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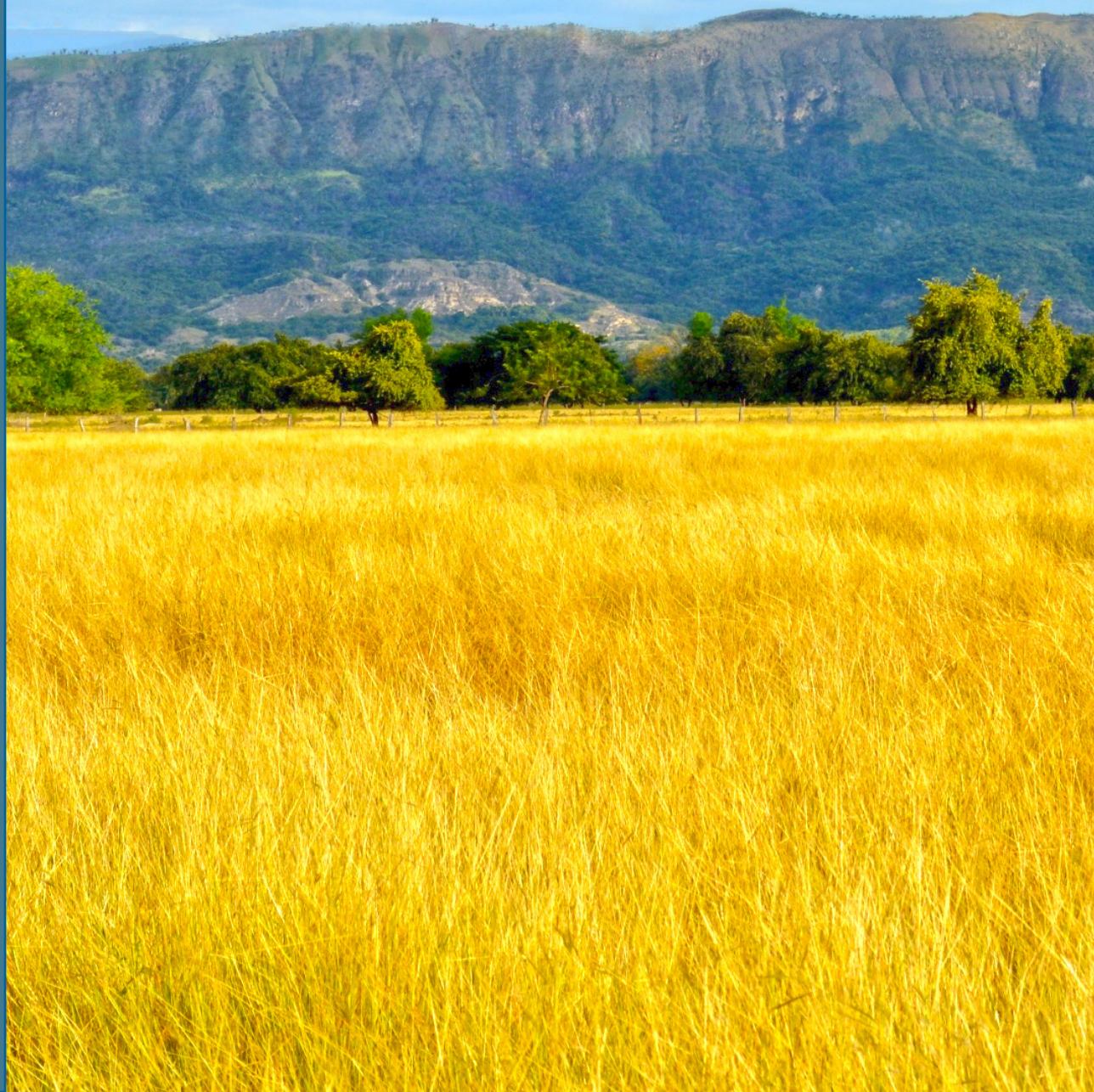
U.S. Agricultural Exports to Colombia: Rising Sales in Response to Trade Liberalization and Changing Consumer Trends

Miguel I. Gómez, Sergio Puerto, Steven Zahniser, and Jie Li



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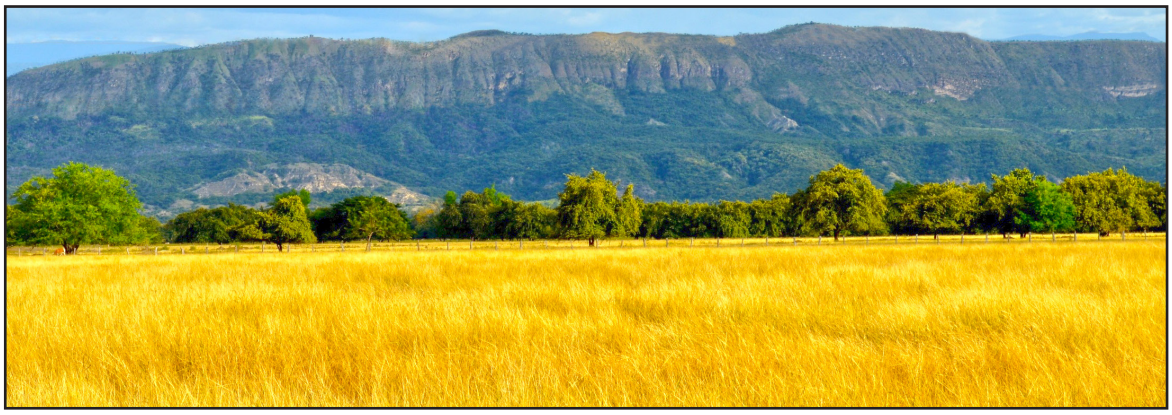

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Abstract

This report explores the performance of U.S. agricultural exports to Colombia over the past decade (2009-19), giving emphasis to leading product categories that show opportunities for further export expansion. Increasing income, an expanding middle class, and dietary changes have led to greater demand for the types of agricultural products imported from the United States. These products include not only bulk commodities (such as grains, oilseeds, and meat) but also less traditional imports—such as packaged food, fuel ethanol, and convenience-store items. This process has been facilitated by the Colombia-U.S. Trade Promotion Agreement (TPA), allowing for substantial gains in the market share of U.S. agricultural suppliers in Colombian food consumption. The impact of the Coronavirus (COVID-19) pandemic on Colombian agricultural trade is not comprehensively addressed in this report. However, our analysis highlights the market opportunities that showed promise for Colombia's foreign and domestic agricultural suppliers prior to the pandemic as a benchmark for policymaking and future research.

