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Report Name: From Orchard to Export - A Portrait of Brazil's Evolving Apple Industry

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Report Highlights:

Brazil ranks as the ninth largest apple producer worldwide, with production concentrated in the southern states of Santa Catarina and Rio Grande do Sul. Gala and Fuji dominate production across approximately 35,000 - 40,000 hectares, supported by modern orchard management and an improving cold storage technology that enables year-round market availability.

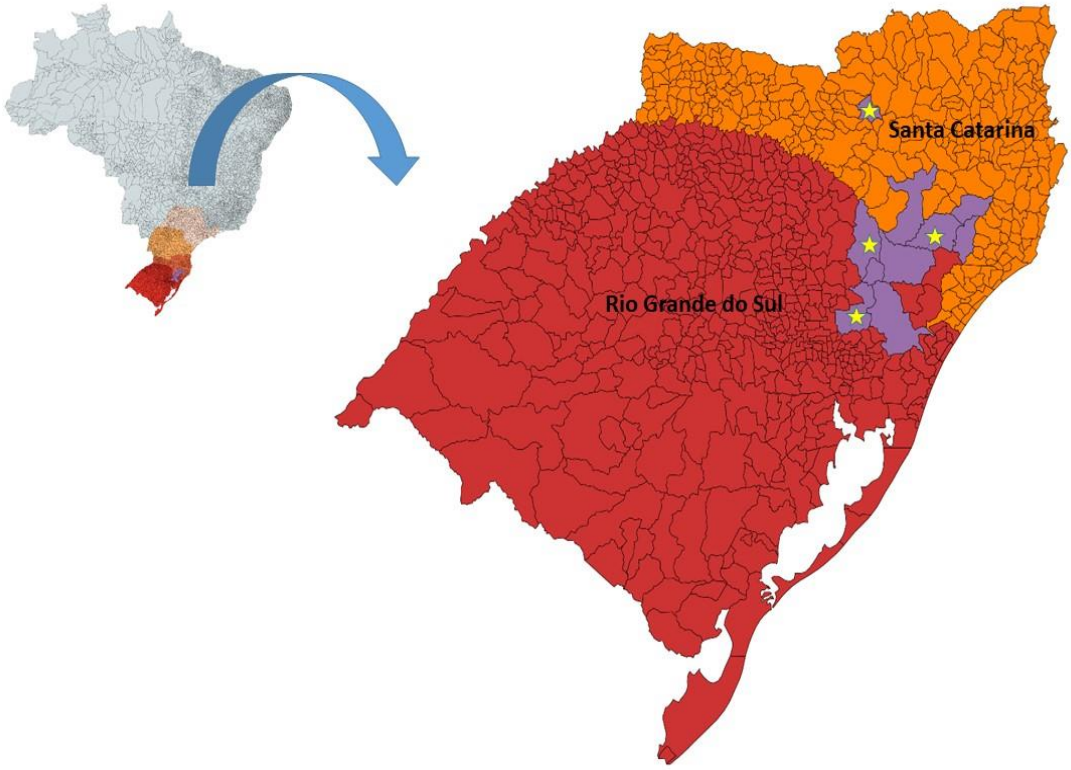
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Apple Production in Brazil

Established in the mid-1970s, Brazil's apple industry today ranks among the world's top producers. Industry estimates yearly production of 1 million metric tons (MMT), with the 2025/2026 harvest forecast at 1.2 MMT, a 20 percent increase over the prior season. Apple production in Brazil has been described as and distinguished by its exceptional fruit quality, including widespread occurrence of the "Pingo de Mel" ("Drop of Honey" in Portuguese) phenomenon in which apples produce greater sweetness, intense aroma, and juicy texture.

Production is concentrated in the southern states of Santa Catarina (approximately 53 percent), Rio Grande do Sul (approximately 45 percent), and Paraná (approximately 3 percent), Municipalities such as Fraiburgo, Vacaria, São Joaquim, and Lages have stood as the hubs for apple production in the country since the apple industry established itself in the 1970s.

