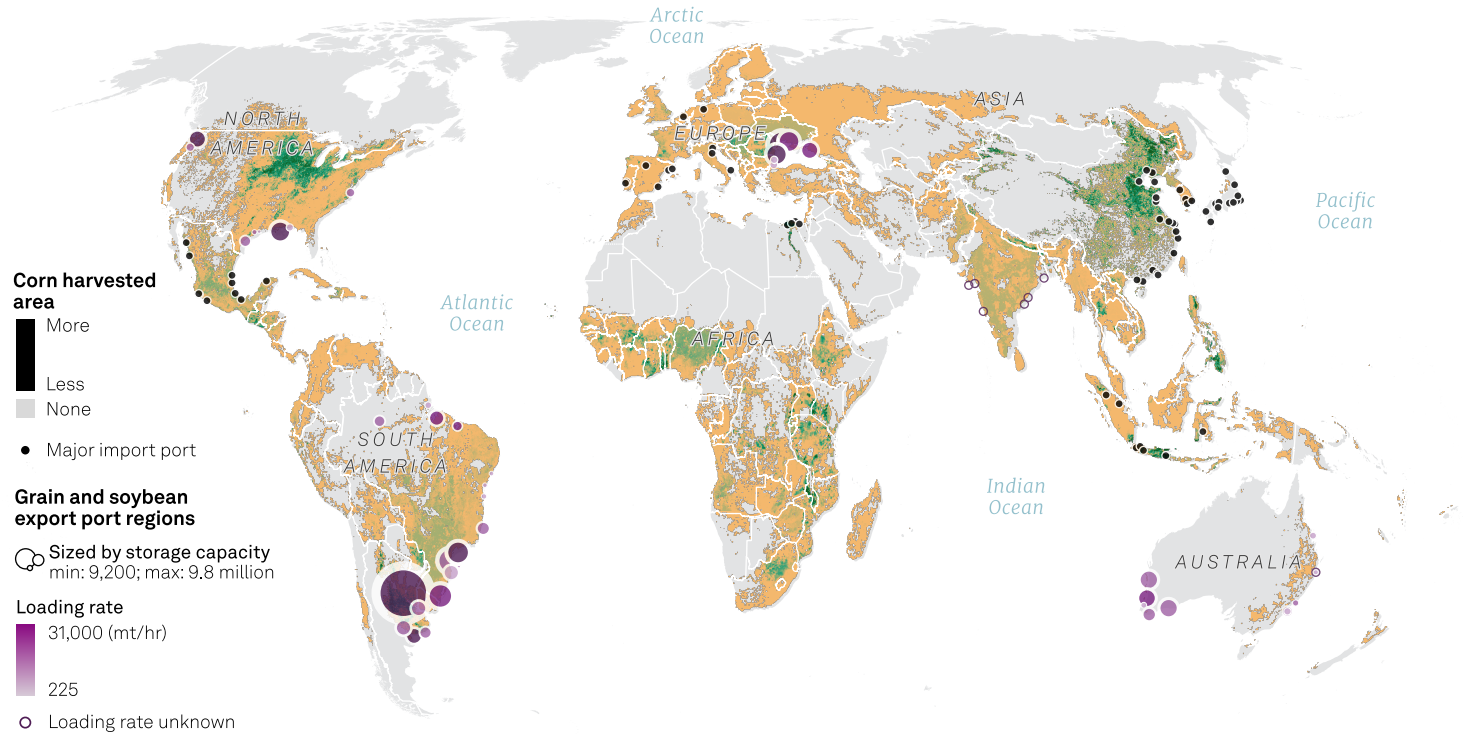
Corn production is heavily concentrated, with the US, China, Brazil and Argentina growing over 70% of global supply .

The US leads, bolstered by its Corn Belt in the Midwest, producing 31% of the world's output. China follows with about 24%, and Brazil and Argentina are significant players in South America that together account for about 15%.

The US is the top exporter, shipping around 16% of its production annually, with Mexico, Japan, and South Korea as key markets.

Mexico, which imports 5% of global corn, and parts of sub-Saharan Africa rely heavily on imports due to insufficient domestic production to meet demand, driven by population growth and limited arable land.

Global corn production and ports



Credit: Content Design
Source: S&P Global Energy, Tang F. H. M., Nguyen T. H., Conchedda G., Casse L., Tubiello F., and Maggi F. (2023). CROPGRIDS

Corn requires warm, temperate to subtropical climates, well-drained soils, and 60-100 frost-free days to thrive. In the US Corn Belt, planting occurs from April to May, with tasseling and silking in July, and harvest from September to October. US yields in 2024 averaged 183 bushels/acre, up slightly from 177.3 in 2023, despite early wet conditions in Iowa.

Brazil's crop cycle has two seasons: safra is planted September to November and harvested February to April, while safrinha is sown January to March and harvested June to August (CONAB, Brazil crop report, February 2024).

In 2024, the US faced a mixed season: early planting was hampered by wet conditions in parts of Iowa, but yields held strong at an estimated 183 bu/acre, up slightly from 2023. Brazil, however, saw its 2023-24 crop drop by 10% year over year, reducing output to 119 million mt. A drought in Mato Grosso, where rainfall was 30% below average during key growth stages, was responsible for the drop in production (CONAB, February 2024; INMET, 2024 Weather Summary).

However, Brazil is expected to produce 130 million mt in MY 2024-25, since planting was carried out within the ideal window. The climate will determine crop development in 2025.

Argentina's MY 2023-24 output dropped 5% to 52 million mt, impacted by La Niña-induced dryness reducing yields by 8% in key provinces like Cordoba (BAGE, March 2024). Lower production of 47 million mt is expected for MY 2024-25 due to the smaller planted area in favor of soybeans.

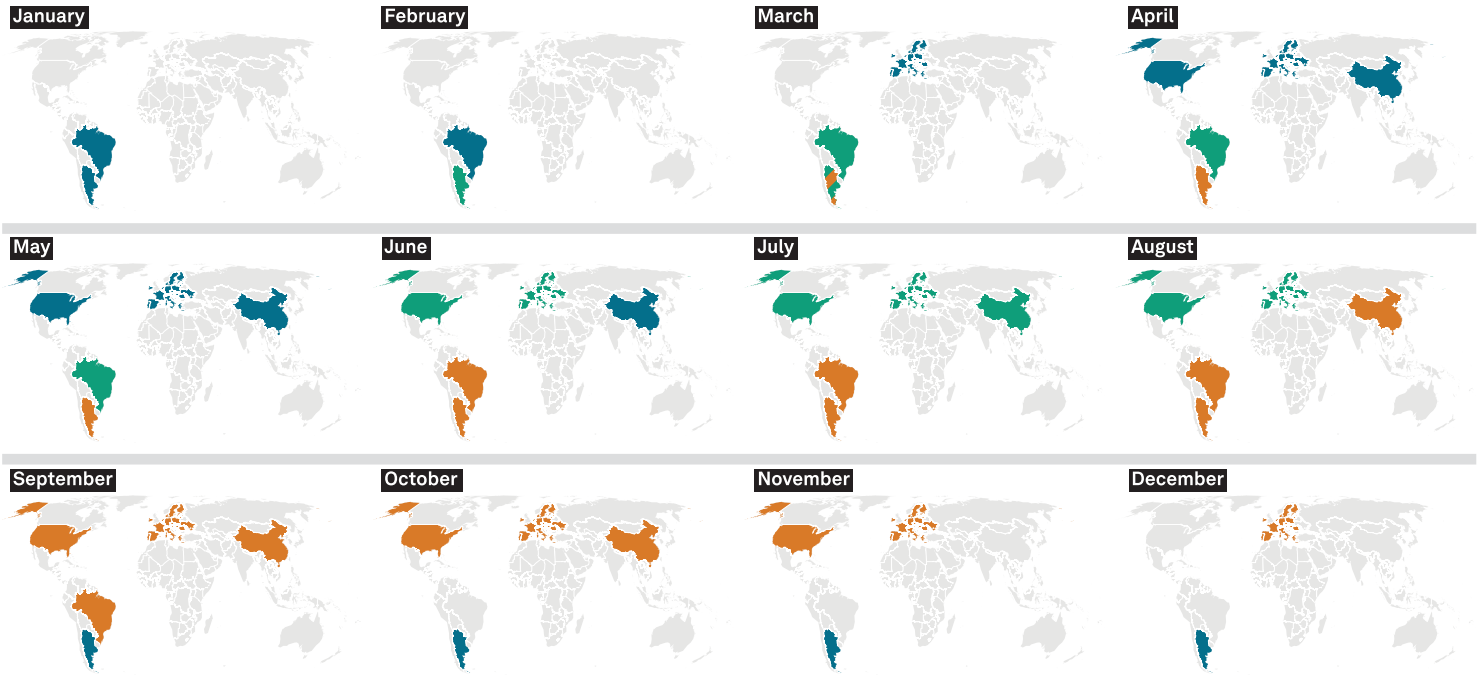
Brazil is expected to produce

130 million mt

in MY 2024-25 , since planting was carried out within the ideal window.

Global corn supply tightens between July and September, as old-crop stocks wane and new harvests are still maturing. This period often sees price volatility. In July 2024, CBOT corn futures rose 12% amid concerns over dry weather in the US Midwest and Brazil's reduced output. Argentina, meanwhile, faced a 5% production dip in 2023-24 to 52 million mt due to La Nina-induced dryness, tightening export availability and pushing prices up further.

Corn crop cycle in key producers and exporters



Note: in countries that produce multiple seasonal harvests, the most predominant is shown.

Credit: Content Design
Source: S&P Global Energy, USDA

Trade flow

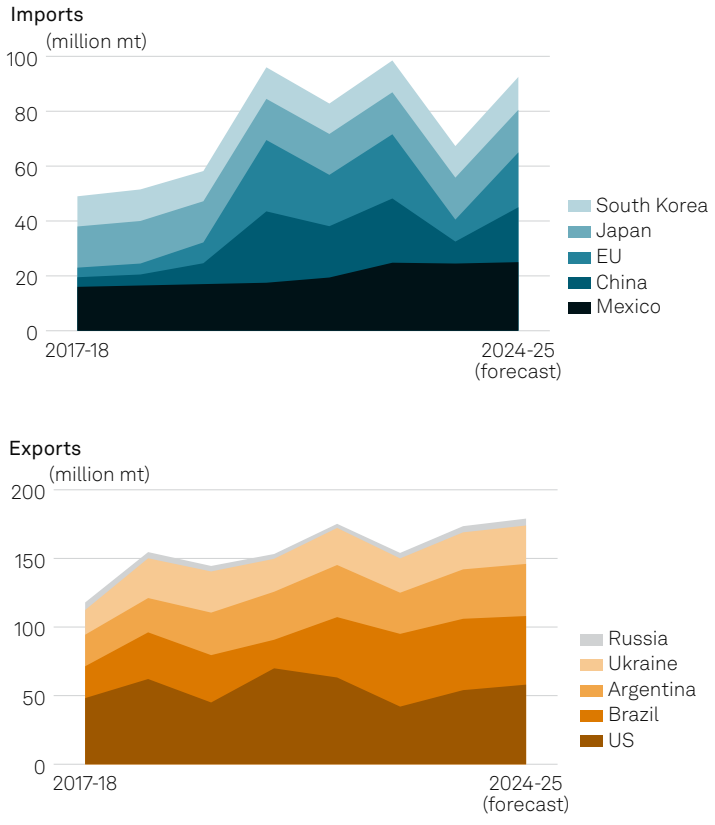
The flow of US corn to Mexico is the market's most significant trade route, capturing 24.5 million mt in MY 2023-24 (September-August) or roughly 13% of global trade. Over the past **five years**, the **US has consistently been the largest exporter of corn to Mexico, averaging 20 million mt** and accounting for over 90% of Mexico's total corn imports.

Brazil overtook the US as the world's top corn exporter in MY 2022-23 for only the second time in history. The first being 2012-13 due to a U.S. drought. Mexico has increasingly relied on US corn due to its proximity, tariff-free access under the USMCA, and Mexico's drought-driven demand for feed corn.

In recent years, as Brazil captured new markets like China with competitive pricing, Mexico faced occasional supply pressures from US planting declines and a strong dollar. During these periods, Mexico explored alternative sources like Argentina and Brazil, but the US remained the dominant supplier due to logistical advantages and established trade ties.

The European Union is the second-largest global buyer of corn, primarily sourcing around 55% of its total imports from Ukraine. The **US is the second-largest supplier** of corn to the European Union, accounting for about 17% of European imports. Asian countries including Japan, South Korea and China are also significant buyers of global corn exports. China is both the world's second-largest corn producer and a key importer.

Corn: largest importers and exporters



Source: USDA, S&P Global Energy

The harvest outlook for China in MY 2024-25 is projected at 295 million mt, second only to the **US, which is expected to produce 378 million mt**. However, for the 2024-25 crop year, China is forecasted to be the fifth-largest corn importer, purchasing 7.2 million mt. This volume is significantly lower than the average of the past five years, during which China imported around 20 million mt. If China meets its projected harvest of 295 million mt in MY 2024-25, it will mark the largest harvest ever recorded in the country, reducing its import needs.

Currently, **China's record corn production** was in the previous crop year, MY 2023-24, when the country **produced 289 million mt.**

China's record corn production was when the country produced

289 million mt

in the previous crop year, MY 2023-24

Price drivers

1. Policy

Corn is a key crop in addressing global food security, and demand is expected to keep growing.

Global annual feed use of corn is projected to rise 18.9% from 2025-26 to 947 million mt by 2034-35, according to USDA projections. As a result, several countries have developed policies that promote corn production and enhance self-sufficiency in this important food source, particularly China, the second-largest corn producer in the world.

June 21, 2023 (ongoing)

US ethanol blending mandates. In June 2023, the Environmental Protection Agency announces a final rule to establish biofuel volume requirements for 2023-2025. Lower mandates for corn-based ethanol limited the use of corn in ethanol and created a surplus for export.

Dec. 10, 2024 (ongoing)

Brazil's Renova Bio program. In December 2024, the National Energy Policy Council approved new annual carbon reduction targets by RenovaBio with goals spanning from 2025 to 2034, which boosted the ethanol production in the country and increased the domestic use of corn.

March 5, 2025 (ongoing)

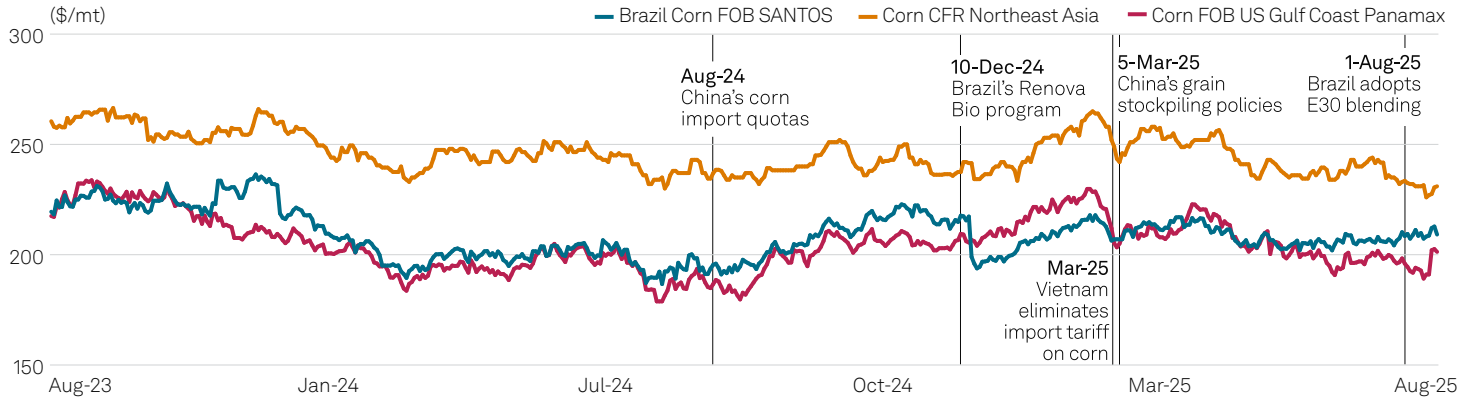
China's grain stockpiling policies. In March 2025, China raised its annual grain production target to about 700 million mt and expanded its agriculture stockpile budget, as it pushed for stronger measures to safeguard food supplies as tensions with trade partners intensify.