Keywords: Colombia, United States, agricultural trade, food trade, Colombia-U.S. Trade Promotion Agreement, TPA, consumer trends, corn, soybeans, pork, wheat, distillers' dried grains with solubles, DDGS, rice, ethanol, bottled water, cheese, USDA, U.S. Department of Agriculture, ERS, Economic Research Service.

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support during the early stages of this research. Finally, special thanks go to Casey Keel, Grant Wall, Christopher Whitney, Christine Williams, Jeremy Bell, and Andrea Pimm (USDA, ERS) for their expert editing and design of the report.

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Contents

Errata
On March 29, 2022, tables 7 and 9 and corresponding text were revised to indicate the correct average annual growth rates for the period 2013-18 in table 7 and the correct time period covered by the year-to-year changes in exports in table 9. No other text or data were affected.

U.S. Agricultural Exports to Colombia: Rising Sales in Response to Trade Liberalization and Changing Consumer Trends

Introduction

This report explores the performance of U.S. agricultural exports to Colombia over the past decade (2009-19), giving emphasis to leading product categories that show opportunities for further export expansion. We used a growth-share matrix to evaluate the development of these exports in specific product categories versus the change in the U.S. share of Colombia's total imports. We examined the 10 leading U.S. agricultural exports to Colombia and 5 additional product categories that are among the fastest-growing exports to Colombia. Some of the key factors influencing the performance of, and future opportunities for, U.S. agricultural exports to Colombia include: Colombia's sustained economic growth over the past two decades (2000–19); changes in Colombian food consumption; the evolution of the country's marketing structures; and the further development of Colombian trade relationships. These relationships are not just with the United States but also with other major trade partners, including the European Union (EU) and neighboring countries such as Ecuador and Peru.

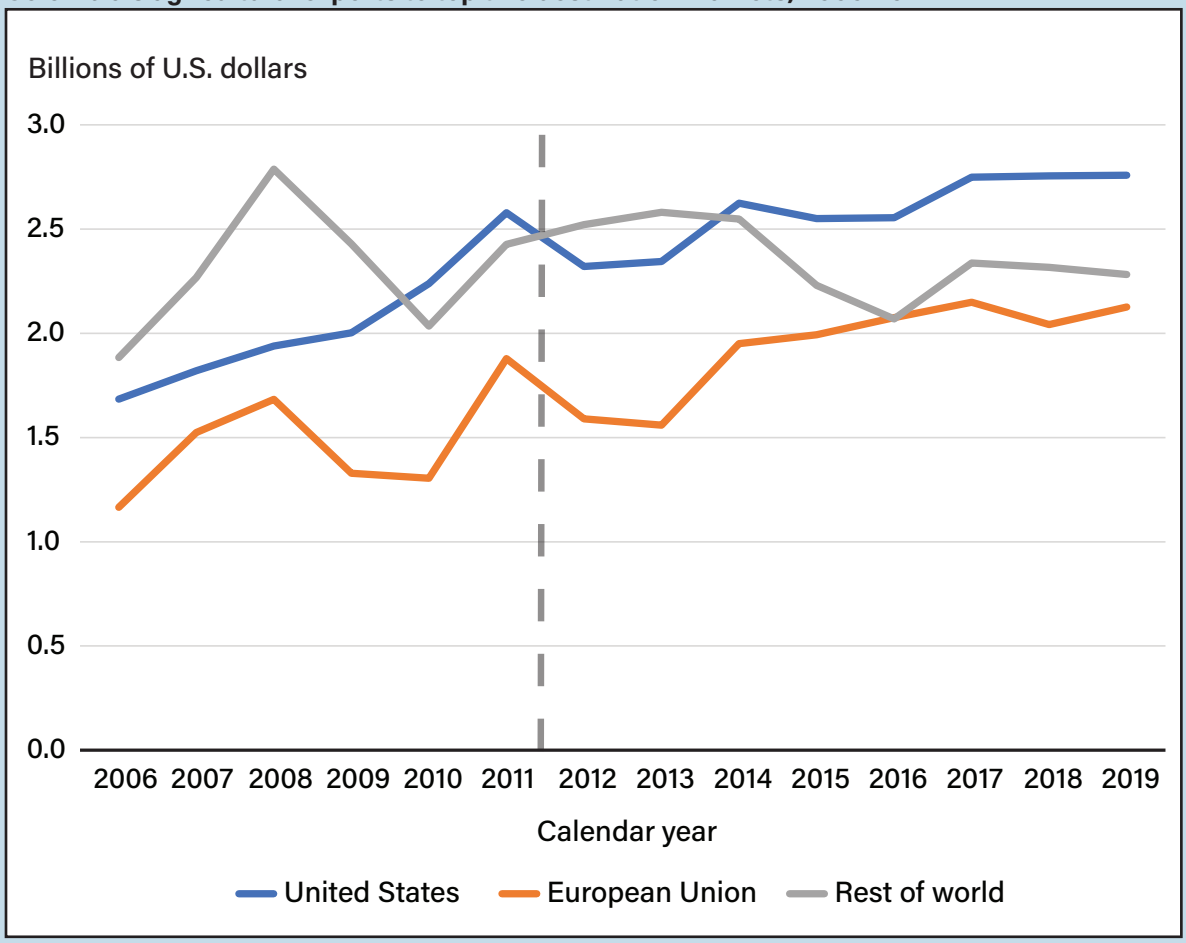
This report dedicates some attention to the Colombia-U.S. Trade Promotion Agreement (TPA), which took effect on May 15, 2012, and how its provisions are broadening the access of U.S. agricultural exports to the Colombian market. The TPA is not just about these exports, of course. For virtually all products—agricultural and nonagricultural—the TPA defines a clear path forward for removing the tariffs and quotas that formerly obstructed U.S. exports to Colombia and Colombian exports to the United States. Because the TPA has been in effect for over 9 years, Colombia and the United States have already traveled a substantial distance along this path and established tariff- and quota-free trade for a number of agricultural products. While U.S. agricultural exports to Colombia are the focus of this report, it should be remembered that Colombia is also a major agricultural exporter, not just to the United States but to countries worldwide (see Box, "Colombia's role as an agricultural exporter").