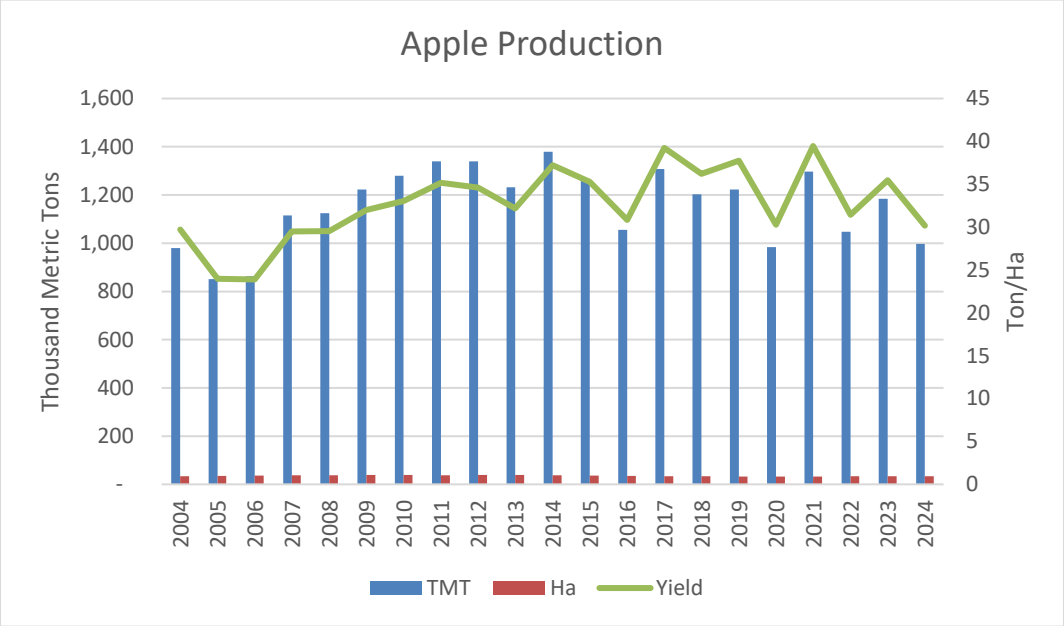
Figure 1
Brazil's Leading Apple-Producing States and Municipalities



Map prepared by FAS Brasilia

Brazil's demand for imported apples depends on two volatile forces: consumer purchasing power and the size of the domestic harvest. In the southern growing regions, hail, late frosts, and mild winters make yields unpredictable from season to season. Economic cycles and a fluctuating Brazilian Real (BRL) make purchasing power just as unstable. When strong demand coincides with a poor harvest, foreign suppliers find exceptional opportunities. When an economic downturn meets an abundant crop, the market for imports shrinks sharply.

Figure 2



Source: Brazilian Institute of Geography and Statistics (IBGE), graph prepared by FAS Brasilia

Gala and Fuji apples dominate at roughly 60 and 40 percent, respectively, with mutations such as Galaxy, Fuji Suprema, and Pink Lady increasingly adopted to improve color, quality, and shelf life. Harvest typically occurs January through May during the Southern Hemisphere's summer and fall seasons.

Figure 3
Brazilian Apple Crop Calendar

Variety	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Gala												
Fuji												

Key:

- *Budding (budbreak and bloom)*
- *Growing (fruit set and development)*
- *Harvest*
- *Dormant or post-harvest*

Growth in production is directed toward orchard renewal rather than area expansion, constrained by the Atlantic Forest Law; mechanized irrigation remains limited to less than three percent of orchards.

Figure 4



Cultivation is labor-intensive and largely unmechanized. Labor accounts for roughly 45 percent of production costs, and disease and pest treatments account for 30-35 percent. Anti-hail netting covers approximately 70 percent of orchards, neutralizing a major production risk.

According to Post contacts, studies and experimental prototypes are underway to bring more robotics into the sector. In general, the only equipment used is a platform that moves up and down allowing pickers to reach the apples.