2. Tariffs and quotas

The US leads global corn-exporting countries, but President Donald Trump's tariff policies have created uncertainties around the flows. Brazil and Argentina are the second- and third-largest exporters of corn and have emerged as potential alternatives for corn supply to various markets, particularly China.

This has helped sustain corn prices in Brazil and Argentina, despite the advancing harvest in both countries, with expectations of a significant increase in corn supply during the months of April to August.

Corn: Key price drivers



Source: S&P Global Energy

December 2019 – January 2025

Argentina's export tax on grains. Argentina cut its 12% export tax to 9.5% starting Jan. 27 through June. Traders have expressed renewed interest in selling corn.

February 2023 – February 2025

Mexico's GM corn restrictions. The Mexican government lifted its 2023 ban on genetically modified corn import in February 2025. The end of the ban came into force days after the US and Mexico reached an agreement to postpone US tariffs on Mexican goods including corn.

August 2024 (ongoing)

China's corn import quotas. Since August 2024, Chinese corn imports have fallen as the government tries to support local farmers and boost domestic corn. About 60% of the current 7.2 million mt import quota is set to be covered by the state-owned companies.

March 2025 (ongoing)

Vietnam eliminates import tariff on corn. In March 2025, Vietnam removed its 2% import tariff of corn. This allowed feed millers to import at lower prices, but downstream buyers began to seek price renegotiations.

Weather

Weather critically impacts corn production, affecting yield and quality. Shifting weather patterns also introduces pests and diseases. Corn is sensitive to weather: extreme heat during pollination cuts yields, as seen in the 2024 U.S. Midwest heatwave. Drought stresses crops, while heavy rains, like those in Brazil in early 2025, delay harvests and lower quality, affecting exports to China.

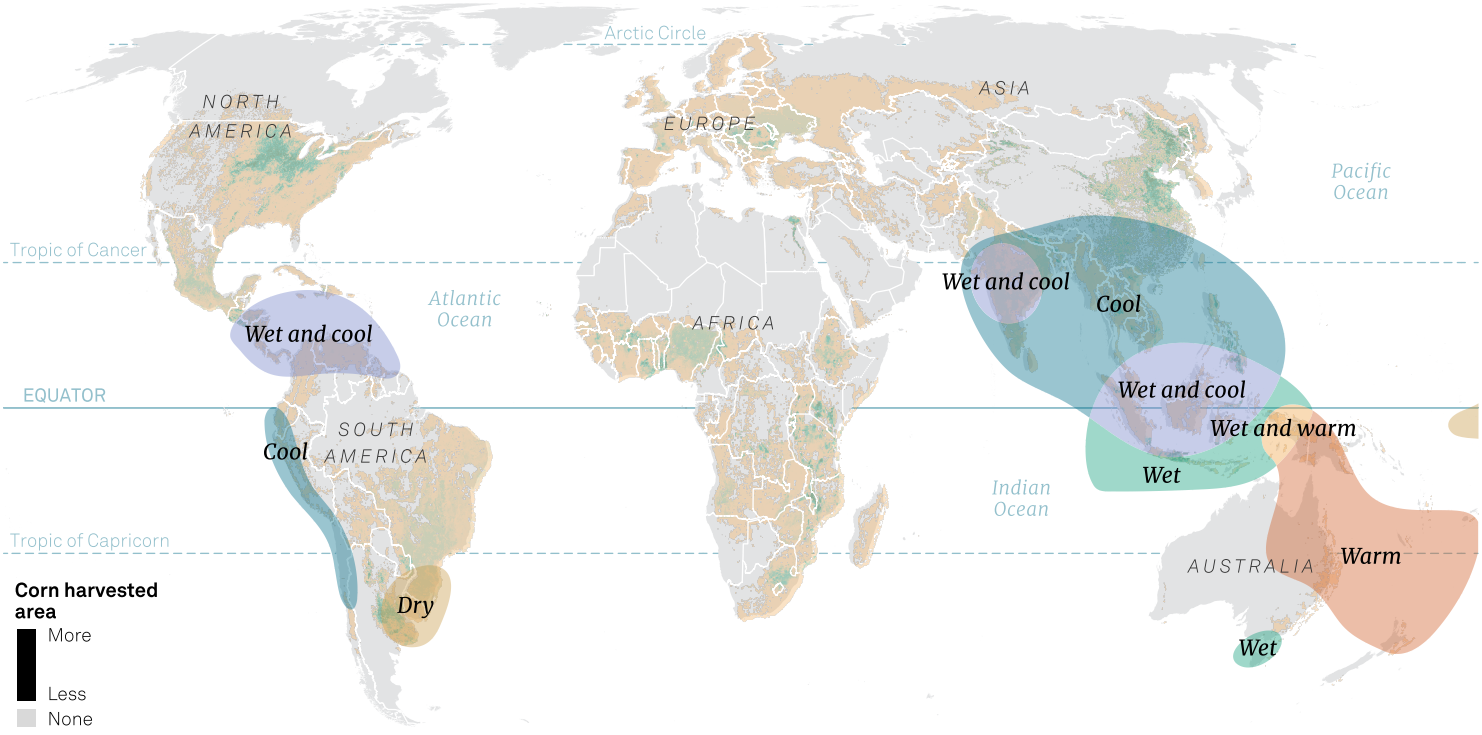
US Corn belt weather variability: The US Corn Belt experienced significant weather fluctuations in 2024, including extreme heat and variable rainfall. This led to regional disparities in corn yields, with some areas achieving impressive outputs of 270-300 bu/acre, while others faced reductions due to drought and disease pressures.

El Niño and La Niña Global climate patterns, particularly El Niño and La Niña, have influenced Midwest weather. For instance, the transition from an El Niño winter to a La Niña summer has often resulted in hot and stormy conditions in the Corn Belt.

Super El Niño 2023/24: Began September 2023, peaking in December 2023 and persisted in April 2024. Weak La Niña by August 2024

South American production shifts Brazil and Argentina have seen changes in their corn production due to weather variability.

Corn weather effects - La Niña summer



Credit: Content Design
Source: S&P Global Energy, NOAA, Tang F. H. M., Nguyen T. H., Conchedda G., Casse L., Tubiello F., and Maggi F. (2023). CROPGRIDS

Favorable climatic conditions in Brazil led to a 9.4% increase in corn production during the 2021-22 harvest, despite a 2.3% reduction in sown area. Such production shifts influence global supply and trade dynamics, as these countries are major corn exporters.

Brazil had weak **La Niña August 2021-April 2022** brought above-average rain to Brazil's Midwest. Argentina La Niña (August 2021-April 2022) cut rainfall 30%-40% below normal in Pampas.

Approximately

28.9%

of the corn mass going into ethanol, 1.7% into corn oil, and 32% into DDGS.

Processing corn

Corn, also known as maize, is processed in two primary ways: wet milling and dry milling. In wet milling, corn is steeped in water and then separated into starch, fiber, protein (gluten), and oil. This process yields high-fructose corn syrup, corn oil, ethanol, and byproducts like corn gluten feed and meal.

In dry milling, commonly used in the US, corn is ground to produce ethanol, distillers dried grains with solubles (DDGS), and carbon dioxide. According to the USDA, nearly 40% of U.S. corn production is used to produce ethanol. The US is the world's largest producer and exporter of corn and also dominates the global ethanol market, with Chicago serving as a key benchmark location for corn and ethanol pricing.

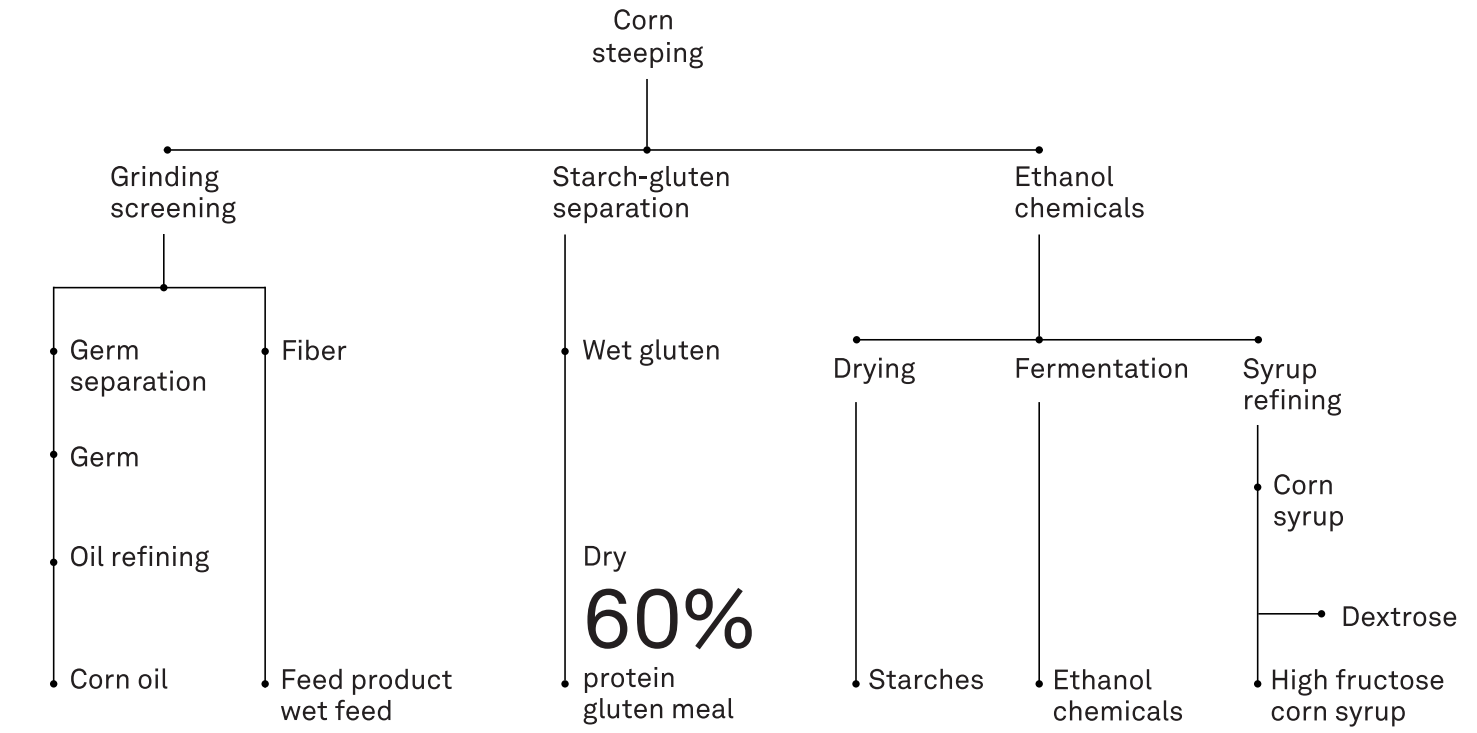
Brazil, another major player, uses corn increasingly for biofuel, particularly in its Center-West region, with support from RenovaBio.

For every metric ton of corn processed in **dry milling in US, about 378 liters of ethanol, 17 kg of corn oil,** and around 320 kg of DDGS are produced (USDA, 2024). DDGS are used in animal feed, adding value to the ethanol production chain.

This **translates to approximately 29.8% of the corn mass going into ethanol, 1.7% into corn oil, and 32% into DDGS.** The remaining 36.5% accounts for moisture loss, carbon dioxide released during fermentation, and other minor byproducts.

By comparison, milling one metric ton of corn in **China** typically yields about 650 kg of starch, 100 kg of corn oil, 200 kg of DDGS, and 50 kg of other byproducts, though exact ratios vary by mill efficiency.

Corn processing



These figures correspond to 65% starch, 10% corn oil, 20% DDGS, and 5% other byproducts.

The main products from corn processing are ethanol and DDGS. Ethanol is blended into gasoline for energy security and emissions reduction, mainly sold through refiners and fuel retailers. Pricing is market-based in the US, but government blending mandates influence demand.

DDGS are distributed through bulk transport and exported to markets like China and Vietnam.

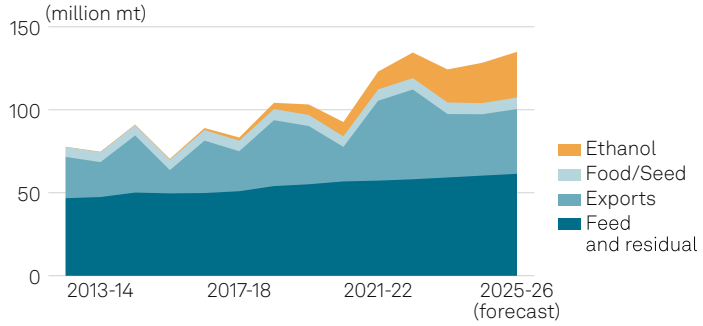
Corn is also critical in animal feed. Its high energy content makes it a staple for poultry, hog (pork), and cattle (beef). It provides carbohydrates necessary for growth and weight gain, especially in the early stages of development.

Corn's versatility extends beyond feed and fuel. Cornstarch thickens soups, HFCS sweetens sodas, and corn oil fries snacks.

Substitutes include sorghum, barley, and wheat, used depending on price and availability. Corn also appears in numerous everyday products cornstarch, sweeteners, cereals, and snacks demonstrating its vast implication in global food and energy systems.

An example of corn usage over time is the rapid increase in its utilization for ethanol in Brazil, as shown in chart above. In the MY 2012-13, production was nearly zero at 0.1 million mt, and it is expected that by the MY 2025-26, corn usage for ethanol will reach 20% of the total in the country.

Brazil corn use



Source: S&P Global Energy

DDGS

Key properties

Distillers Dried Grains with Solubles (DDGS) is a high-protein co-product of corn-based ethanol production, primarily used in livestock and aquaculture feed. It is rich in protein (typically 26%), relatively high in nutrients, and has high energy value due to its fat and fiber content. This makes DDGS an attractive ingredient in animal feed, particularly for poultry, ruminants, and shrimp.

Top exporters and importers

The US is the world's largest producer and exporter of DDGS. In 2024, total US DDGS exports reached 12.22 million mt, the second-highest on record. Other significant exporters include Brazil (800,000-1 million mt in 2024), which has recently entered the market, and India (287,593 mt in 2024), which has been increasing its share in global exports. The top DDGS global importers are Mexico, South Korea, Vietnam, Indonesia and Canada.

1. Policy

Ethanol production levels are central to DDGS supply, and policy decisions in major producing countries directly affect output.