Colombia's role as an agricultural exporter

Colombia is a globally significant agricultural exporter in terms of total exports and exports in certain product categories. In 2019, Colombia's agricultural exports totaled about $7.2 billion—according to the Colombian Government's trade statistics (Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN), as compiled by Trade Data Monitor, LLC, 2021).[1] About 38 percent of Colombia's agricultural exports that year went to the United States, and 30 percent went to the European Union (EU), including the United Kingdom, which left the EU in January 2020 (box figure 1). U.S. trade statistics reported that Colombia's agricultural exports to the United States totaled about $2.7 billion in 2019 (USDA, FAS, 2021a). From 2009 to 2019, the United States and the EU were major partners in Colombia's export growth—with Colombia's total agricultural exports increasing at a compound annual rate of 0.6 percent.

Box Figure 1

Colombia's agricultural exports to top two destination markets, 2006–19



Notes: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012. ROW = rest of world.

Source: USDA, Economic Research Service calculations using data from Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN), as compiled by Trade Data Monitor, LLC (2021).

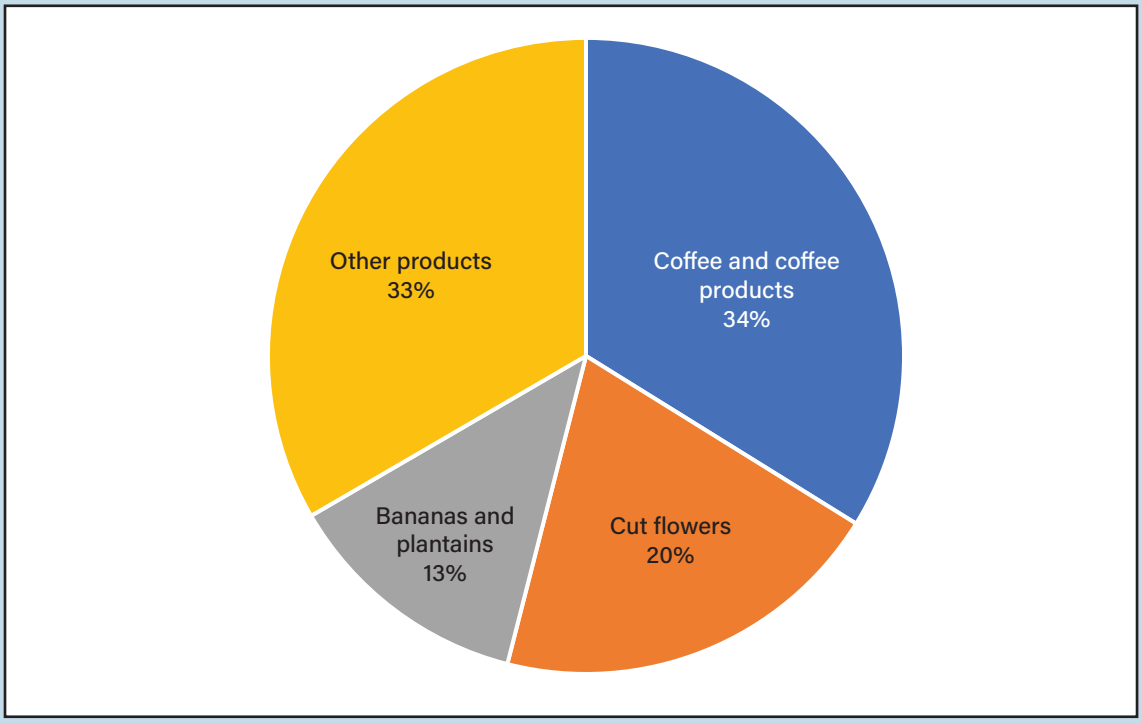
[1]Trade statistics from the Colombian Government are drawn from Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN—Colombian Directorate of Taxes and National Customs), as compiled by Trade Data Monitor, LLC (2021).

Colombia's role as an agricultural exporter- continued

Colombia's leading agricultural exports fall into three main categories: (1) coffee and coffee products; (2) cut flowers; and (3) bananas and plantains. Colombia has exported large quantities of these products for many years, with coffee exports occurring as early as 1835 (coffeechemistry.com, 2016), cut flower exports taking root in the late 1960s and early 1970s (McQuaid, 2011), and banana exports starting in the late 19th century (Bucheli, 2005). In terms of value, these three product categories accounted for about two-thirds of Colombia's total agricultural exports during 2017–19 (box figure 2). Palm oil and sugar are also among Colombia's traditional agricultural exports. Since the start of the 21st century, Colombia's agricultural exports have become more diversified—with increased exports of cocoa and cocoa products and avocados, for example.

Box Figure 2

Composition of Colombia's agricultural exports by selected product category, 2017–19



Source: USDA, Economic Research Service calculations using data from Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN), as cited by Trade Data Monitor, LLC (2021).