Other equipment in use includes tractors, sprayers, and digital agricultural devices.

Pink Lady Apples Demonstrating the Espalier Method
Photo credit: Apple Producer in Rio Grande do Sul

Irrigation is limited and covers approximately 10 percent of producing areas. According to Post contacts, the sparse use of irrigation is characterized mostly by the drip or micro-sprinkler systems. Some growers also use fertigation, which delivers fertilizer through the irrigation system. This is a more advanced practice and is likely to expand.

Planted Area

With farms ranging from 20 to 300 hectares and approximately 2,500 trees per hectare, Brazil's total apple orchards cover approximately 35,000-40,000 hectares, an area that has remained relatively stable over the past decade following earlier expansion throughout the latter half of the 20th century and early 2000s. The largest planted area is in the state of Santa Catarina, followed by Rio Grande do Sul. Consolidation has replaced older, less productive orchards with higher-density plantings using modern rootstocks from local nurseries, enabling earlier bearing and higher yields. Well-managed commercial orchards now achieve 40-60 metric tons per hectare, though the national average remains lower at 33 metric tons per hectare.

Brazil's apple nurseries are mostly small to mid-sized operations in the southern growing regions mentioned above. Nurseries graft Gala and Fuji trees, and their higher-color strains onto rootstocks such as Marubakaido and the M.9 or Geneva series. The Ministry of Agriculture requires all nurseries to register with its national seed and seedling registry (RENASEM) and meet its plant-health and certification standards. Most nurseries are privately owned, either as independent businesses or as divisions of large grower-packers and cooperatives. Public research agencies, such as Brazilian Agricultural Research Corporation (Embrapa), and Santa Catarina's state agency Epagri, breed new varieties and rootstocks and supply certified virus-free starting stock.

Ideal cultivation elevations have changed from 900 meters to around 1,300 meters, and orchard systems are evolving toward an espalier model ("muro frutal" in Portuguese) that enables mechanized lateral pruning. The projected 20 percent production increase for marketing year 2025/26 reflects this intensification - better rootstocks, higher-density plantings, and improved agronomic management - rather than any significant expansion of planted area.

Weather and Crop Conditions

Apple production in Brazil is highly sensitive to weather, particularly during the winter chilling hours essential for proper bud break and fruit set. The highland regions of southern Brazil, especially São Joaquim in Santa Catarina, above 1,000 meters, provide the most suitable conditions.

Figure 5



Fuji Supreme Apple Tree
Photo credit: Apple Producer in Rio Grande do Sul

According to Post contacts, insufficient winter chilling driven by warmer winters has caused irregular budding this year, leading to a decrease in fruit quality and yields. Producers typically apply hydrogen cyanamide to compensate for insufficient chilling hours.

El Niño will likely provide Brazilian apple producers with especially tough conditions this year. Its typical milder winters and above-average rainfall can leave Gala and Fuji orchards short of chilling hours, which causes uneven budbreak and weak bloom. Rain during blooming (September-November 2026) keeps bees from working, which cuts pollination and leaves fewer fruit on the trees. In response, growers have raised hive density from 5-6 to 8-10 per hectare. Growers' top concern is plant health. Heavy rain increases fruit rot, which has no resistant varieties, and worsens apple scab and leaf diseases while making spraying less effective.

A wet Southern Hemisphere summer (December 2026 - February 2027) would increase occurrences of Glomerella leaf spot, and hail and fruit cracking could hurt quality before the 2027 Gala harvest. Waterlogged soil also slows orchard work and increases erosion and nutrient loss. In the strong El Niño years of 2015-16 and 2023-24, growers in Santa Catarina and Rio Grande do Sul had smaller harvests, lower fruit quality, and higher costs. In 2023-24, flooding in Rio Grande do Sul made those losses worse.