June 2023

EPA finalizes US ethanol blending mandates. The EPA finalizes the first "Set Rule" under the Renewable Fuel Standard, establishing biofuel blending requirements for 2023-25.While corn-based ethanol targets were lower than some expected, the continued expansion of E15 blending supports ethanol and DDGS production.

September 2023

Corn futures movements. A correction in corn futures triggers a decline in DDGS values. High soybean meal prices support DDGS, but as soybean meal prices decline, DDGS follows.

August 2024

Ethanol plant maintenance season. DDGS values usually slip during ethanol plant maintenance season. Limited seasonal production typically supports the market, but weak export demand from top importer Mexico keeps prices subdued.

December 2024

Brazil boosts ethanol output. Brazil's National Energy Policy Council approves new carbon reduction targets for 2025-2034, boosting ethanol output and increasing domestic corn use. These updated targets continue to influence DDGS supply. Brazil's RenovaBio program was established in 2017 to promote low-carbon biofuels in Brazil and support ethanol production.

June 2025

EPA proposes second biofuel mandates. The EPA issued its second "Set Rule," proposing renewable fuel volume obligations for 2026 and 2027. This marks a shift to shorter year targets, and the EPA sets the annual RFS targets.

July 2025

India expands ethanol blending. India reaches an average blending of 19.93%, nearing 20% targeted for the ethanol supply year 2025-26. India's Ethanol Blend Petrol Programme was launched in 2003 targeting 5% ethanol blending in select states. Significant policy changes occurred in 2006-2014, expanding the program nationwide.

2. Global trade

Export opportunities and trade agreements continue to shape DDGS flows and pricing dynamics.

February 2025

Price inversion. External demand, tight supply, and elevated barge freight rates cause prices to gain support, increasing DDGS values. It is noted that the forward curve at this time, suggests a potential price inversion in the months forward.

April 2025

Brazil seeks access to China market. Brazil and China start talks on market access, focusing on granting Brazilian DDGS export rights. Discussions address quality standards required by China and set the stage for Brazil to enter a market historically dominated by US suppliers

May 2025

Brazilian DDGS quality approved for export. Brazil secures quality approval for DDGS exports to China during President Luiz Inacio Lula da Silva's visit, introducing a new competitor into the global marketplace and adding a fresh source of supply.

July-August 2025

US DDGS exports strengthen. June US exports to South Korea rise 18% and to Vietnam 1% compared to May 2025, following tariff-related trade talks. Colombia's imports jump 167% on strong ruminant feed demand. While Mexico's rainy season weakens buying, export strength keeps prices stable yet firm. In the European market, demand for DDGS maintains stability, preferring US and European sources due to consistent quality.

3. Seasonal and weather factors

Seasonal and weather conditions significantly influence DDGS demand, logistics, and supply.

September 2024

High temperatures, low river levels. Warmer-than-average temperatures reduce livestock feed demand in Mexico, affecting imports. In the US, falling water levels in river systems feeding into the US Gulf Coast raise barge freight rates, providing some price support.

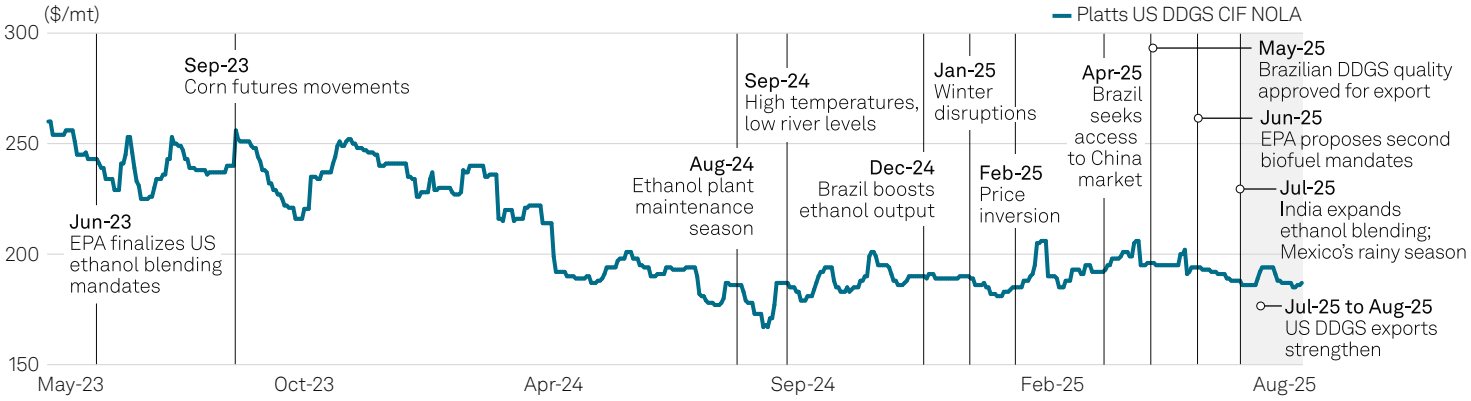
October 2023

Winter disruptions. Cold US winters can disrupt river navigation, limiting shipments and increasing freight costs. Falling water levels in US river systems feeding the Gulf Coast also temporarily raise barge rates, supporting market values.

July 2025

Mexico's rainy season. Rainy season in Mexico decreases DDGS demand as pasture conditions improve for cattle grazing.

DDGS: Key price drivers



Source: S&P Global Energy

Soybean

Authors: Desiré Sigaudo, Elizabeth Machuca

The world's main oilseed is processed to produce meal and oil. China's crushing plants rely on supplies from Brazil and the US.

Key properties

Soybeans have a growing period of around four months and are more resilient to drought than corn and wheat.

Thanks to Brazil's proximity to the equator, farmers in key regions can plant and harvest a corn crop and a soybean crop from the same field in a single year, a process known as double cropping.

In the fight for orders from China, these Brazilian farmers enjoy a cost advantage over counterparts the US Midwest, where the climate does not support double cropping.

Each year, these farmers must assign a field to either corn or soybeans, not both.

The land will usually yield a far bigger corn crop, but soybeans fetch a higher price by volume.

Farmers in this region therefore chose which of the two crops to plant based on the soybean-to-corn price ratio.

When the price of soybeans is 2.5 times the price of corn or more, farmers are expected to allocate a greater area of their farmland to soybeans in the next crop cycle, whereas when the ratio is 2.3 or less, farmers will make the opposite switch.

Global production

Soybean production is heavily concentrated in the Americas, which account for 80% of global output.

South America contributes more than half of that total, and North America just under a third. Brazil alone provides most of the world's traded soybeans, well ahead of the US . On the demand side, China buys more than half of globally traded soybeans.

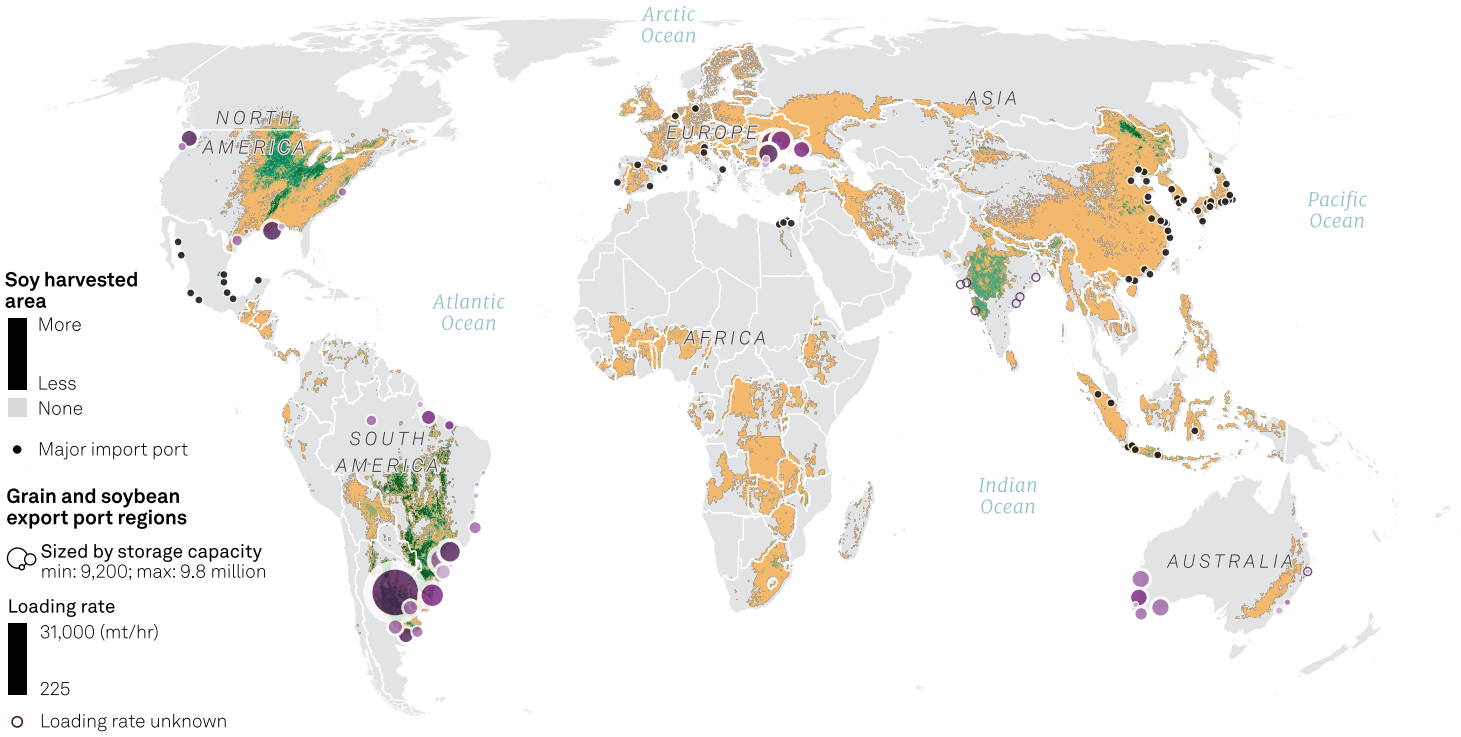
Soybean availability in global markets follows a seasonal cycle driven by the crop calendars of the main producing regions. In the US, soybeans are typically planted between April and June, with the critical growth stage occurring in July and August.

Soybean production is heavily concentrated in the Americas, which account for

80%

of global output.

Global soy production and ports



Credit: Content Design
Source: S&P Global Energy, Tang F. H. M., Nguyen T. H., Conchedda G., Casse L., Tubiello F., and Maggi F. (2023). CROPGRIDS

Soybean availability in global markets follows a seasonal cycle driven by the crop calendars of the main producing regions. In the US, soybeans are typically planted between April and June, with the critical growth stage occurring in July and August. During this period, adequate rainfall is crucial, and any drought stress can significantly impact yields and global prices. Harvest usually takes place between September and November, when US soybeans begin to flow into international markets.

In South America, the cycle is offset by several months due to its Southern Hemisphere growing season. In Brazil, planting begins around October, with the critical development period spanning November to December. Harvest begins in January and peaks between February and March. Argentina follows a similar timeline but lags slightly behind Brazil. As a result, global soybean supply is relatively well-distributed throughout the year, with the US dominating exports in the final quarter and early part of the year, while South American crops begin to dominate trade flows from late Q1 through mid-year.

Soybean crop cycle in key producers and exporters

Note: in countries that produce multiple seasonal harvests, the most predominant is shown.

Credit: Content Design
Source: S&P Global Energy, USDA

Trade flow

The most significant trade flow for soybeans is from Brazil to China, which represents over 40% of global trade in the oilseed. The soybean trade has grown sharply in recent marketing years. S&P Global Energy forecasts global exports for MY 2024-25 marketing year to reach a record high of 191 million mt, marking a 25% increase from MY 2017-18.

The 28 million mt increase was driven primarily by Brazilian soybeans, which accounted for 88% of the increase. Brazilian exports in 2024-25 are expected to be 43% higher than in 2017-18. To meet the rising international demand, Brazil has significantly expanded its planted area, experiencing the highest production growth among the top exporters.

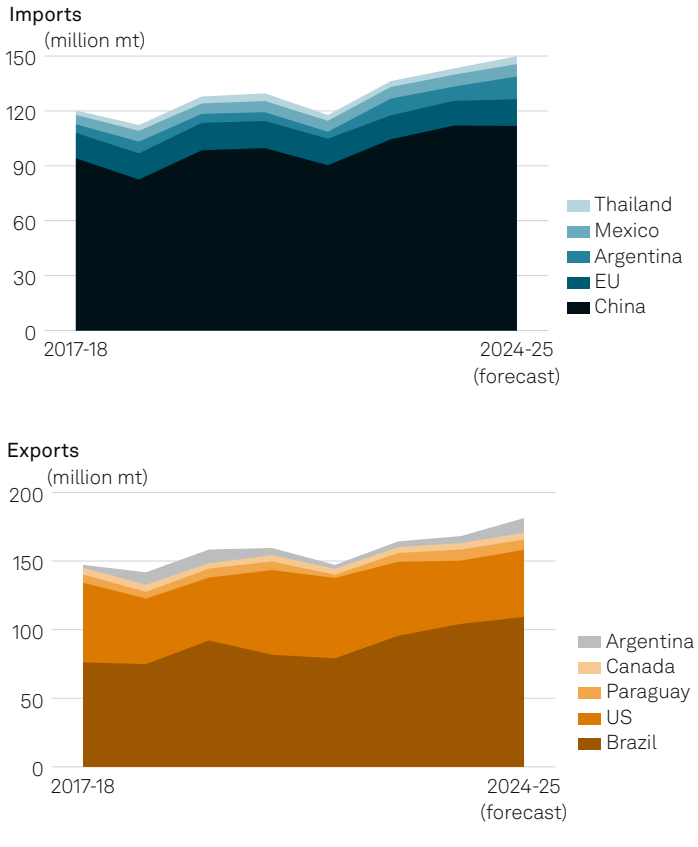
In contrast, US soybean exports are expected to decline by 15% in 2024-25 compared to 2017-18, largely due to increased domestic crush driven by rising demand for soybean oil for renewable diesel, supported by policies like the Renewable Fuel Standard and the biodiesel blender's tax credit.

Brazil to China trade flow represents over

40%

of global trade in the oilseed

Soybean: largest importers and exporters



Source: USDA, S&P Global Energy

Key soybean price drivers

1. Policy

Biofuel policies and farmer incentives heavily influence soybean production and prices. In the US, biofuel mandates drive demand for soybeans as a key feedstock for biodiesel and renewable diesel. Similarly, Brazil's biodiesel blend requirements boost domestic soybean use.

February 2022

Russia-Ukraine war. The conflict disrupts grain and fertilizer supplies, driving up soybean demand as corn and wheat become less available.

December 2023

Lower US crushing demand. New Environmental Protection Agency blending mandates reduce US crushing demand, favorable weather boosts crops in Brazil and the US.

2. Tariffs and quotas

Trade restrictions, such as tariffs and quotas, heavily affect the soybean market, where few major players dominate. China's tariffs on US soybeans disrupted traditional flows, sharply cutting US exports while boosting imports from Brazil and Argentina. This shift has driven price changes and increased global market volatility and uncertainty.

October 2018

Soybean oversupply from trade dispute and strong harvest. A larger-than-expected US harvest during the US-China trade dispute led to an oversupply as US exports to China plummeted

3. Weather

Soybean plants require about 50-70 mm of rainfall a week during their critical growth period, which occurs primarily during flowering and pod development. Adequate rainfall is essential for maximizing yields, but excessive rainfall can cause flooding and harm root development, while drought can stress the plants, reduce pod formation, and lower yields. In Mato Grosso, Brazil, the critical period typically spans from November to December.