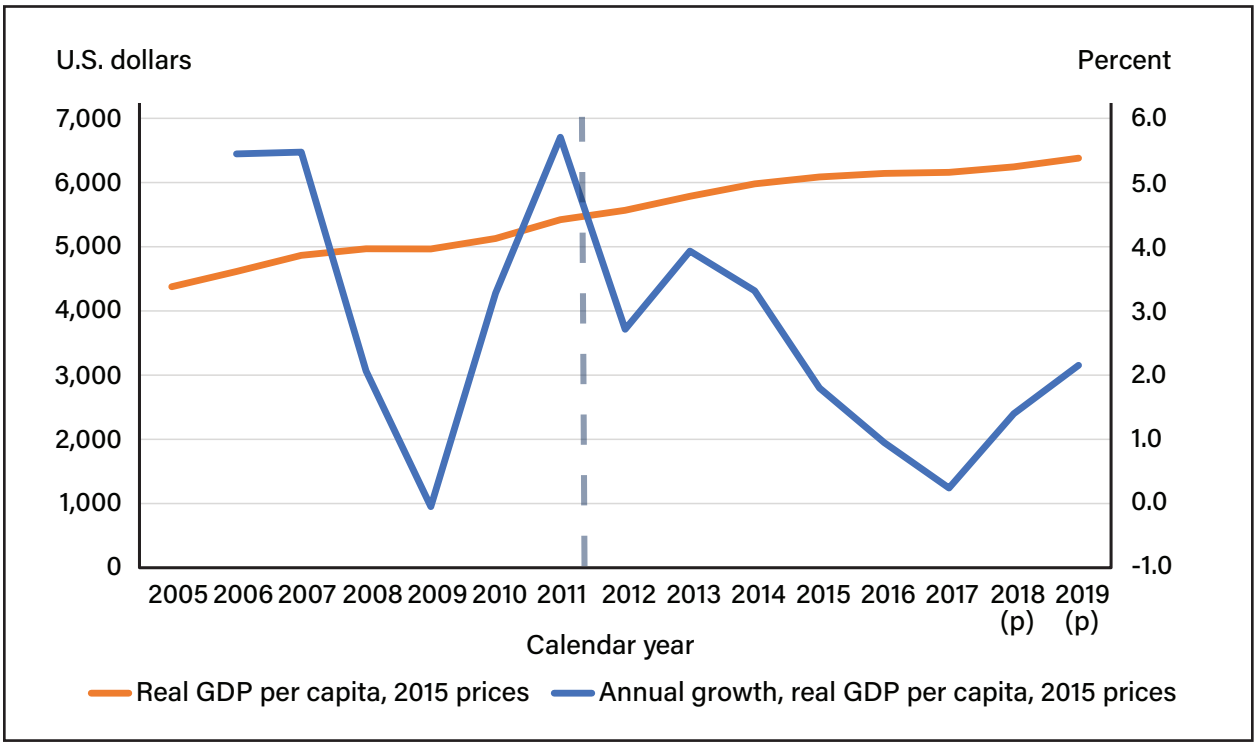
Macroeconomic and Demographic Overview

Colombia is a middle-income, developing country in the northern part of South America with coastal ports located on both the Caribbean Sea and the Pacific Ocean. Until the global economic recession caused by the Coronavirus (COVID-19) pandemic, Colombia experienced a generally favorable period of economic growth from 2000–19 despite impactful economic downturns caused by the Great Recession of 2007–09 in the United States (Colombia's largest trade partner), extreme weather events in 2010-11 that struck several parts of the country, and the fall of oil prices in 2014, which adversely affected the Colombian economy since crude oil is one of Colombia's leading exports (figure 1).

This period of growth was largely influenced by two factors. First, the country achieved greater macroeconomic stability compared with Colombia's past inflationary periods. Second, Colombia's socio-political environment improved with the signing of a peace agreement between the Colombian Government and the country's largest guerrilla group in 2016. This accord offers the promise for all parts of Colombian territory to be integrated more fully into the country's economy.

Bolstered by these positive factors, Colombia's economy grew without interruption between 2005 and 2019—with real per capita gross domestic product (GDP) climbing from $4,400 to $6,400 (in 2005 dollars) at a compound annual growth rate of 2.7 percent. Adjusted for purchasing power parity, Colombia's per capita (GDP) was estimated to be $15,720 for 2019, whereas the average per capita income for emerging markets and developing countries (of which Colombia is an example) was $13,210 (International Monetary Fund [IMF], 2019).

Figure 1
Income growth and per capita income in Colombia, 2005–19



Notes: (p) = preliminary. The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012.

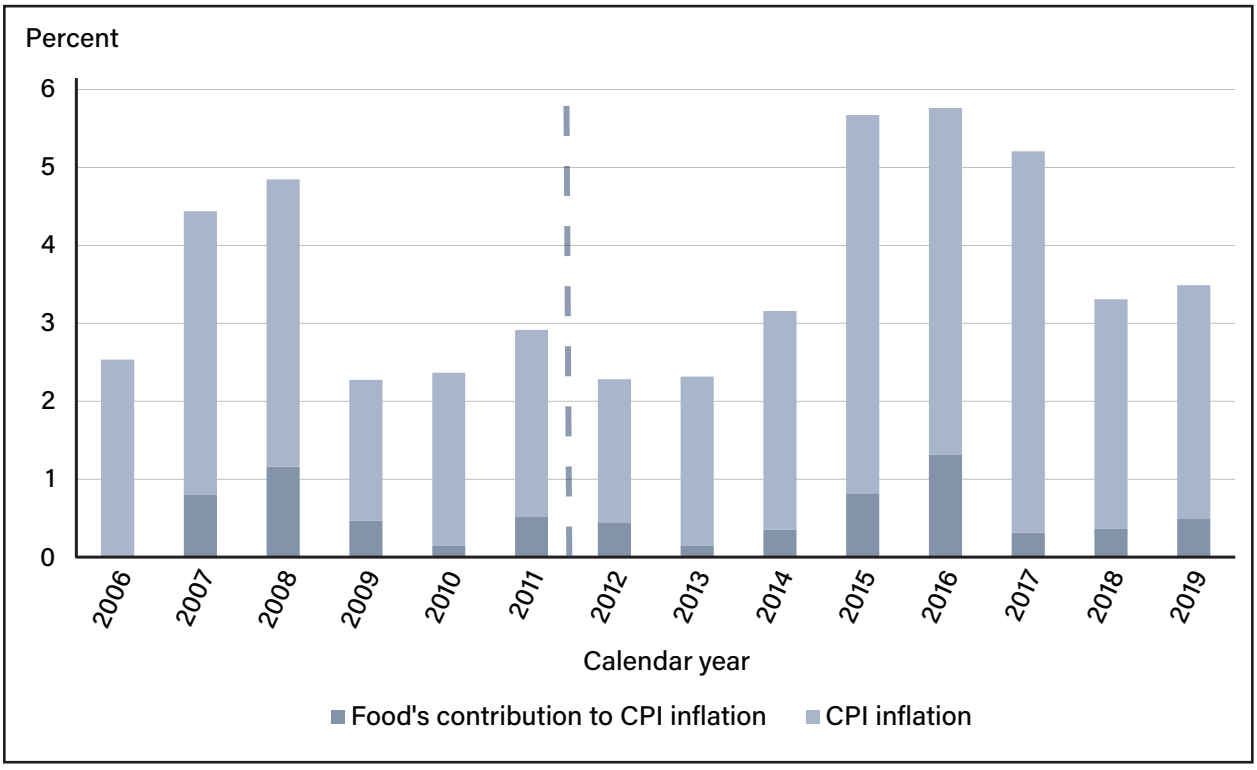
Source: USDA, Economic Research Service calculations using data from Departamento Administrativo Nacional de Estadística (DANE) and Banco de la República, as compiled by Banco de la República, Subgerencia de Política Monetaria e Información Económica (2021).