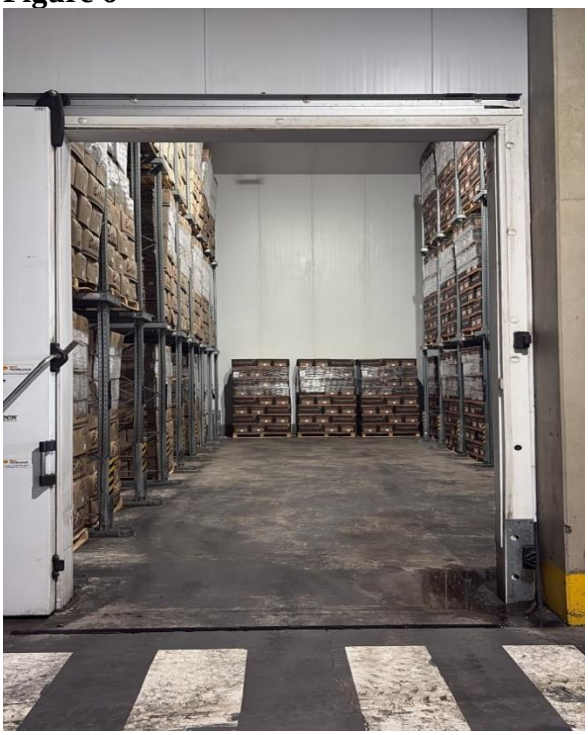
Late frosts during flowering pose significant crop loss risks, while excess rainfall at harvest increases fungal disease pressure from pathogens such as apple scab and bitter rot. Drought stress, though less common and unlikely this year, is a growing concern in the long term.

Despite the "Pingo de Mel" fruit quality, frost events have caused significant concerns, with temperatures as low as -5.6°C (22°F) recorded in Santa Catarina orchards this winter, freezing portions of the crop and prompting urgent attention from growers and agricultural authorities, particularly during vulnerable phenological stages.

Flowering runs from early September through October. Gala apples are harvested in January through late-February and can be put in cold storage for up to five months; Fuji is harvested from late-February through early-May and can be put in cold storage for up to eleven months.

Cold storage relies on 1-Methylcyclopropene (MCP), which slows ethylene production and delays ripening, enabling year-round market availability. Productivity fluctuations across years are largely weather-driven, with drought-induced warming among the primary variables affecting output.

Figure 6





Apple Cold Storage and 18-kg Packaging in Bom Jesus, Southern Brazil

In Santa Catarina and Rio Grande do Sul, workers pick apples into wooden field bins that hold about 350-380 kg (771-837 lbs) each. Trucks then carry the apples a short distance to packing and storage facilities near the orchards, where the fruit is graded, sorted, and packed into 18 kg (39 lbs) retail boxes. Large grower-packers and cooperatives own most of these facilities. Specialized companies provide storage as a service, where smaller growers often rent space.

Packers keep the fruit in large regular or controlled atmosphere (CA) cold rooms, where equipment controls the gas mix to extend storage life. Apples can hold their quality for up to about 10-12 months. This allows packers to sell them gradually instead of all at once after harvest, when prices are low. The Gala variety is typically released through September or October, and Fuji, which keeps longer, through November or December. Demand, prices, sales schedules, contracts, and the condition of each lot decide when fruit leaves storage. Trucking is mostly outsourced, though large companies run their own refrigerated fleets. Post contacts shared that most apples go to wholesale markets and to supermarket distribution centers, largely in state capitals and Brazil's tropical regions rather than the South. As a result, Brazilian apples are on shelves for most of the year.

Consumption

The 2025/2026 season was commercially challenging for apple growers, despite exceptional crop quality. A large, high-quality harvest, celebrated for the widespread "Pingo de Mel" phenomenon -

actively promoted by the Brazilian Association of Apple Producers (ABPM) - pushed farmgate and retail prices to their lowest levels since 2022.

The Gala variety stores for a shorter time than Fuji, which compels growers to sell more of it at harvest. Subdued consumer demand, constrained by purchasing power, compounded the oversupply: producers received approximately 30 percent less than the prior year, making 2026 a challenging year for apple growers. Apple purchases are sensitive to household income and food prices.