April 2020

China ramps up soybean imports post-ASF. To rebuild its hog herd after the 2019 African Swine Fever outbreak, China resumed large-scale soybean imports, including from the US.

December 2021

La Niña cuts Brazilian Soybean yields. Drier-than-usual conditions from La Niña reduced Brazil's 2021/22 soybean crop yields.

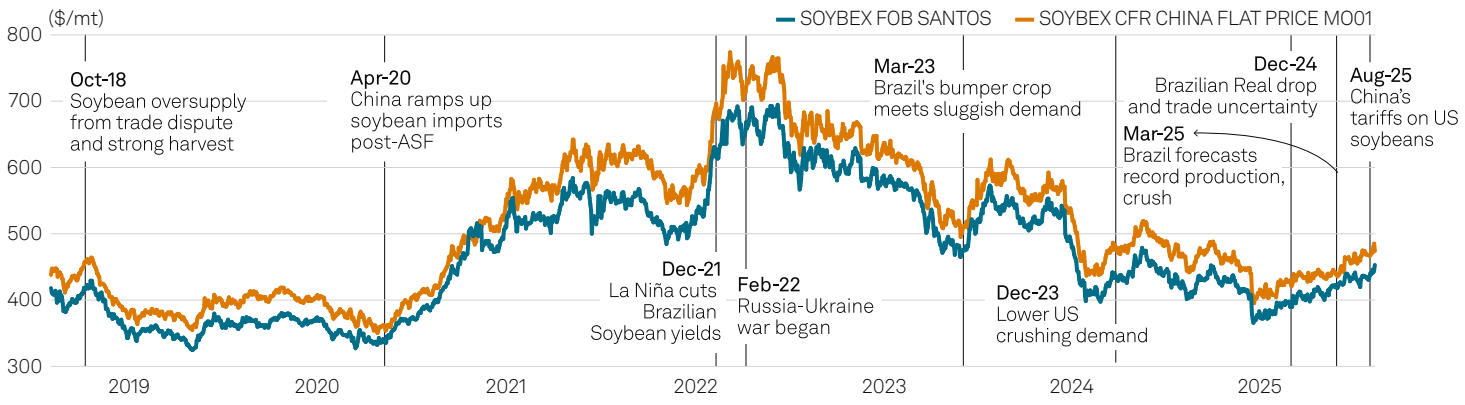
March 2023

Brazil's bumper crop meets sluggish demand. The record 2022/23 Brazilian soybean crop entered the market amid slower feed demand, especially from China.

December 2024

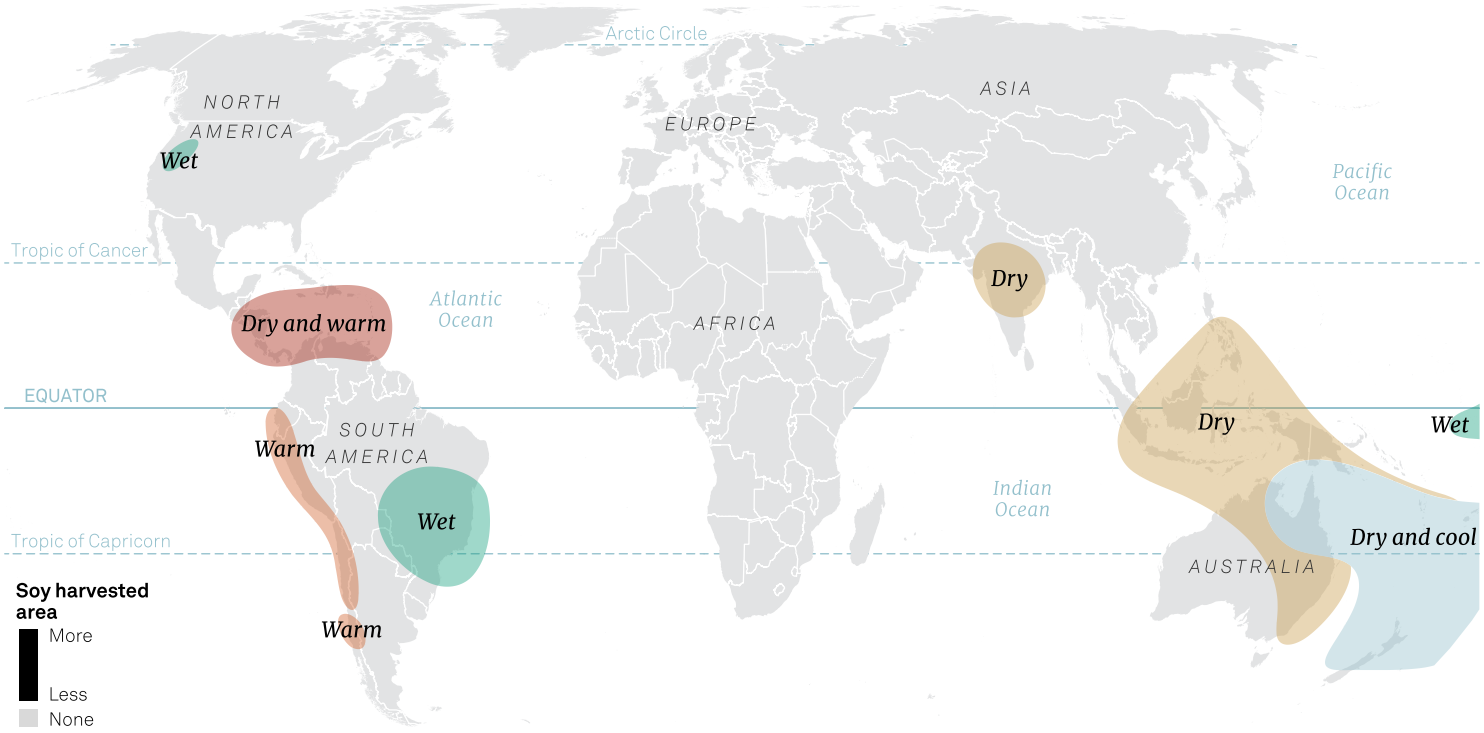
Brazilian Real drop and trade uncertainty. A 27.4% depreciation of the Brazilian Real in 2024, record-high global production, and potential new US tariffs from the incoming US administration reshaped the market.

Soybean: Key price drivers



Source: S&P Global Energy

Soy weather effects - El Niño summer



Credit: Content Design
Source: S&P Global Energy, NOAA, Tang F. H. M., Nguyen T. H., Conchedda G., Casse L., Tubiello F., and Maggi F. (2023). CROPGRIDS

Soybean Processing

About 86% of the global soybean harvest is processed by the crushing industry to extract soybean oil and soybean meal. The remaining 14% of soybeans grown worldwide are consumed directly as human food, animal feed, or seeds.

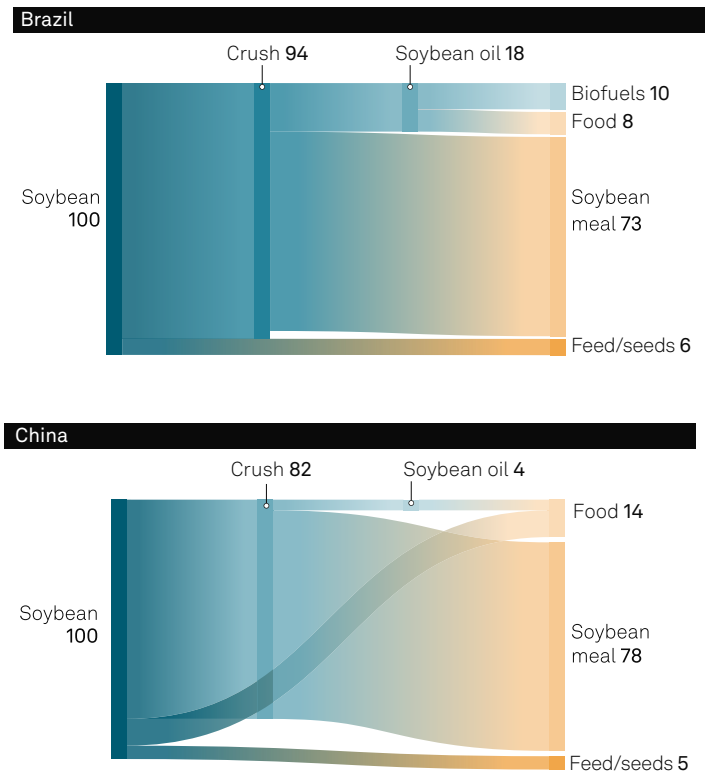
Historically, the value of soybeans has been primarily determined by its most significant byproduct: soybean meal. In 2000, soybean meal accounted for two-thirds of the value generated from crushing soybeans, while oil made up one-third. In recent years, however, oil has contributed about 45% of the value derived from soybean processing, nearing parity with meal.

Oil has contributed about

45%

of the value derived from soybean processing in recent years.

Processing Soybeans: Brazil and China



Source: S&P Global Energy

Soybean oil

On average, crushing soybeans yields 19% oil—significantly below the extraction rates of other oilseeds such as sunflower seed (42%) and rapeseed (41%). Soybean oil is in demand for both food and as a feedstock to produce biofuels.

China, the US, Brazil, India, and the European Union account for three-quarters of global soybean oil consumption, but they use it in different ways. While China and India use all soybean oil for food, the US, Brazil, and the EU split their consumption roughly equally between food and fuel. Overall, 78% of total soybean oil is used for food, while 22% serves as a feedstock for the biofuels industry.

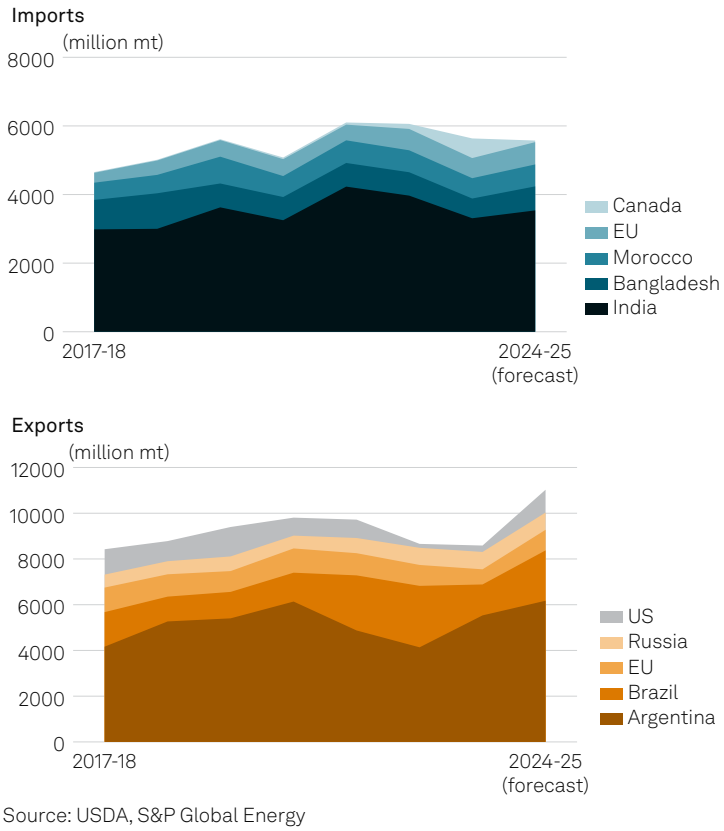
Argentina is the largest exporter, while India is the largest importer.

Soybean oil prices

The Platts benchmark assessment for Soybean Oil shows the FOB price at the Up River port areas—San Lorenzo, Rosario, and San Nicolás—along the Paraná River in Argentina.

Biofuel regulations in the US and Brazil influence the availability of soybean oil for international trade.

Soybean oil: largest importers and exporters



Source: USDA, S&P Global Energy

Soybean meal

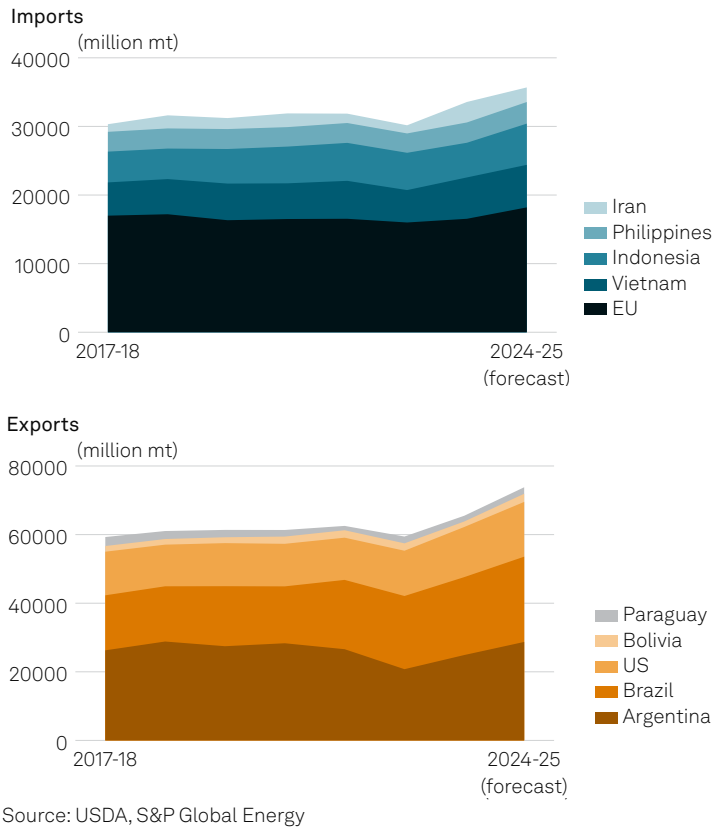
In addition to oil, soybean crushing produces about 78% soybean meal. Soybean meal is the leading protein source used in the animal feed industry. The largest meat-producing regions are China, the US, the EU, and Brazil. While China, the US, and Brazil have sufficient crushing capacity to produce enough soybean meal to meet their domestic feed demands, the EU does not. As a result, the EU has become the world's largest importer of soybean meal. Its primary supplier is Argentina—a country with significant crushing capacity, but relatively low domestic demand for soybean meal, due to its smaller population and meat industry compared with other major soybean-crushing nations.

With a crude protein content of 44-48%, soybean meal is rich in amino acids and serves as an excellent complement to lower-protein feed components such as corn. Soybean meal is highly digestible for monogastric animals, such as pigs and chickens, which contributes to its widespread use across various livestock sectors. Globally, the poultry industry is the largest consumer of soybean meal, followed by the pork, cattle (both dairy and beef), and aquaculture industries.

Soybean meal prices

The Platts benchmark assessment for Soybean Meal shows the FOB price at Up River port areas—San Lorenzo, Rosario, and San Nicolás—along the Paraná River in Argentina.

Soybean meal: largest importers and exporters



Source: USDA, S&P Global Energy

Meat production

Authors: Beatriz Baltieri, Graham Style (Chicken); Renan Araujo (Beef); Desiré Sigaudo, Nuo Geng Chen (Pork)

The US, Brazil and the EU lead exports for chicken, beef and pork, respectively.

Animal feed is the end purpose for much of the world's grain and meal, and growing prosperity has accelerated consumption of beef, pork and poultry.

Beef is typically more expensive than pork and chicken. In Australia, cattle must be fed 6 kg of feed and fodder to add 1 kg in weight. That multiple, known as the feed conversion ratio, is around two for pork in Spain and chicken in Brazil.