Analysts have predicted economic growth in Colombia will resume as the COVID-19 pandemic abates. For instance, the IMF's April 2020 *World Economic Outlook* forecasted that real GDP would contract by 2.4 percent in 2020 and then increase by 3.7 percent in 2021 (IMF, 2020). The *USDA Agricultural Projections to 2029* (USDA, OCE, 2020)—prepared prior to the pandemic—relied on the assumption that real per capita GDP in Colombia would increase at a compound annual rate of 2.1 percent between 2020 and 2030.[2] This projection gives some idea of Colombia's long-term prospects for economic growth post-pandemic, should those prospects resemble what was anticipated before the pandemic.

Colombia's stronger economic performance during 2009–19 was partly due to better price stability for consumers. Consumer price inflation in Colombia ranged from 2 to 6 percent during 2005–19. These fluctuations were caused by the depreciation of the Colombian peso, especially after the financial crisis of 2008, weather-related supply shocks in 2011, and the 2014 decline in oil export values (figure 2). In 2019, the inflation rate was 3 percent, roughly in line with the Colombian Government's long-term target rate for inflation.

In most years, food price inflation was a small portion of total consumer price inflation during 2010–19 (figure 2). Exceptions to this pattern were the years 2015 and 2016, when food price inflation accounted for 17 percent and 29 percent of total consumer price inflation, respectively. Lanau et al. (2018) offered several explanations for these exceptions, including El Niño-related shocks to domestic crop production, increased global price inflation, rises in Colombia's value-added tax, and depreciation of the Colombian peso.

Figure 2
Colombia's annual consumer price inflation and food's contribution to inflation, 2006–19



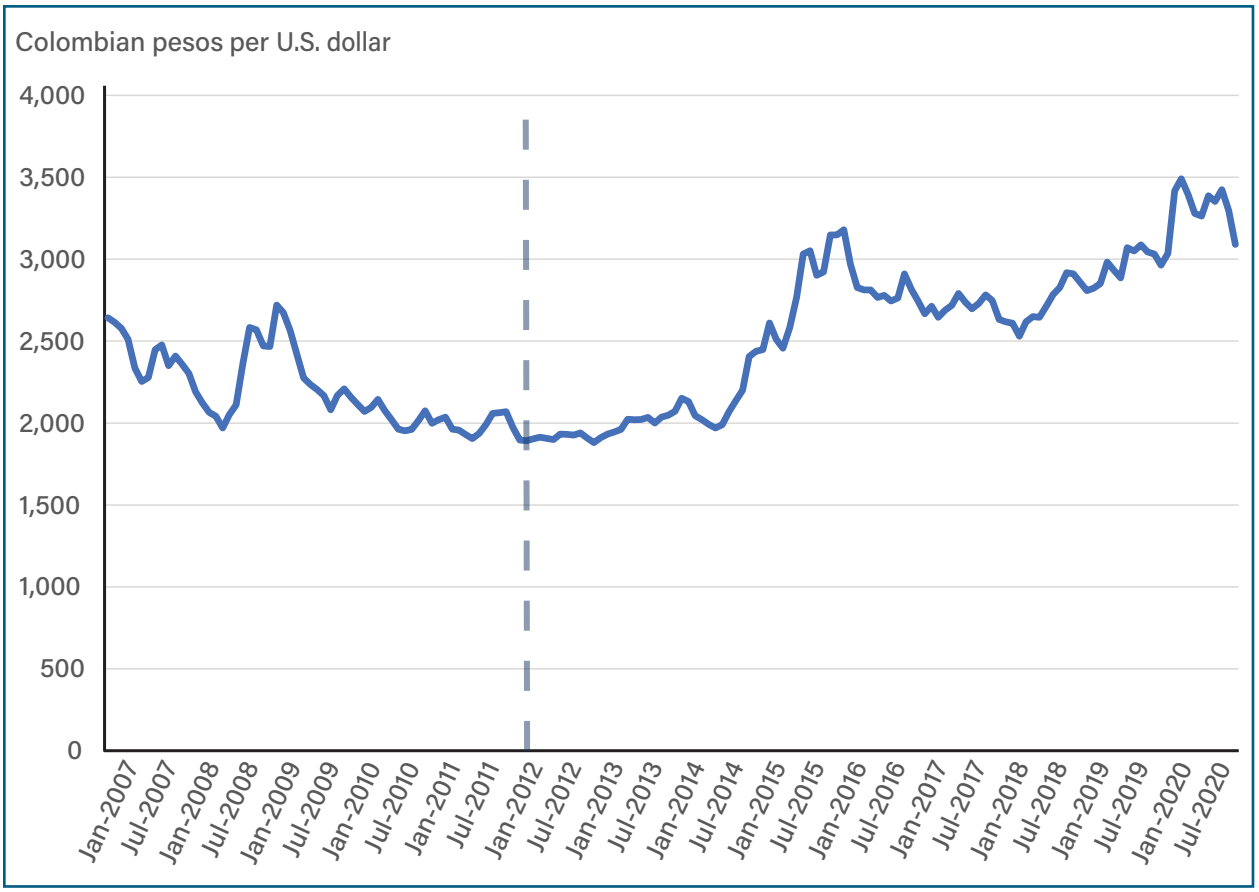
Notes: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012. Inflation rates were calculated using Colombia's consumer price index (CPI), with a base period of December 2008 (CPI for December 2008 = 100). In the figure, the light- and dark-shaded bars sum to equal CPI inflation.

Source: USDA, Economic Research Service calculations using data from Banco de la Republica, Gerencia Técnica.

[2]USDA, ERS (2020) is a detailed database containing the projections' macroeconomic assumptions. The projections themselves do not include a separate model for Colombia, which is instead examined as part of the region "Other South America"—South American countries other than Argentina and Brazil.