When the economy slows, unemployment rises, or inflation squeezes budgets, many consumers buy fewer apples in Brazil. Some switch to cheaper tropical fruits grown locally, such as bananas and oranges. Exchange rates also matter. A weaker Brazilian real (R$) makes imported apples from places like Argentina, Chile, and Europe more expensive. As a result, imports fall and Brazilian apples take a larger share of the market. When incomes grow, people tend to buy more apples overall and more of the premium, higher-color strains.

While lower prices improve accessibility across income brackets, they compress producer margins. Category 1 conventional apples fetch R$4-5 per kilogram (US$ 0.36-0.44/lb) at the farm gate, yet retail prices reach R$12-14 per kilogram (US$1.07-1.25/lb), with small producers receiving no more than R$5 per kilogram (US$0.44/lb), even for “Extra-grade” fruit.

Therefore, a large share of the profit from apple sales tends to go to other players along the supply chain, while Brazilian apple producers often face narrower margins, especially since labor costs are rising. Costly inputs also squeeze producers’ margins. Apple growing relies heavily on inputs, particularly foliar and soil fertilizers and crop protection products, and the U.S. dollar exchange rate, import logistics, and global market conditions strongly influence their prices.

Brazil is one of Latin America’s largest apple-consuming markets, and apples are among the five most purchased fresh fruit in the country, with per capita consumption of 4-6 kg (8.8-13 lbs) per year, or approximately 35-40 apples per year. Approximately 93 percent of fresh apples are sold domestically.

Consumer preference favors large, uniformly colored, blemish-free fruit, driving investment in post-harvest handling and sorting technology. Gala variety, which is crisp and sweet, is available May through June, while Fuji variety, known for its characteristic honey spots, is available from October through November and onwards thanks to its longer cold storage life.

Brazil grades apples across five categories – Extra (finest type), Category 1, Category 2, Category 3, and Industry-grade, with Industry-grade fruit processed into vinegar, cider, dried chips, and fermented beverages. Apple juice is the most common processed product. Organic production and regenerative agriculture practices are expanding, particularly in Santa Catarina.

Category	Description	Maximum defects per fruit	Minimum color: red varieties	Minimum color: striped and mixed varieties	Defects not allowed
Extra	Finest type Near-flawless fruit with very small surface defects at most	1	>75%	>60%	Bitter pit, healed severe lesion, frost damage, scab, disease or phytotoxicity, sunburn, stem-end cracking, open lesion
Category 1	High-quality fruit with slight defects	Up to 2	>50%	>40%	Bitter pit, frost damage
Category 2	Good-quality fruit with moderate defects	Up to 3	>25%	>20%	None, if each defect stays within Category 2 limits
Category 3	Lowest fresh-market grade, with more visible defects	Up to 4	>15%	>10%	None, if each defect stays within Category 3 limits
Industrial (fifth category)	Industrial-grade fruit for processing, not for the fresh market	5 or more different Category 3 defects	No requirement	No requirement	Not applicable. Fruit with rot, freezing damage, dehydration, severe internal breakdown (any cause),

Organic apples represent less than 3 percent of national production, with 80-90 percent of organic output destined for vinegar production at around R$7 per kilogram (US$0.61/lb); premium organic fruit fetches R$9.5 per kilogram (US$0.85/lb) but it is more disease-susceptible and prone to blemishes. Processed products, such as juice, cider, and dried apple, represent a smaller but growing consumption segment.

Brazil's apple quality standard, Ministry of Agriculture (MAPA) Normative Instruction (IN) No. 5/2006, is tied to Mercosur. It applies until Brazil adopts the revised MERCOSUR regulation that will replace GMC Resolution 117/96. IN 5/2006 closely follows UNECE (United Nations Economic Commission for Europe) Standard FFV-50 (code for UNECE's quality standard for apples), which the OECD Fruit and Vegetables Scheme applies. Both standards set similar minimum requirements and sort apples into classes with stepped limits on defects and color.