Of the three proteins, poultry often has the most consolidated supply chains with many of the largest processors also producing feed. For pork and beef, where animals the age at harvest is significant, the cattle cycle plays out over several years, magnifying supply and demand imbalances. Finally, cows, pigs and chickens are all sensitive to disease, and China's outbreak of African swine fever constrained demand for feed for several years.

Chicken

Key properties: Chicken

Consumption (per capita /kg per year)	Feed conversion ratio (kg feed/1 kg weight gain)	Age at harvest (months)	Most-commonly traded form	Typical feed consumption (%)
45.1	1.7	1.5	• Skin-on boneless legs • Skinless boneless breast • Feet and paws • Wings	Wheat 0 Corn 56.5 Soybean meal 34.9 Others 8.6

Key properties

Chicken is the most traded protein globally and the second most produced. The US contributes over 20% of worldwide poultry production, yet it consumes more than 85% of its total output. Brazil ranks as the third-largest poultry producer, following China, and the leading exporter, responsible for 35% of total chicken exports in 2024.

The poultry production cycle spans approximately 45 to 50 days from hatching to harvest. Feed constitutes the largest production expense, accounting for nearly 70% of total costs, depending on the region. Typically, chicken feed in Brazil consists of 56%-60% corn and 30%-35% soybean meal.

Frozen cuts dominate chicken exports, with Brazil's most traded product being boneless chicken breasts, primarily imported by Saudi Arabia, Mexico, the UAE, and the EU. Boneless chicken legs are also significant, with Japan importing 50% of the total.

Poultry serves as a crucial source of animal protein in many regions and remains the world's most affordable protein option. In Brazil, per capita poultry consumption in 2024 was 45.1 kg/capita, while in the US, it exceeded 54 kg/capita annually, largely due to a significant reduction in beef supply, which has shifted domestic demand toward chicken. Asian countries, such as Japan and China, consumed 23.6 kg and 10.67 kg/capita, respectively. The EU also plays a notable role in consumption, with an average of 23.3 kg/capita in 2024.

The US contributes over

20%

of worldwide poultry production.

Price drivers

1. Policy

Policies play a crucial role in global poultry supply and demand dynamics.

Brazil's export halts in 2024 significantly reshaped supply during the period of enforcement, exerting downward pressure on prices.

July 19-25, 2024

Brazil suspends chicken exports after Newcastle outbreak. In July 2024, Brazil voluntarily suspended poultry exports to 44 countries after confirming a Newcastle disease case in Rio Grande do Sul. Once the ban was lifted 25 days later, prices began to decline due to an oversupply created by the backlog of shipments sent simultaneously to their destinations. The Platts price assessment for boneless chicken breasts CIF Middle East fell by $200/mt over the month of July 2024.

2. Tariffs and quotas

Tariffs impact the poultry sector by increasing import costs, which can boost domestic production and protect local producers. However, this often results in higher consumer prices and market distortions. Tariffs can also provoke retaliatory measures from trading partners, complicating export opportunities and disrupting global supply chains.

Feb. 24, 2023 (ongoing)

EU and UK maintain TRQs on Brazilian chicken. The EU and UK continue to impose tariff-rate quotas on Brazilian chicken, limiting volumes that can enter at lower tariffs. This has restricted Brazil's ability to expand in high-value markets and shifted trade flows to Asia and the Middle East.

Jan. 1, 2024 (ongoing)

Saudi Arabia boosts domestic poultry production. Under its Vision 2030 strategy, Saudi Arabia increased local poultry support and tightened import quotas. As a key growth market for Brazilian exporters, this change redirected whole chicken trade to other destinations and contributed to a more competitive export environment.

3. Weather

Weather can significantly impact poultry prices by affecting production yield, feed costs and supply and logistics. The floods in Rio Grande do Sul state in Brazil, for example, disrupted production and damaging infrastructure.
Feed supply was affected, raising costs for producers.
Transportation challenges hindered product distribution, resulting in supply shortages and higher prices in local and export markets.

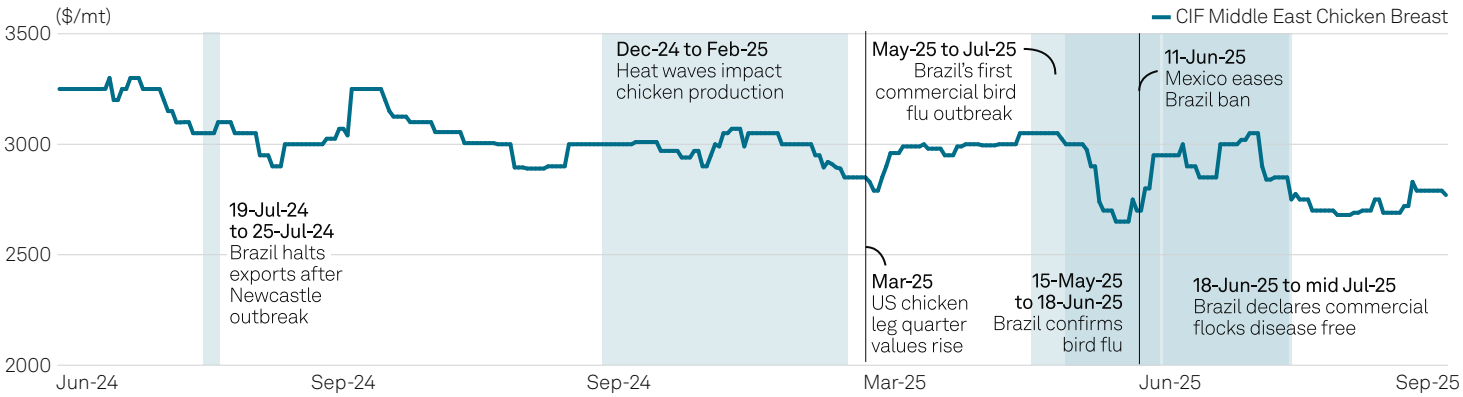
December 2024 - February 2025

Heat waves impact chicken production. Heat waves among the production regions in Brazil have hurt chicken and egg production, significantly increasing mortality and reducing egg productivity.

May - June 2024

Floods in Rio Grande do Sul. Flooding caused an estimated Real 182.9 million in damages to the poultry sector in Rio Grande do Sul, including structural damage to 200,000 properties and the loss of over 1 million chickens. Producers faced Real 13.61 million in damages to genetics and fertile eggs, severely impacting operations.

Chicken: Key price drivers



Source: S&P Global Energy

4. Disease

Disease outbreaks, such as bird flu in the US and Poland, significantly impact global poultry prices by reducing supply through flock culling and production losses. Import bans from affected regions further constrain supply, leading to price volatility. EU chicken breast prices increased in response to supply shortages from Poland, its main supplier, redirecting its demand to Brazil and further supporting prices.

July 17 - 25, 2024

Newcastle outbreak halts exports. A Newcastle disease case on a commercial farm triggered an immediate export suspension to dozens of countries. Roughly 7,000 birds were culled in Anta Gorda, Rio Grande do Sul. Exporters faced logistical delays and price uncertainty until restrictions were lifted after containment was confirmed.

"Brazil's exports to China are the most significant trade flow in the global poultry market, representing 4% of global exports, according to USDA data."

Brazilian chicken imports to China grew at an average rate of

14.5%

driven by increased demand

March 2025

US chicken leg quarter values rise in March even as exports continue to decline: USDA. In March, US frozen chicken leg quarter exports fell to 106,000 mt, the lowest in nearly five years, yet the value reached its highest since Q3 2022 at $1,144/mt. Bird flu has impacted global marketability. China, for example, has banned imports of chicken from 36 US states, including all of the largest producers such as Georgia, Alabama and Arkansas.

Trade flow

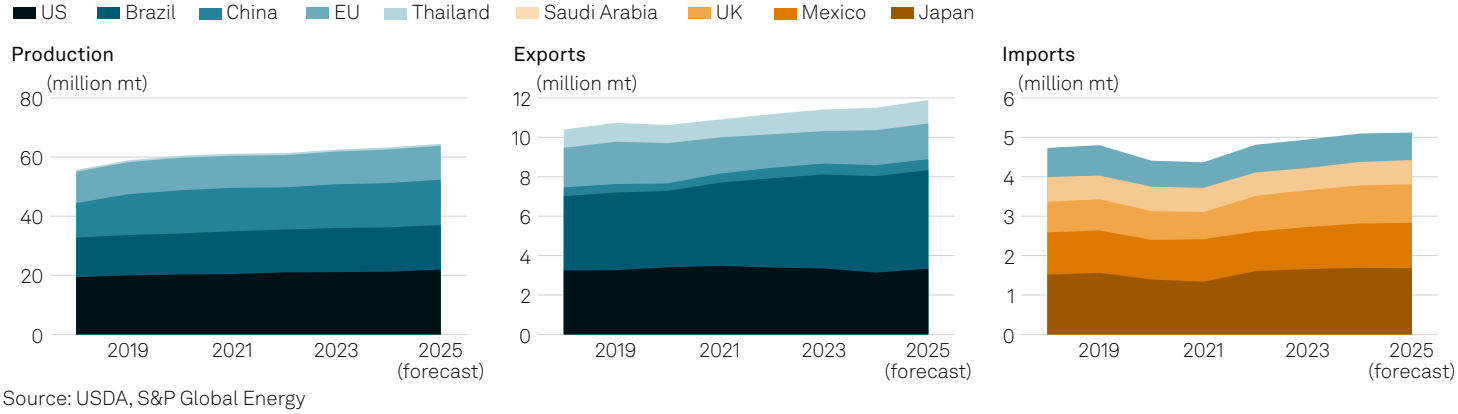
Brazil's exports to China are the most significant trade flow in the global poultry market, representing 4% of global exports, according to USDA data. China imported 562,200 mt in 2024, down 17.6% from 2023, accounting for 11% of Brazilian exports that year.

China imports a range of chicken cuts from Brazil, with over 40% consisting of chicken wings and another 30% made up of chicken feet and paws, according to the Brazilian Association of Animal Protein.

This trade flow has undergone significant changes in recent years. From 2018 to 2021, Brazilian chicken imports to China grew at an average rate of 14.5%, driven by increased demand due to a pork supply shortage amid African Swine Fever. However, following the recovery from ASF, China's domestic chicken production increased, leading to reduced pressure on imports from Brazil.

In 2023, China's chicken production was heavily impacted by Highly Pathogenic Avian Influenza, coinciding with a dramatic reduction in imports from the US and Thailand. This situation enhanced Brazil's importance as a supplier, resulting in a 26.4% increase in imports from Brazil. However, as China stabilized its production, Brazilian exports to China fell by 17.8% in 2024 compared to 2023.

Chicken: largest producers, importers, and exporters



Source: USDA, S&P Global Energy

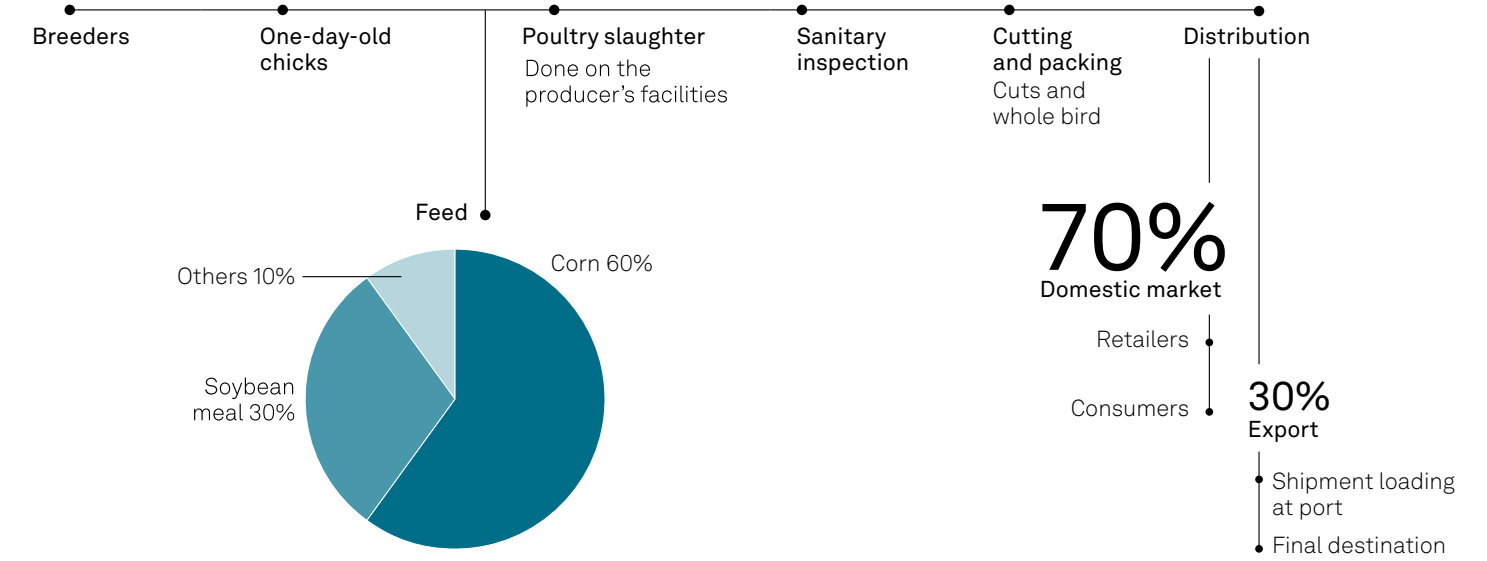
Processing chicken

Breeders are maintained by chicken processors. Once eggs hatch, chicks receive vaccinations before being sent to integrated growers for 30-45 days of feed supplied by the processor. Once reaching the desired processing weight, the chickens are returned to the processing facility for slaughtering and inspection. The meat is processed into various cuts or sold as whole chickens. The meat is packaged at the processor's facility and distributed to export or domestic markets.

Chicks receive vaccinations before being sent to integrated growers for

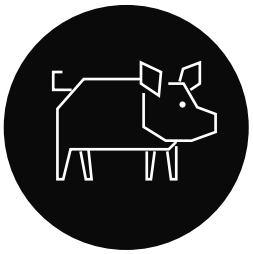
30-45 days

Chicken processing



Pork

Key properties: Pork



Consumption (per capita /kg per year)	Feed conversion ratio (kg feed/1 kg weight gain)	Age at harvest (months)	Most-commonly traded form	Typical feed consumption (%)
56.2	2	6	• Bellies • Loins • Hams	Wheat 24 Corn 24 Soybean meal 25 Others 27

Key properties

Pork is the world's most produced, and second most traded meat. Asia accounts for more than half of global pork production, yet it remains the world's largest importer, consuming over 60% of global supply. Europe is the second-largest pork-producing region but, unlike Asia, it is a net exporter. In contrast, regions such as the Middle East consume very little pork due to religious restrictions.

Producing pork at scale depends on several critical factors. Feed, which accounts for 60%-70% of production costs, must be both accessible and of high quality. Animal health is also essential—preventing diseases like African Swine Flu with strong veterinary care, vaccinations, and biosecurity safeguards productivity. While domestic demand drives industry growth, access to global markets enhances resilience. Diversified market access allows exporters to reduce waste and losses by commercializing all parts and cuts of the pork. In frozen form, the most heavily traded cut is the pork belly.

Vertical integration, as practiced in countries such as Spain, enhances efficiency and traceability across the entire supply chain—from the typical six-month growing cycle of pigs to the commercialization of fresh and frozen meat and byproducts.