Exchange rates affect both international trade and domestic price inflation. For example, a depreciation of the Colombian peso vis-à-vis the U.S. dollar makes agricultural products imported from the United States more expensive to Colombian consumers, thereby placing downward pressure on the volume of imports and upward pressure on Colombian food prices. From May 2012—when the TPA was implemented—to September 2020, the Colombia peso depreciated about 56 percent against the U.S. dollar in real terms (figure 3). During this time, there were two periods of pronounced depreciation: roughly from July 2014 to February 2016 and from April 2018 to the present (September 2020). During March and April 2020, near the beginning of the COVID-19 pandemic, the peso depreciated about 15 percent against the U.S. dollar and then appreciated slightly.

Figure 3
Real U.S.–Colombia exchange rate, January 2009–September 2020



Notes: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012. Base = 2015.

Source: USDA, Economic Research Service calculations using data from the ERS *Agricultural Exchange Rate Data Set* (USDA, ERS, 2021).

Over the past 5 years (2016-present), Colombia has experienced a significant demographic change due to the political and economic crisis in the neighboring country of Venezuela. Following similar global trends, the average annual rate of population growth in Colombia decreased over much of the last three decades, slowing from about 1.8 percent during the late 1980s to 1.1 percent in 2016 (Departamento Administrativo Nacional de Estadística [DANE], 2020b, 2020c). However, population growth then increased, reaching 2.1 percent in 2019, and slowed again to 1.7 percent in 2020 (DANE, 2020a, 2020b). This spurt in population growth is due to the arrival of hundreds of thousands of Venezuelan immigrants fleeing the political and economic

turmoil in their home country.[3] In the past 5 years, the number of Venezuelan migrants living in Colombia increased from nearly 39,000 to roughly 1.8 million, of whom about 800,000 have been granted legal residency status by the Colombian Government (ACAPS, 2020).

Colombia's population in 2020 was estimated to be 50.4 million, with 76 percent living in urban areas (i.e., seats of municipalities). The largest economic class in Colombia, accounting for more than 60 percent of the total population, is low-income. This economic class includes the 20 percent of the population whose income falls below a poverty level of 2 U.S. dollars a day. The middle-income class—accounting for about 12.5 percent of the population—is the fastest-growing group in the country (Euromonitor International, 2018).[4] By 2030, the population is projected to reach 55.7 million, and the annual population growth rate is projected to decline gradually to 0.8 percent (DANE, 2020b). This macroeconomic and demographic context shapes the evolution of the Colombian food production and distribution system, as well as the trade of food and agricultural products between Colombia and the United States.

[3]Other countries that have received large numbers of migrants from Venezuela include Peru, Ecuador, Chile, the United States, Brazil, and Argentina (United Nations Human Rights Council and Migration Bolivia, as cited by World Bank, 2019).

[4]The middle-income class concept used here follows Class C from Euromonitor International (2018). Class C is defined as "the number of individuals whose incomes fall between 100% and 150% of the average gross income of all individuals aged 15+." The low-income class comprises classes D and E, which count for individuals whose incomes are less than 100 percent of average gross income.

Changing Patterns in Colombian Food Expenditures

Colombia's macroeconomic conditions have influenced the levels and composition of Colombian food expenditures. For instance, real growth in per capita income and low rates of food-price inflation allow consumers to increase food expenditures and expand the budget share dedicated to food. Subsequently, higher food spending could translate into people having more diverse diets, greater consumption of more expensive sources of protein such as meat and dairy products, and increased expenditures on food away from home. Moreover, a larger population and a large influx of migrants can affect agri-food systems in many ways. For example, these factors may increase total food demand and the demand for staple foods—such as white corn flour, rice, and beans—and expand the agricultural sector's labor supply.

In Colombia, total food and nonfood consumer expenditures increased without interruption during 2013–19, at a rate above the overall growth rate of the Colombian economy (table 1). Food accounted for about 14 percent of these expenditures. This share exhibited a modest upward tendency, and similar trends were observed in the expenditure shares for nonalcoholic and alcoholic beverages and tobacco products. Changes at the product level indicate a gradual shift away from a traditional Colombian diet—based on grains and tubers and primarily consumed at home—and toward increased consumption of protein-based fresh food, cooking ingredients and prepared meals, and several kinds of food consumed away from home. With the onset of the COVID-19 pandemic, this gradual shift is likely to have been halted if not partially reversed for an indefinite period, with Colombians obtaining a greater portion of their food from meals prepared and consumed at home as they practice social distancing and shelter at home for extended periods of time.

Table 1
Consumer expenditures in Colombia, by selected categories, 2013–19

	2013	2014	2015	2016	2017	2018	2019
	Millions of U.S. dollars						
Total	156.0	168.0	183.8	198.9	210.8	224.0	242.5
Rate of change	--	7.7	9.4	8.2	6.0	6.2	8.3
	Share of total (%)						
Food	13.9	13.7	13.9	14.9	14.3	14.4	14.5
Non-alcoholic beverages	3.1	3.0	3.1	3.4	3.2	3.3	3.3
Alcoholic beverages and tobacco	3.1	3.1	3.0	3.1	3.4	3.4	3.5

Source: USDA, Economic Research Service calculations using data from Euromonitor International (2020a). Data converted from Colombian pesos expressed in current prices using the 2018 exchange rate from the Organisation for Economic Co-operation and Development.

Fresh food and convenience foods were two market segments where consumers noticeably shifted away from the traditional diet during 2013–19 (table 2). Convenience foods consist of packaged foods such as cooking ingredients, ready-to-eat meals, dairy products and their alternatives, snacks, and staple foods. Expenditures on fresh food increased by 67 percent between 2013 and 2019, with an average annual growth rate of 9 percent. Certain categories of fresh food saw even faster growth between 2013 and 2019—including fish and seafood (146 percent), vegetables (123 percent), and meat (73 percent). Expenditures on convenience foods increased by 32 percent over the same period. Categories of convenience foods that experienced faster than average expenditure growth include cooking ingredients and meals (49 percent) and snacks (39 percent).