They differ in several ways, however. Brazil uses five categories, while UNECE uses three. Brazil also allows owners to re-sort "out of category" lots or send apples for processing, while FFV-50 does not cover apples for processing. Brazil caps the number of defects per fruit and sizes fruit by count per package, not by diameter or weight. Brazil sets firmness ranges for each cultivar, unlike UNECE. The country also bans mixing cultivars in a package and requires labels in Portuguese that show the packer's CNPJ (National Registry of Legal Entities), the lot and the packing date. Brazilian grades are comparable to UNECE/OECD classes but not equivalent, and exporters must still meet each importing market's requirements.

Trade

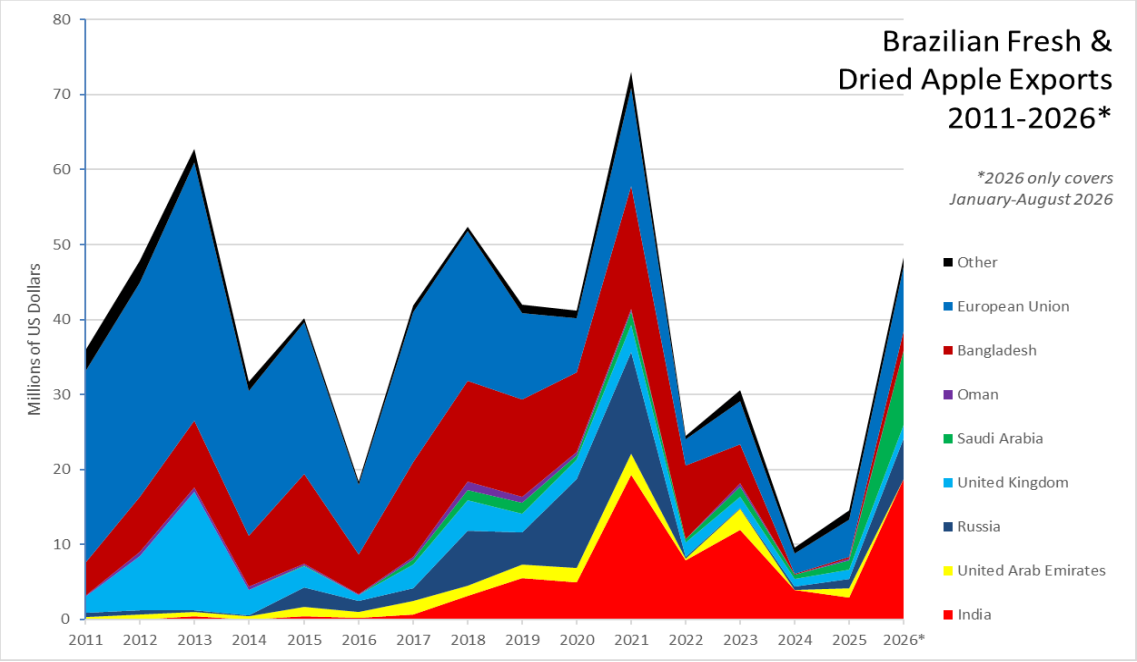
Brazil is historically a significant apple exporter, primarily to Mercosur partners, Europe, and the Middle East. However, export competitiveness has fluctuated in the past couple of years due to

competition from Chilean, Argentine, and European suppliers, as well as exchange rate dynamics and domestic demand cycles.

Imports, mainly Fuji and Gala varieties from Chile and Argentina, enter the Brazilian market during the Southern Hemisphere off-season (June-December) as domestic cold-stored supplies draw down; European and North American apples arrive between November and January, before domestic production enters the market and prices fall.

Brazil's apple exports surged in January-August 2026 with volumes already exceeding full-year totals for most destinations. India leads at 18.8 thousand metric tons (TMT), six times its full-year 2025 figure. Saudi Arabia emerged as a breakout market, jumping from 1.1 TMT in 2025 to 9.9 TMT in the first eight months of 2026. Russia rebounded strongly, with exports reaching 5.4 TMT from January to August 2026, surpassing its full-year 2025 total of 1.1 TMT. The European Union remained a consistent destination, receiving 8.5 TMT during the same period, a 58.6 percent increase over its full-year 2025 volume.