In Spain, pigs are typically sent to abattoir at the age of six months, with corn, feed wheat, barley, and soybean meal each providing around a quarter of the feed. In China, more soybean meal and corn are used in place of wheat and barley.

Feed accounts

60-70%

of production costs.

Pork is a key source of animal protein across many regions, particularly in East Asia, parts of Europe, and the Americas. In China and South Korea, per capita consumption stands at 40.2 kg and 41.4 kg, respectively. European countries, such as Spain and Poland, report some of the highest levels, at 56.2 kg and 53.6 kg per capita, according to the FAO. In the Americas, pork also plays an important dietary role, with the US consuming 29.6 kg per capita and Mexico 21.8 kg.

Per capita consumption stands at

40.2 kg

in China.

Price drivers

1. Policy

China's push for greater sufficiency in producing its own pork has reduced its demand for imports and the total global trade flow. Animal welfare legislation can also affect the cost of production and prices.

February, 2022

Russia-Ukraine war begins, disrupting grain and fertilizer supplies and raising pig feed costs.

January, 2023

Germany and the Netherlands tightened animal welfare and environmental laws.

2. Tariffs and quotas

China's retaliatory import tariffs on the US, first introduced in early April, have disrupted the flow of offal. Less impact has been seen so far for US pork flows to Mexico, which is a major importer of fresh pork.

3. Disease outbreaks

The 2019 outbreak of African Swine Flu affected all agricultural markets, from corn to pork. Larger herds are very vulnerable to disease.

March, 2019

ASF spread fast, wiping out millions of pigs. China's pork supply shrinks, driving record imports from the US, the EU, and Brazil.

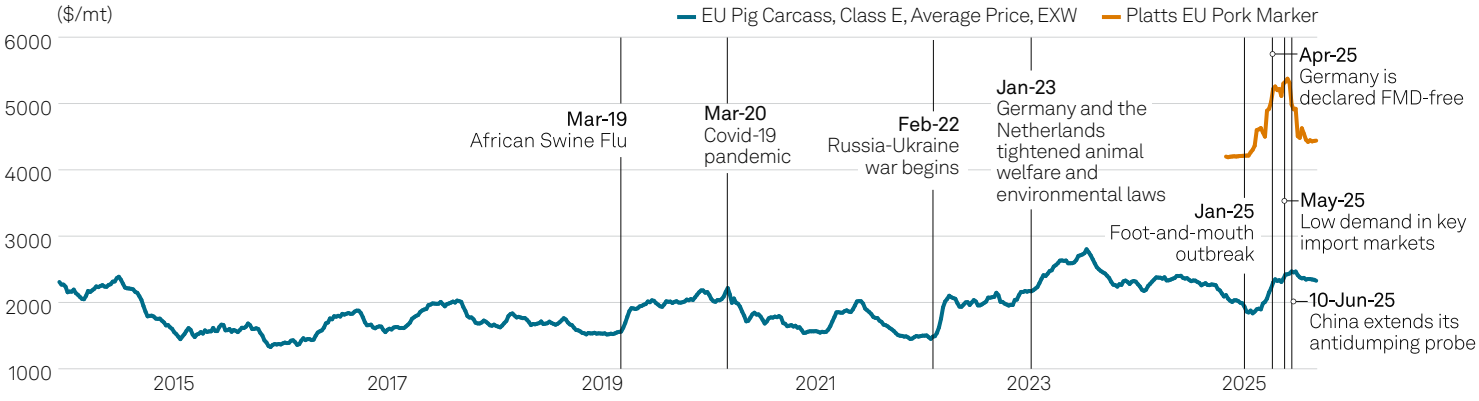
March, 2020

The COVID-19 pandemic disrupts supply chains, shuts down slaughterhouses due to worker shortages, and cuts restaurant demand.

January, 2025

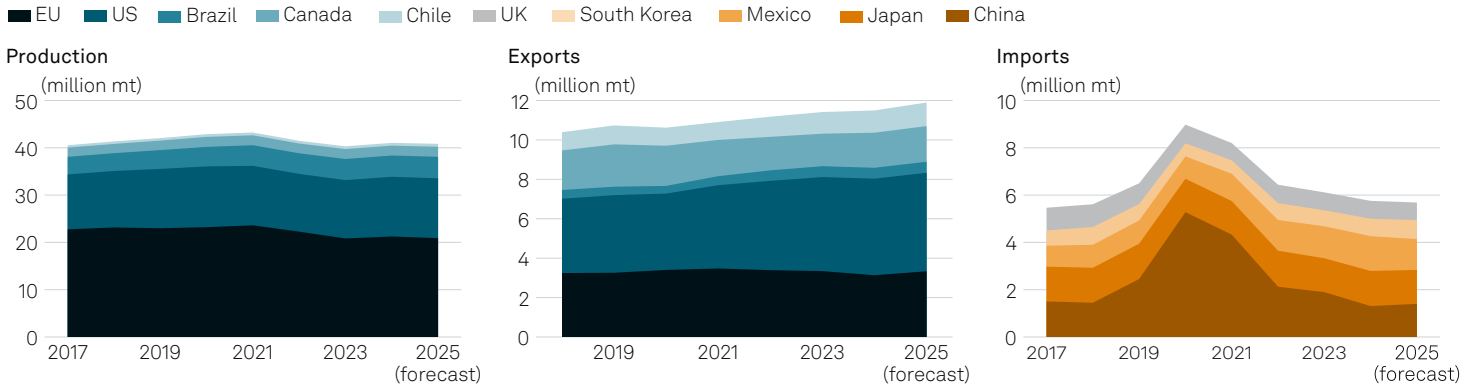
Foot-and-mouth outbreak hits Germany, the EU's first disease outbreak in 14 years. Germany exits non-EU markets.

Pork: Key price drivers



Source: S&P Global Energy

Pork: largest producers, exporters and importers



Source: USDA, S&P Global Energy

Trade flow

The most significant trade flow for pork is from Spain to Japan. Japan has maintained a consistent import volume, averaging 1.4 million mt from 2017 to the present. In 2023, Japan imported 164,000 mt of pork from Spain, which accounts for 32% of Japan's total pork imports, according to the Agriculture & Livestock Industries Corp.

The pork trade flow from 2017 to the present has been dynamic.

When China experienced an ASF outbreak in 2018, it resulted in significant pork supply shortages and price increases within the country, prompting higher import volumes. At its peak in 2020, China imported about 5.2 million mt of pork, accounting for 41% of the total pork exported in global trade. However, China's pork imports eventually subsided to about 1.3 million mt in 2024.

On the exporter side, following the peak of the ASF crisis, most major exporters except Brazil experienced a decline in export volumes. Brazil maintained steady growth and surpassed Canada to become the third-largest exporter in 2024, following the EU and the US. In 2024, Brazil exported about 1.53 million mt and gained a larger share of the Southeast Asian market from its competitive pricing.

China's pork imports eventually subsided to about

1.3 million mt

in 2024.

Processing pork

The growth cycle of pigs from birth to market size takes about six months. During the first week of life, piglets are entirely dependent on their mother's milk, with colostrum intake being crucial for building their immunity during the first three weeks.

As they are weaned at three to four weeks, piglets transition from their mother's milk to solid feed, which requires careful management to ensure their health and minimize stress. After weaning, piglets enter the four- to 10-week growing phase, during which they grow rapidly, to reach 10-25 kg. During this stage, they are introduced to starter feeds that are high in protein and receive regular health checks to prevent disease.

Pigs in the finishing phase are provided a balanced diet to optimize their growth, reaching market weights of 100-120 kg. As they approach market readiness, pigs undergo quality grading before being transported to market facilities for further processing.

Seasonality also influences pig growth. Pigs tend to grow faster during the warmer months of spring and summer, as higher temperatures promote better feed intake and digestion. Conversely, pigs may experience slower growth during fall and winter. Lower temperatures can reduce feed intake, as pigs often expend more energy to maintain body temperature. Additionally, growth can be hindered further if housing conditions are not optimal or if health challenges arise from colder weather.

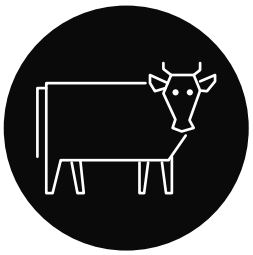
Seasonal fluctuations influence global pork demand due to cultural practices, festivals, and economic factors. In Asia, holidays such as Lunar New Year and Mid-Autumn Festival are associated with popular pork dishes, while in Europe, demand peaks during Christmas and other festive seasons. A country's economy also plays a key role in pork consumption, as pork tends to be more expensive than chicken.

Disease, particularly ASF and FMD, remains the most disruptive factor in the pork supply chain. When a disease outbreak occurs, it disrupts production practices, leads to trade restrictions, increases production costs, raises mortality rates, and undermines market confidence, all of which negatively affects pork supply and demand.

Pork processing

Beef

Key properties: Beef



Consumption (per capita /kg per year)	**Feed conversion ratio** (kg feed/1 kg weight gain)	**Age at harvest** (months)	**Most-commonly traded form**	**Typical feed consumption** (%)
26.9	5-7	15-30	• 90CL lean beef trimmings • Frozen	• Grass • Lot feeding: - Grain (70%-80%) - Cottonseed - Silage - Molasses - Straw - Vegetable oil - Mineral/vitamin premix

Key properties

The global beef trade is shaped by a network of production surpluses, consumption trends, and trade dependencies. Key producers include the US, which accounts for **20% of global beef production; Brazil, 19%; and China, 13%, according to USDA data for 2024.**

Brazil's increased export capacity gives it a dominant role in global trade, supplying beef to markets that cannot meet domestic demand even amid strong production, such as the US and China. USDA data showed that Brazilian beef exports accounted for **28% of global trade, followed by Australia, 14%, and India, 12%.**

Among key consumers, the US, China, and the EU have strong domestic beef markets. However, some of the world's largest importers, notably China, Japan, South Korea, the US (despite being a top producer), and countries in the Middle East, rely heavily on imports to meet the growing preferences of consumers, changing dietary habits, and the limitations of domestic production. This dependency underpins the necessity for a robust, responsive, and globally interconnected beef trade network.

In 2024, the average beef consumption in Australia is projected at 26.9 kg per capita. Domestic utilization accounts for 30% of total beef production, with the remainder directed to exports. Australian cattle are primarily grass-fed, then grain-finished in feedlots, where their stay ranges from 30 to 600 days, depending on their market destination. Cattle destined for the domestic market typically spend up to 100 days in feedlots, while those for export generally remain longer. The feed composition comprises **70%-80% grain,** supplemented with cottonseed, silage, molasses, straw, vegetable oil, and mineral/vitamin premix. Among the most traded products is the 90CL lean beef trimmings, primarily exported to the US for hamburger production.

Brazilian beef exports accounted for

28%

of global trade followed by Australia (14%), and India (12%).

Price drivers

Several interlinked variables drive global beef prices. Among the primary price influencers are feed costs, global supply and demand balances, climate patterns, trade access, currency fluctuations, and geopolitical stability.

Feed—especially corn and soybean meal—represents one of the most significant cost components in beef production. Therefore, rising feed prices often translate into higher beef prices. **In Brazil, about 70% of beef cattle production comes from animals finished on grass,** but climate risks, pasture conditions and phytosanitary diseases tend to be greater in Brazilian beef production. This factor brings greater competitiveness in beef prices compared with other suppliers, attracting many buyers due to greater affordability.

Tariffs, quotas, and sanitary trade barriers have increasingly come to the forefront as influential price levers. Countries aiming to protect domestic producers or control market exposure often impose tariff rate quotas, set minimum price thresholds, or enact technical barriers to trade. For instance, China has frequently adjusted its import licensing, while the EU maintains strict sanitary and quality standards under its Common Agricultural Policy. **The US limits imports of Brazililan beef to 65,000 mt/year.**

In Brazil, about

70%

of beef cattle production comes from animals finished on grass

In recent years, protectionist policies and non-tariff barriers have tightened global supply routes, making certain markets more volatile. These restrictions not only distort price parity among suppliers but also prompt sudden shifts in trade flow. For example, when Indonesia reduced quotas for Indian buffalo meat in favor of diversified suppliers, it opened short-term windows for Brazil and Australia to expand their reach. Similarly, the US-China trade dispute disrupted bilateral beef flows, causing ripple effects across the global supply chain.

Brazilian Beef

1. Policy

Global trade policies include a broad set of tools and agreements, such as trade agreements (e.g., USMCA, Mercosur, the EU Free Trade Agreements). These agreements often reduce or eliminate tariffs/quotas, boosting beef trade between member countries amid lower barriers and those countries with favorable agreements can expand their beef exports significantly. For example, Australia has trade agreements with Japan and South Korea, giving its beef producers a competitive edge in those markets over the US exporters that face higher tariffs.

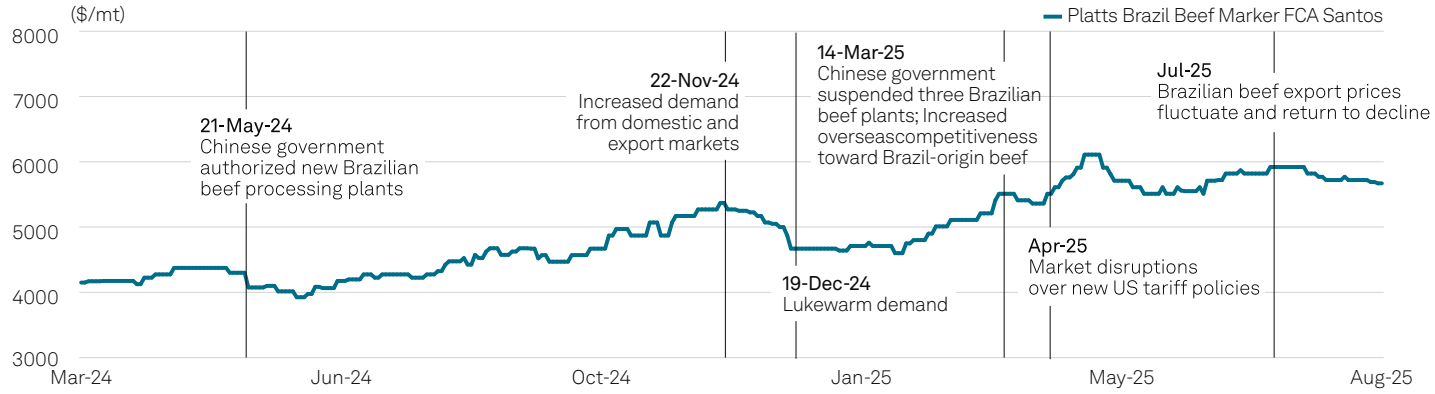
Trade policies create artificial price differences across markets. A country with high tariffs might have significantly higher beef prices than another producer with free trade.

Countries that are heavily reliant on beef exports (e.g. Brazil, Argentina, Australia) are vulnerable to policy changes in major markets. A tariff hike or ban from a key importer (like China or the US) can crash domestic cattle prices due to reduced demand.

May 21, 2024

The Chinese government authorized 24 new Brazilian beef processing plants to export their products. With this increase in supply, along with a record-high volume of beef production,

Beef: Key price drivers



Source: S&P Global Energy

importers in China have begun to put pressure on Brazilian beef prices, sending the Platts Brazil beef price assessment to its lowest level on record.