Table 2
Colombian expenditures on fresh and convenience food by category, 2013–19

	2013	2014	2015	2016	2017	2018	2019
	Billions of U.S. dollars						
Fresh food	21.74	22.97	25.62	29.62	30.05	32.26	35.28
Bread and cereals	4.38	4.54	4.94	5.55	5.46	5.75	6.15
Meat	5.01	5.35	6.04	7.07	7.26	7.86	8.67
Fish and seafood	0.41	0.47	0.57	0.72	0.78	0.88	1.01
Milk, cheese, and eggs	3.97	4.20	4.69	5.44	5.54	5.96	6.53
Fruit	3.07	3.25	3.60	4.13	4.15	4.44	4.83
Vegetables	1.75	1.94	2.30	2.85	3.09	3.43	3.91
Other	0.37	0.36	0.36	0.36	0.32	0.30	0.29
	Billions of U.S. dollars, retail value						
Convenience food	9.56	10.06	10.54	11.21	11.54	11.85	12.59
Cooking ingredients and meals	0.93	0.99	1.08	1.23	1.27	1.32	1.39
Dairy products and alternatives	2.62	2.72	2.83	3.00	3.10	3.14	3.27
Snacks	1.98	2.12	2.27	2.43	2.48	2.59	2.75
Staple foods	4.03	4.23	4.37	4.54	4.70	4.80	5.19

Source: USDA, Economic Research Service calculations using data from Euromonitor International (2020b). Data converted from Colombian pesos are expressed in current prices using the 2018 exchange rate from Organisation for Economic Co-operation and Development (OECD).

Retail channels for Colombian food purchases have also undergone pronounced changes over the past 5 years. The sales of supermarkets and discounters have increased, while the sales of hypermarkets and independent small grocers have decreased (table 3).[5] However, total retail-based sales of food ingredients contracted slightly during 2013–19, suggesting the presence of price competition among food retailers and a decrease of meal-ingredient imports due to peso depreciation.

Table 3
Retail channels in Colombia for meal ingredients, 2013–19

Store-based retailing	2013	2014	2015	2016	2017	2018	2019
	Billions of U.S. dollars, retail value						
Total	0.93	0.99	1.08	1.23	1.27	1.32	1.39
	Share of total (percent)						
Convenience stores	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Discounters	0.80	1.70	2.50	3.20	4.10	5.00	5.60
Hypermarkets	20.80	20.50	20.20	19.80	19.40	19.10	18.60
Supermarkets	19.60	21.30	22.40	23.00	23.40	23.70	23.50
Independent small grocers	52.50	50.80	50.00	49.80	48.90	48.10	47.30
Other grocery retailers	6.20	5.40	4.60	4.00	3.90	3.80	3.00

Source: USDA, Economic Research Service calculations using data from Euromonitor International (2020b). Data converted from Colombian pesos expressed in current prices using the 2018 exchange rate from the Organisation for Economic Co-operation and Development (OECD).

[5]Kenton (2020) defines a hypermarket as "a retail store that combines a department store and a grocery supermarket." Hypermarkets are often very large—bigger than many supermarkets—and typically sell large quantities of products, sometimes at discounted prices.

A third market segment experiencing a change in the level and composition of expenditures is food away from home. For full-service restaurants, expenditures increased by 24 percent between 2013 and 2019 (table 4). Types of full-service restaurants that experienced rapid growth during this period include Middle Eastern restaurants (100 percent)—albeit from a small base—and Asian restaurants (62 percent). Sushi restaurants—often supplied by raw fish from Asia that is packaged by U.S. companies—were part of a rising wave of Asian restaurants in many Colombian cities just before the pandemic. Expenditures in fast-food restaurants increased by 64 percent between 2013 and 2019 (table 4). Additionally, the types of fast-food restaurants maintaining faster rates of expenditure growth over this period included bakery products (133 percent) and Latin American food (76 percent).

Table 4
Colombian food expenditures at restaurants, 2013–19

Category	2013	2014	2015	2016	2017	2018	2019
Full-service restaurants	*Billions of U.S. dollars (retail value RSP)*						
Total	7.14	7.48	7.88	8.27	8.29	8.53	8.91
Asian	0.42	0.47	0.55	0.60	0.62	0.65	0.68
European	0.91	0.96	1.02	1.09	1.12	1.16	1.20
Latin American	3.09	3.14	3.22	3.33	3.28	3.36	3.45
Middle Eastern	0.01	0.01	0.01	0.01	0.02	0.02	0.02
North American	0.03	0.03	0.04	0.04	0.04	0.04	0.04
Pizza	0.62	0.65	0.68	0.70	0.71	0.74	0.81
Other	2.06	2.22	2.37	2.49	2.50	2.57	2.71
Fast food	*Billions of U.S. dollars (retail value RSP)*						
Total	1.35	1.52	1.66	1.78	1.90	2.05	2.21
Asian	0.05	0.06	0.06	0.07	0.07	0.07	0.07
Bakery products	0.18	0.21	0.23	0.26	0.31	0.37	0.42
Burger	0.32	0.35	0.41	0.43	0.47	0.49	0.52
Chicken	0.44	0.48	0.52	0.56	0.57	0.59	0.63
Convenience stores	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Ice cream	0.11	0.12	0.12	0.12	0.12	0.13	0.14
Latin American	0.11	0.14	0.16	0.17	0.18	0.19	0.20
Middle Eastern	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Pizza	0.07	0.08	0.07	0.08	0.08	0.10	0.11
Other	0.06	0.07	0.08	0.09	0.09	0.09	0.10

Notes: RSP = Retail Selling Price. As defined by Euromonitor International (2020b), RSP consists of "sales at end price to consumer, including retailer and wholesaler mark-ups and sales tax (except in the [United States] and Canada) and excise taxes."

Source: USDA, Economic Research Service calculations using data from Euromonitor International (2020b). Fast food restaurant data from limited-service restaurant estimates on market size. Data converted from Colombian pesos expressed in current prices using the 2018 exchange rate from the Organisation of Economic Co-operation and Development (OECD).

The composition of Colombian food expenditures is believed to have changed further during the COVID-19 pandemic. Although precise information is limited, the pandemic's impact appears to have significantly affected the restaurant sector. Repeated lockdowns throughout the country have led to a sharp reduction in food-away-from-home expenditures, resulting in roughly 30 percent of Colombia's restaurants going out of business (Colombian Association of the Gastronomic Industry [ACODRES—Asociación Colombiana de la

Industria Gastronómica], as cited by Salinas, 2020: 6-7). Delivery and carry-out services—many of which utilize e-commerce tools—have provided an alternative income stream for some Colombian restaurants. Nearly three-fourths of Colombians are reported to have used a smartphone application for food delivery (Salinas, 2020: 3). One Colombian fast-food chain has even experimented with automation, in which the food order is placed by the customer using a touchscreen and delivered to the customer via a locker (Rueda, 2020). Although the restaurant sector in Colombia (and other countries) will likely rebound once the COVID-19 pandemic is brought under control, restaurant operations will presumably retain and improve upon the new approaches to delivery and carry-out services introduced during the pandemic.