Figure 7
Brazilian Apple Exports



Source: Trade Data Monitor (TDM). Graph prepared by FAS Brasilia.
**2026: Jan-Aug*

The 2025/2026 season marked a notable shift. According to the industry association Abrafrutas, Brazilian apple exports increased 180 percent in early 2026 compared to the same period the prior year, a surge driven by domestic constraint. With a large harvest, limited domestic purchasing power, and compressed farm-gate prices, exporters turned outward to relieve oversupply.

Exports remain a small share of total production, but the sector is increasingly pursuing international market access, including in Asia and the European Union. Brazil has market access to the United States

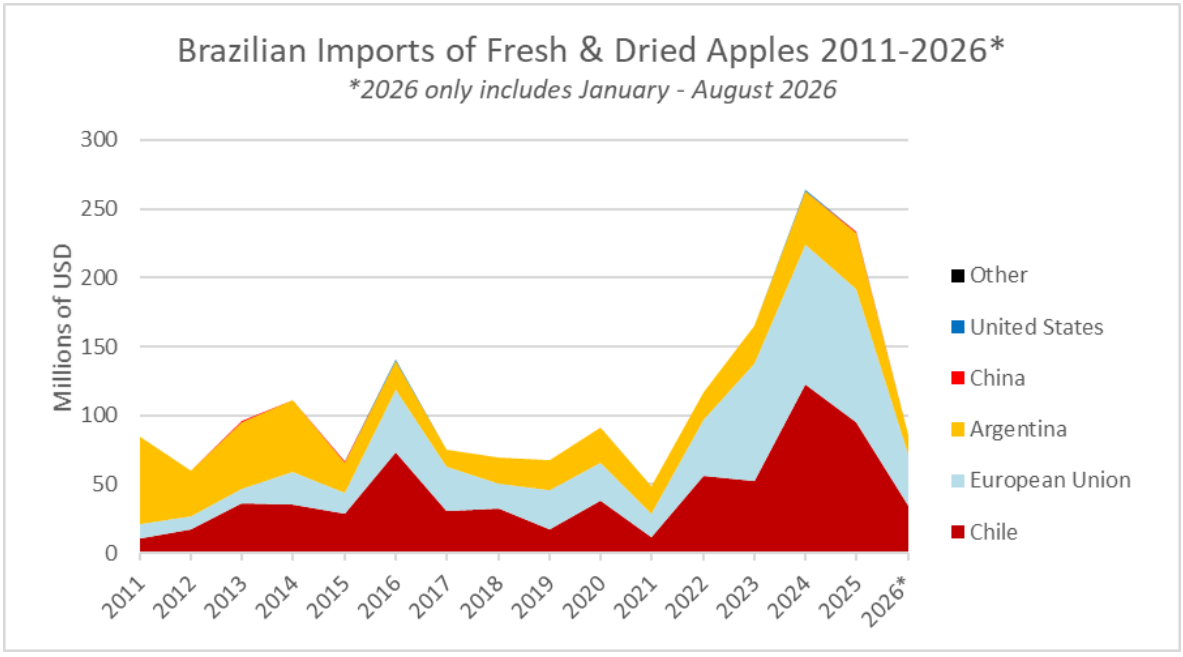
and, in 2020 and 2021, shipped one and two metric tons of apples to the United States, respectively. However, there have been no registered volumes in subsequent periods through the first half of 2026. While the phytosanitary and regulatory framework permits bilateral apple trade between the United States and Brazil, it remains underdeveloped relative to its authorized potential.

The United States has exports to countries like Mexico, Canada, and a wide range of markets across Asia, Latin America, and the Caribbean. On the other hand, Brazil's export footprint is far smaller but strategically concentrated in a handful of markets, most notably India, Bangladesh, the European Union, Russia, the United Kingdom, and a few Middle Eastern countries.