Nov. 22, 2024

Increased demand from domestic and export markets strengthened Brazil's cattle prices, triggering higher export beef prices. Increased concerns over the fiscal health and Brazilian public debt boosted the exchange rate. A favorable forex rate between the Brazilian real and the US dollar has further supported exports.

March 14, 2025

Despite the suspension, increased overseas competitiveness toward Brazil-origin beef drove up export prices, mainly due to warmer demand from the US and China. This reflects increased concerns and an unclear global trade scenario amid tariff issues and the trade war between the US and China.

2. Tariffs and quotas

Tariffs and import quotas can have a significant impact on global beef trade and prices. A tax imposed on imported beef means foreign producers must pay extra to sell in the importing country, which could reduce imports amid higher costs and make the imported beef less competitive.

The impact on beef prices should be reflected in domestic price increases. With fewer imports, domestic supply is tighter, which can drive up prices for consumers. Meanwhile, **domestic producers often benefit from less competition and higher prices.**

Countries' restrictions on import volumes can create artificial shortages and inefficiencies in the allocation of global supply once importers profit from buying at lower world prices and selling at higher domestic prices. Prices may spike if demand exceeds the quota-limited supply, and the market may also favor certain countries through preferential trade agreements, giving them an edge.

Dec. 19, 2024

Lukewarm demand softened trading activity, as suggested by seasonality. The Chinese and the US markets diminished buying interest. Inventories were well-supplied in China for the Lunar New Year, and the US awaited its fresh quota of 65,000 mt.

April 2025

Market disruptions over new US tariff policies impact Brazilian beef export prices. Volumes shipped to the US market plummet as tariffs hurt Brazilian beef competitiveness.

July 2025

After a period of plateau, Brazilian beef export prices fluctuate and return to decline due to the consolidation of the new 76.4% tariff on exports to the US. The increased supply of beef hindquarters triggered ongoing pressure from other market importers.

3. Animal health issues

Animal health issues like mad cow disease or bovine spongiform encephalopathy, and FMD can lead to rate restrictions or bans. Importing countries immediately suspend beef imports from affected countries and these bans can last from weeks to years, depending on the severity and response. In 2021, Brazil had a confirmed case of BSE. China, its larger beef customer, suspended imports for more than two months, causing beef to pile up in Brazil and prices in China to rise.

Countries may impose extra inspections, certifications, or delays, which act like non-tariff barriers, slowing trade even if a formal ban is not in place. Exporters redirect beef to alternative markets, often at lower prices. Importers scramble to find new suppliers, often at higher prices. If Australia faces drought and disease limits its beef exports, Japan might buy more from the US or Argentina, shifting trade flows globally.

Cattle health and biosecurity continue to exert substantial influence on beef export pricing and availability. Outbreaks of diseases such as FMD, BSE, and Lumpy Skin Disease have previously triggered immediate and lasting restrictions on exports from affected regions.

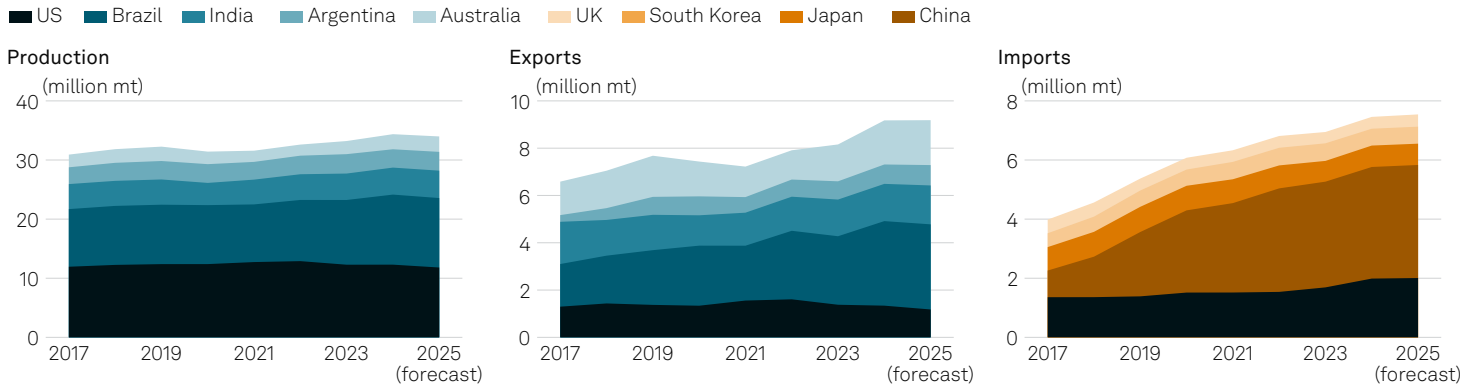
In Brazil, sporadic BSE cases have historically led to temporary suspensions by China, its top customer. These disruptions not only hurt prices in Brazil due to oversupply but also elevate international prices as Chinese buyers scramble to replace lost volume, often turning to the US or Australia. Similarly, Australia's beef export performance has been intermittently impacted by droughts and biosecurity concerns, leading to supply squeezes and price hikes in East Asian markets.

In import markets, increasing concerns over traceability and animal welfare are leading to more stringent inspection regimes, sometimes creating friction for exporters who cannot meet these heightened standards. This has been evident in the EU's tighter controls over South American beef imports and ongoing debates around hormone usage in beef from North America.

March 14, 2025

The Chinese government suspended three Brazilian beef plants due to non-compliance issues after remote audits identified excessive cattle tick pesticide residue. Concerns surge over China's further suspension of new Brazilian beef plants.

Beef: largest producers, exporters and importers



Source: USDA, S&P Global Energy

Trade flow

The most substantial trade flow in the global beef market is from Brazil to China. According to Brazil's Foreign Trade Agency, **Brazil exported 1.32 million mt of beef to China in 2024,** making it the largest bilateral trade route for beef globally. Given that **Brazil's fresh, chilled, and frozen beef exports in 2024 were 2.54 million mt, exports to China represented about 52% of exports.** While exact global trade volumes vary, this flow constitutes a significant portion of the international beef trade.

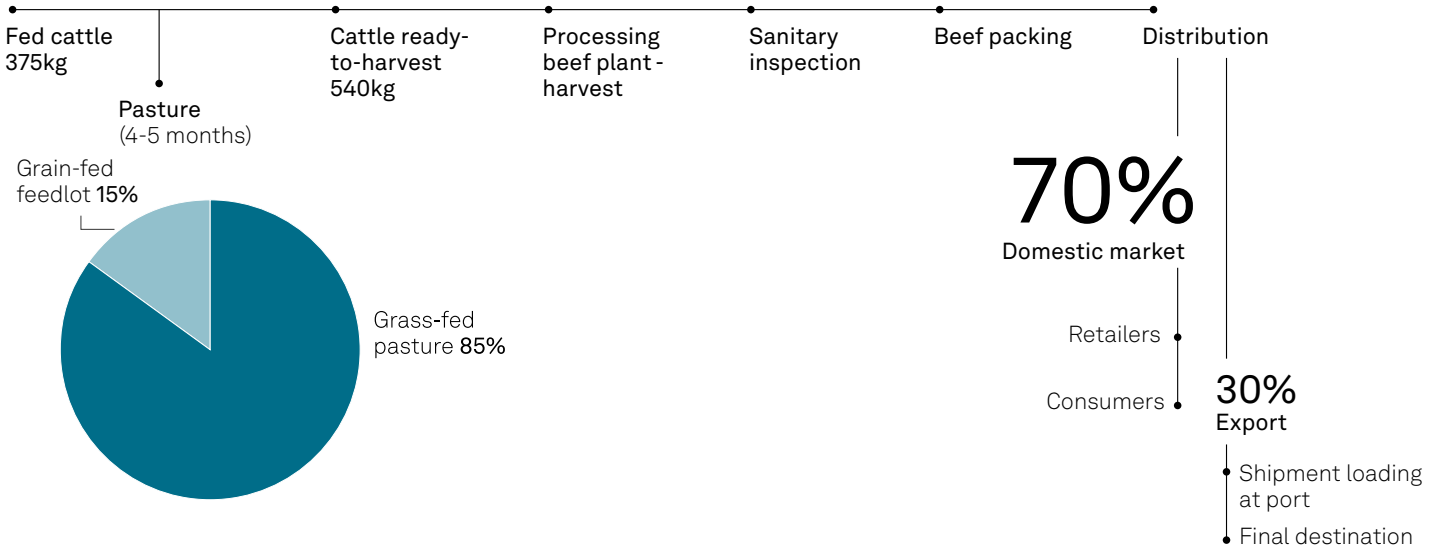
Over the past decade, Brazil has consistently held the position of the world's largest beef exporter, but its export volume has seen significant growth, rising 27% in 2024 compared with 2023. China has emerged as the dominant importer, with its beef imports from Brazil increasing correspondingly, due to two key factors:

- **China's growing demand:** Rising incomes and urbanization in China have led to increased beef consumption.
- **Brazil's production capacity:** Brazil's vast cattle herd and competitive production costs have enabled it to meet growing international demand.

Processing beef

A calf remains with its mother until its eighth month, when it reaches about 195 kg. The weaning process begins in the ninth month. By the 18th month, the calf turns into a steer at about 300 kg. When the steer reaches 375 kg, it is considered ready to be finished by grass or grain feed. In Brazil, the finishing period is usually made up of 85% grass-fed and 15% grain-fed.

Beef processing



When cattle are ready to be harvested, they are considered finished steers, with an idela weight of 540 kg or more. The ideal processing period is about seven to 10 days after it is bought by a beef packer, but it depends on the plant's harvest schedule.

Once the animal is harvested and dressed, the carcass should spend one day in the cold storage/chamber for inspection and sanitary maturation. The period from beef packing and distribution to the final destination depends on the location of the beef plant.

The chart shows the process from the finishing period to the final consumer.

Seafood

Authors: Karan Dadure

Aquaculture is the fastest-growing source of animal protein in the world, supplying over half of all seafood consumed globally.

Key properties

As wild fisheries plateau, farming has become critical to meeting demand for affordable, high-quality protein.

Shrimp has played a leading role in this growth and is the largest species in aquaculture. It offers a high-value, export-driven product with short production cycles and efficient feed conversion. Farmed primarily in Asia and Latin America, shrimp provides a versatile protein source for both domestic and international markets. Farmed shrimp eat formulated feed typically derived from fish meal, soybean meal, fish oil and vegetable oils. Rich in protein and lipids, the diet is optimized to deliver rapid growth and consistent quality. Compared with other major farmed species such as salmon, tilapia, and catfish, shrimp combines high feed efficiency with adaptable processing formats, giving it a competitive edge in meeting diverse global market preferences.

Comparison of key production traits and feed profiles:

Global production

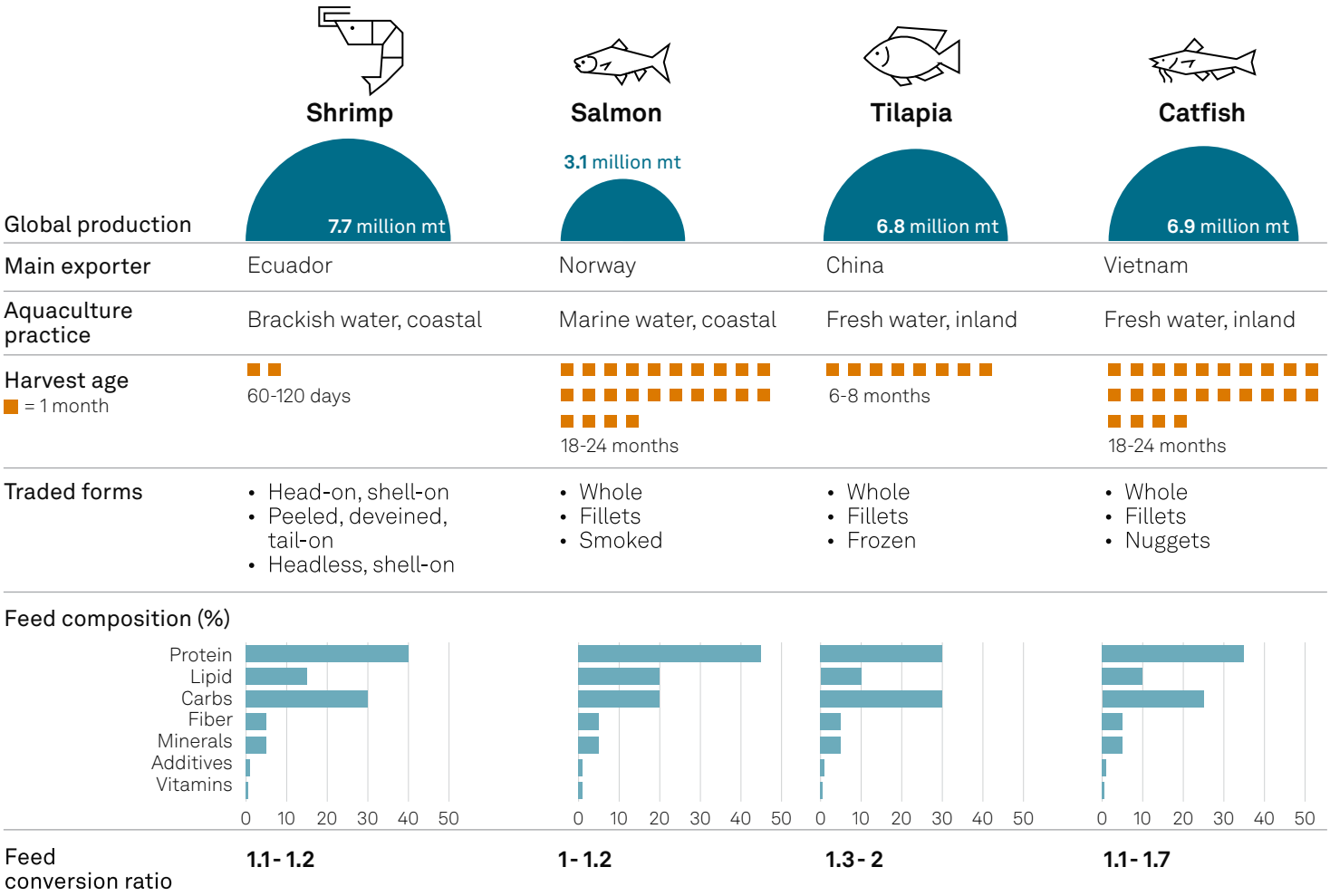
Shrimp is the most farmed seafood meat globally and the highest-value aquaculture species, contributing over $44 billion to global aquaculture output. China dominates shrimp farming, producing 31% of global farmed shrimp output. Yet despite this scale, China also stands as the world's largest importer, accounting for around 33% of global shrimp imports by volume. While China leads in production and import

volumes, Ecuador and India are dominant exporters, together accounting for nearly half of global shrimp shipments. Alongside China, the US and EU are also among the top importers, reinforcing shrimp's importance across both emerging and high-income markets.

Shrimp production is highly sensitive to water quality, feed inputs, and disease management, with most farming concentrated in brackish water ponds across Asia and Latin America. Typical production cycles range from 60 to 150 days, depending on target sizes and market destinations. Feed accounts for up to 60%-70% of total farming costs, with protein-rich formulations made from fishmeal, soybean meal, wheat, and vegetable oils. Optimized feed uses and biosecurity practices are key to minimizing mortality and maintaining consistent yields.