The EU-Mercosur agreement may increase Brazilian apple exports to Europe, but the gain is likely to be limited, since the window when Northern Hemisphere supply runs short is narrow. That window is the pre-harvest period, roughly May to June. According to Post contacts, the agreement creates an opportunity to export more, but not significantly more. Exports have risen in 2026, largely due to weakened domestic demand. Lower incomes have reduced consumption in Brazil, and consumers are buying more oranges, mangoes, and bananas, the country's most consumed fruits.

India is a market where both the United States and Brazil export. Through 2022 and 2023, the two countries exported comparable volumes to India, roughly 8-13 TMT each. The United States then surged ahead in 2024 and 2025, reaching approximately 40-43 TMT, while Brazilian exports to India were around 4.1 TMT and 2.8 TMT. From January to August 2026, Brazil rebounded to approximately 18 TMT, while U.S. exports to India have pulled back to around 15 TMT.

Figure 8
Apple Imports



Source: Trade Data Monitor (TDM). Graph prepared by FAS Brasilia.
**2026: Jan-Aug*

Brazil's apple imports are dominated by Chile, the European Union, and Argentina, each serving distinct seasonal roles. Chile is the largest supplier but has seen volumes fall sharply, from a peak of 114 TMT in 2024 to 31.2 TMT in January through August of 2026. The European Union, led by Italy and Portugal, similarly declined from 86 TMT in 2024 to 27.9 TMT over the same period, while Argentina dropped from 40.5 TMT in 2025 to 11.2 TMT. The across-the-board decline in 2026 reflects Brazil's record domestic harvest suppressing off-season import demand. Volumes are expected to recover as cold-stored domestic supplies draw down later in the year.

The United States holds authorized market access to Brazil for fresh apples (*Malus domestica* and *Malus* spp.), established through a series of Brazilian regulatory instruments: Normative Instruction (NI) MAPA 04/2001, NI MAPA 07/2007, Resolution DSV/SDA/MAPA 7/2019, and NI SDA 101/2020. Market access was consolidated through a specific work plan approved in 2019 to mitigate the phytosanitary risk posed by *Rhagoletis pomonella* (apple maggot fly).

Despite the apple trade opportunity between Brazil and the United States, Brazil's imports of U.S. apples remain minimal - averaging 244 metric tons between 2023 and 2025. This figure represents a fraction of the volumes supplied by leading origins, such as the European Union (80.4 TMT in 2025) and Argentina (40.5 TMT in 2025). The most opportune time for U.S. apple exports to Brazil falls within an estimated 2-3-month window just prior to Brazil's domestic harvest season, which typically runs from December through February.

Policy and Government Support

The Brazilian government supports the apple sector through several key instruments. MAPA oversees phytosanitary standards, variety registration, and market access negotiations, while Embrapa leads research on new varieties, rootstocks, pest and disease management, and climate adaptation.

Embrapa's apple research is led mainly by Embrapa Uva e Vinho in Bento Gonçalves, Rio Grande do Sul, and its temperate fruit station in Vacaria, often working with Santa Catarina's state agency Epagri. Its work includes breeding new varieties, such as BRS Gala JVZ64 ("Purple Gala"), with stronger red-purple skin color, and low-chill apples like BRS Kinkas for warmer areas. It also tests rootstocks for high-density planting and resistance to soil problems.

Embrapa helped create Brazil's Integrated Apple Production system, a certifiable standard that cuts pesticide use and supports exports. Other work covers pest control (pheromone-based mating disruption for the oriental fruit moth and Brazilian apple leafroller, and fruit fly management), disease management (Glomerella leaf spot, and weather-based warnings for apple scab), climate risk zoning, managing trees through mild winters, hail-net research, and storage and fruit quality.

Rural credit programs, including PRONAF for family farmers and broader commercial financing mechanisms, provide capital access, while PROAGRO offers agricultural insurance coverage against frost, hail, and other weather-related losses. State governments in Santa Catarina and Rio Grande do Sul complement federal support through extension services, infrastructure investment, and promotional programs.

Attachments:

No Attachments.