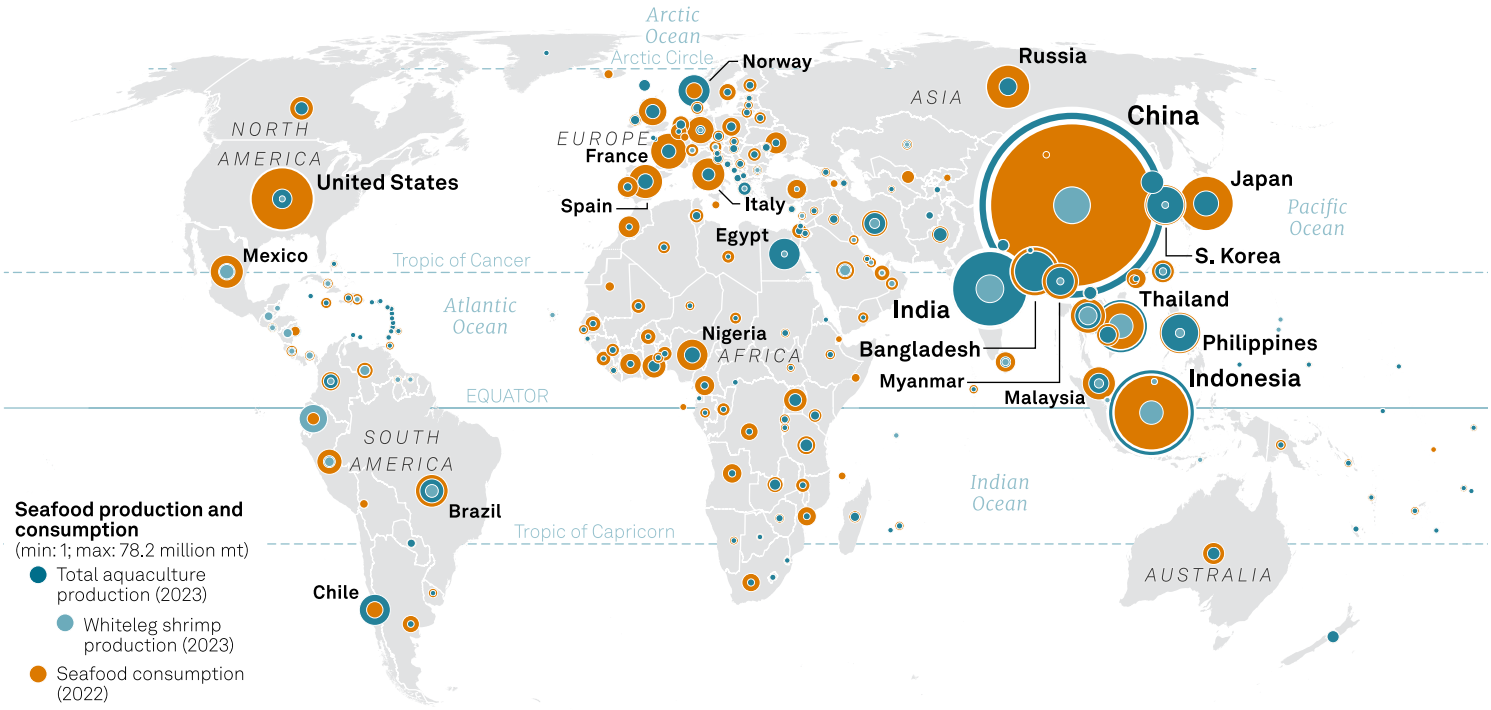
Shrimp is predominantly exported in frozen forms such as HOSO (head-on, shell-on) and PDTO (peeled, deveined, tail-on), with growing demand for processed formats. Ecuador supplies HOSO mainly to Europe and China, while India focuses on PDTO to the US. Value-added shrimp, such as breaded and cooked, is increasingly exported by Vietnam and Thailand, serving retail and foodservice markets in high-income regions.

Shrimp is a core component of global crustacean consumption, with wide variations in intake across regions. While global seafood consumption has risen steadily, now averaging over 20.5 kg per capita annually, crustaceans account for a smaller share yet remain highly valued. Shrimp leads this category, especially in countries with developed seafood markets. China averages 6.37 kg per capita, By contrast, many emerging economies consume less than 1 kg per capita, underscoring disparities in access and dietary preferences. As global incomes rise and supply chains deepen, shrimp's role in the protein basket is expected to expand, particularly across urban and health-conscious demographics.



Source: S&P Global Energy

Seafood production and consumption



Credit: Content Design
Source: S&P Global Energy, FAO

Trade flows

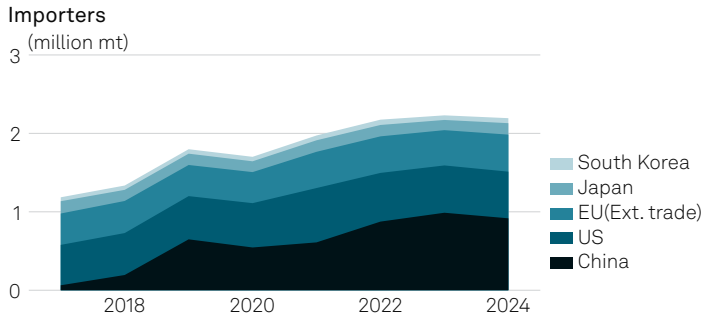
Ecuador to China was the most significant shrimp trade flow in 2024, with about 652,000 mt, or 56% of Ecuador's total shrimp exports, sent to China. Another key route is from India to the US, where 303,000 mt, or 41% of India's exports, were shipped. These two corridors dominate global shrimp trade volumes and remain central to each country's market strategy.

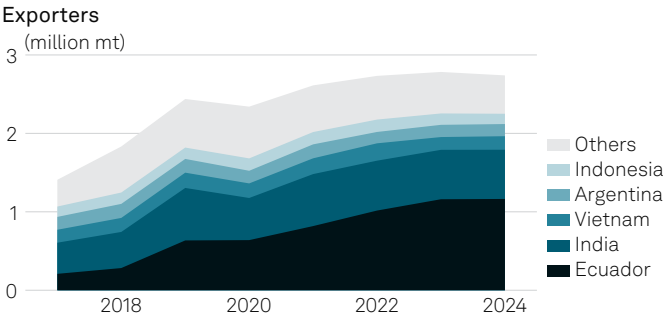
The data is based on 2024 customs statistics compiled by S&P Global Energy using national-level sources, including Ecuador's Central Bank and India's Ministry of Commerce, aggregated via the Global Trade Atlas platform.

While trade patterns have remained largely stable, subtle shifts are emerging. USand building its presence in the US market, driven by China's rising domestic shrimp production and cooling demand. India, on the other hand, is expanding toward China and the EU to reduce its reliance on the US, amid growing challenges related to tariffs and trade relationships.

These changes reflect strategic moves by top exporters to reduce exposure to single markets and adapt to evolving geopolitical and demand dynamics.

Global shrimp: largest importers and exporters





Source: S&P Global Energy

Price drivers

1. Policy

October 2024

Energy cuts in Ecuador: Ecuador's government intensifies energy rationing, cutting industrial power between 8 am and 6 pm daily for at least 15 days amid the worst drought in 61 years. The Ecuadorian Aquaculture Association warns of $75 million monthly export losses, reduced feed availability, and lower seeding densities. Global shrimp supply tightens and pushes shrimp prices higher.

Oct. 22, 2024

US cuts duties on Ecuador imports: The US Department of Commerce cuts Ecuador's combined duty rate from 13.47% to 3.78%, boosting its competitive edge. India faces subsidy rates of 5.63%-5.87%. Ecuador's reduced duties may shift more sales to the US, while India's higher costs limit competitiveness, prompting offers of cheaper shrimp to Europe.

2. Tariffs and quotas

April 2, 2025

US threatens high tariffs: The Trump administration announces an initial tariff level of 26% on India. This creates contract uncertainty and pauses fresh US offers from Indian sellers and becomes a key inflection point for 2025 trade flows.

April 9, 2025

US starts tariff negotiations: One week later, the White House suspends the tariffs for 90 days for many partners including India. The pause briefly eases pressure, letting exporters push shipments into the US while talks continue.

August 2025

US tariffs take effect: The US imposes a 25% tariff on Indian shrimp Aug. 1, pushing FCA India PDTO prices to a record low of $6,837/mt. Farmgate prices in Andhra Pradesh drop sharply, leading to reduced seeding for the next crop. On Aug. 7, the US imposes an additional 25% tariff on India linked to its purchases of Russian oil, raising its tariff exposure to 58.26%. Ecuador's 18.78% tariff positions it to gain Indian market share in the US.

3. Weather

September 2024

Flooding in Andhra Pradesh: Severe floods hit Andhra Pradesh's shrimp farms during second-crop seeding. Tight supplies lift PDTO FCA India prices by $221/mt. Smaller shrimp prices rise on strong Chinese and domestic demand.

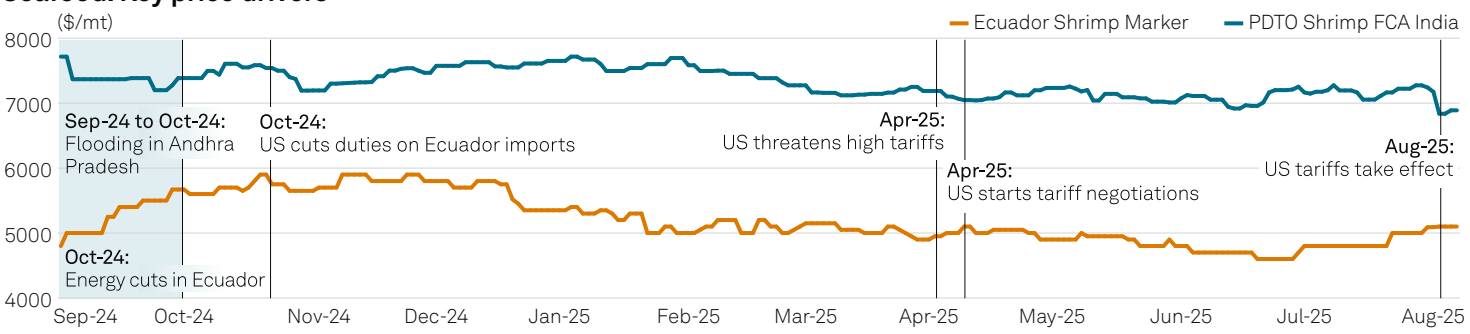
Processing shrimp

Shrimp processing typically begins at farm harvest, where animals are collected based on size, usually around 30-40 count, though smaller counts like 90-100 are common for faster cycles. Once received at the plant, shrimp are washed, sorted, and graded before being processed according to their target market.

Some supplies are packed whole (head-on, shell-on), while others are peeled, deveined, or beheaded to meet preferences across regions. The level of processing depends on buyer demand, whether for basic formats or more prepared products.

HOSO formats are widely used in Europe and China because they are suited to traditional cooking styles and foodservice sectors where the whole shrimp presentation is valued, such as in paella or steamed seafood platters. In China, HOSO is also popular for banquet dining and festive occasions.

Seafood: Key price drivers

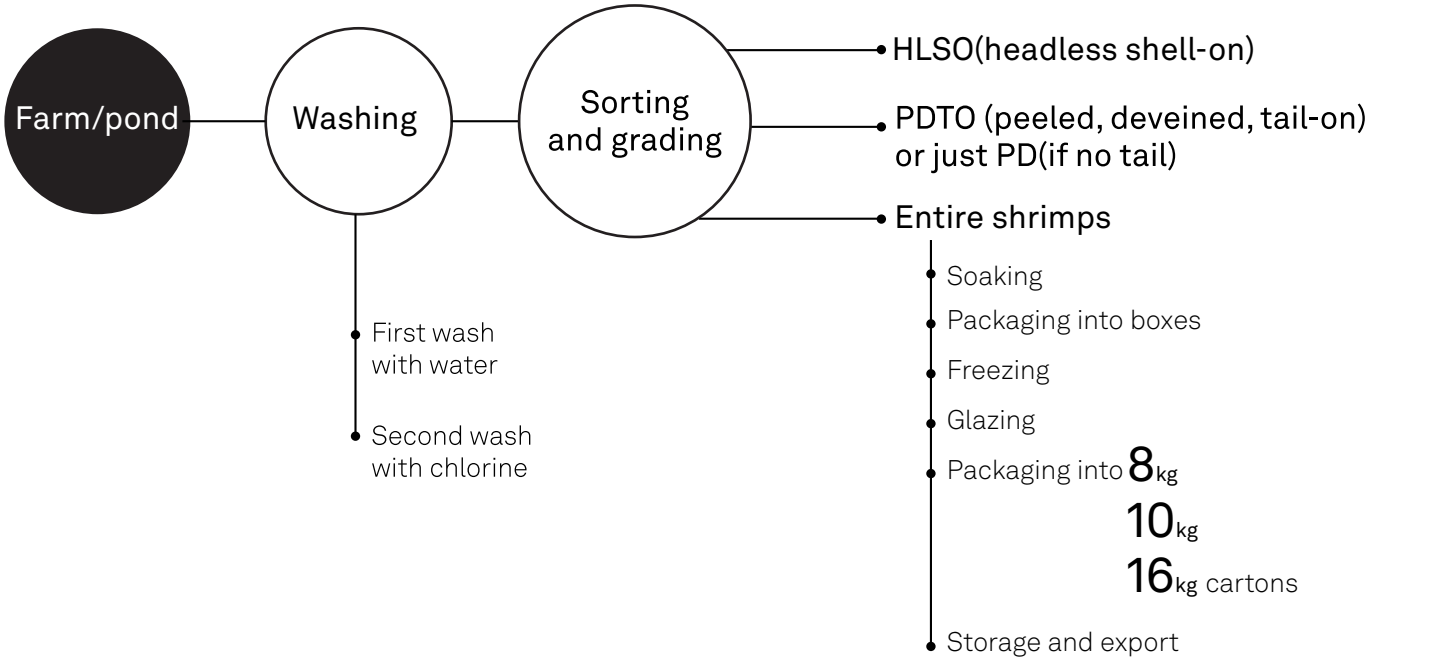


Source: S&P Global Energy

In contrast, peeled tail-on shrimp are favored in the US, as they cater to the ready-to-cook and retail markets, where convenience and minimal preparation are priorities. This aligns with the US consumer preference for easy handling and portion-controlled packaging, especially for breaded or frozen meals.

Value-added processing is more common in Vietnam, which have strong processing infrastructure for marinated, breaded, or coated products aimed at developed markets. Exporters such as India and Ecuador focus more on semi-processed formats like PDTO and HOSO, which fit their core markets' demand patterns while maintaining efficiency and competitive pricing. The goal across all origins is to ensure the product reaches the buyer in the desired format while meeting quality, safety, and shelf-life requirement.

Seafood processing



Conclusion

Rising disposable incomes in East Asia have driven the surge in meat consumption over the last two decades. This has amplified demand for feed grains because the feed conversion ratio for pigs, cattle and chicken is greater than one.

Some developed economies, such as the UK, have seen meat consumption decline as higher costs pushed people to opt for lower-cost alternatives, but growing prosperity across larger populations in Asia has still lifted aggregate global demand. The UN estimates that global consumption of beef, poultry and pork averaged 44 kg per person in 2024.

The supply outlook is less clear, given diseases capable of eliminating herds and flocks from entire regions as Brazil's poultry exporters experienced briefly in July 2024.

CONTACTS

Americas: +1 800 597 1344
Asia Pacific: +60 4 296 1125
Europe, Middle East, Africa: +44 (0) 203 367 0681

support.energy@spglobal.com
www.spglobal.com/energy