Trade Opportunities

Changes in Colombia's macroeconomic conditions and food expenditures have generated new and improved opportunities for foreign and domestic agribusinesses. Foreign producers with comparative advantages in producing certain agricultural and food products have benefited from ongoing changes in the Colombian economy over the past decade, and Colombian consumers have benefited from less expensive and more diverse sources of food and agricultural products. Although domestic agribusinesses also have responded to dietary changes resulting from population and income growth, Colombia still needs to import a significant share of certain agricultural products in order to meet increased domestic food demand.

Colombia's agricultural imports are also influenced by low productivity and high costs in the domestic production of some crops. For example, a productivity gap exists between Colombian and U.S. farmers in the production of several bulk agricultural commodities—including corn, soybeans, wheat, and rice—that Colombia imports in large quantities (table 5). The ratios between U.S. and Colombian yields are particularly high for corn (3.03)—a crop where the United States is the world's leading exporter—and somewhat smaller for wheat (1.84)—which Colombia grows only in small quantities—and rice (1.79). In contrast, the yield ratio is not as large for soybeans (1.30), suggesting that Colombian farmers are closer to being competitive internationally for this crop than they are for corn, wheat, or rice. Care must be taken, however, in interpreting yield ratios in this fashion since yields do not measure production costs or the net returns to production.

Table 5
Yield comparison between Colombia and the United States for selected crops, marketing years 2009/10 to 2018/19

Crop	Average yield		Yield ratio, U.S./Colombia
	Colombia	United States	
	Metric tons per hectare		
Corn	3.34	10.12	3.03
Soybeans	2.39	3.10	1.30
Wheat	1.69	3.10	1.84
Rice	4.61	8.24	1.79

Source: USDA, Economic Research Service calculations using data from USDA, Foreign Agricultural Service (2021b).

To explore possible future market opportunities for U.S. exporters, we focused our attention on trade data at the four-digit level of the Harmonized Commodity Description and Coding System (Harmonized System or HS). The Harmonized System is an internationally recognized system for classifying products. It is used by the customs officials of participating countries when collecting international trade statistics and when assessing taxes and duties on traded products (U.S. Department of Commerce, International Trade Administration, 2021). At the international level, the Harmonized System works with six-digit codes, although many countries use HS codes with additional digits after the six-digit codes in order to classify products more precisely. In the United States and Colombia, HS codes have 10 digits at their greatest level of detail (U.S. International Trade Commission, 2021; Dirección de Impuestos y Aduanas Nacionales de Colombia [DIAN], 2021).

Considering the individual digits of a six-digit HS code from left to right, the first two digits (HS-2) indicate the chapter in which the good is classified (e.g., 07 = Edible vegetables and certain roots and tubers). The next two digits (HS-4) indicate the heading in which the good is classified (e.g., 0701 = Potatoes, fresh or chilled), and the last two digits identify the subheading in which the good is classified (e.g., 0701.10 = Potatoes, fresh

or chilled: Seed) (United Nations, Statistics Division, Trade Branch, 2017; U.S. International Trade Commission, 2021). Depending on the desired level of product specificity, one can work with two-digit (HS-2), four-digit (HS-4), or six-digit (HS-6) codes, or even the more detailed eight-digit (HS-8) or 10-digit (HS-10) codes, if available.

We narrowed our attention to only those HS-4 Codes corresponding to agricultural products, as defined by the World Trade Organization (WTO). In this definition, agricultural products consist of those products listed in Chapters 1-24 of the Harmonized System, less fish and fish products, plus a handful of products in other chapters, such as cotton, essential oils, and hides and skins. USDA adopted the WTO's definition of agricultural products as its standard definition to report agricultural trade at the start of calendar year 2021 (USDA, FAS, 2021c). From among the HS-4 codes for agricultural products, we identified the 10 leading product categories within U.S. agricultural exports to Colombia in terms of value in 2018. For this task, we used export data from the U.S. Department of Commerce, Bureau of the Census, as compiled by USDA's Foreign Agricultural Service (USDA, FAS, 2021a) in its *Global Agricultural Trade System* (GATS). The results of this descriptive analysis are shown in table 6.

Based on this definition, the 10 leading export product categories are:

- Corn (HS-4 1005);
- Oilcake and other residues resulting from the extraction of soybean oil (HS-4 2304);
- Soybeans (HS-4 1201);
- Pork (HS-4 0203);
- Residues of starch manufacture and similar residues, beet-pulp, bagasse and other waste of sugar manufacture, and brewing or distilling dregs and waste (HS-4 2303)—predominantly distillers' dried grains with solubles (DDGS) and starch co-products;
- Soybean oil (HS-4 1507);
- Wheat and meslin (HS-4 1001);
- Food preparations not elsewhere specified or indicated (NESOI) (HS-4 2106)—including protein concentrates and textured protein substances;
- Poultry meat (HS-4 0207); and
- Rice (HS-4 1006).

Table 6
Selected U.S. agricultural exports to Colombia, 2009–19 (million U.S. dollars)

Rank	HS-4 code	Product	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Leading agricultural exports													
1	1005	Corn	220.1	121.2	169.1	86.4	186.1	917.9	775.4	774.1	789.5	930.1	685.2
2	2304	Soybean oilcake and other residues from soyoil	30.6	15.0	65.2	68.6	161.6	152.0	289.4	245.4	327.2	396.6	374.3
3	1201	Soybeans	100.3	70.7	40.4	91.7	60.1	149.8	199.0	195.1	211.9	256.1	222.5
4	0203	Pork	7.1	15.6	24.4	45.3	76.7	121.0	85.5	90.0	143.3	199.5	203.1
5	2303	DDGS and starch co-products	37.0	49.9	55.5	86.1	90.6	92.6	87.0	94.0	90.6	108.3	91.6
6	1507	Soybean oil	1.3	17.3	77.4	34.4	76.6	38.5	24.7	61.9	73.0	100.0	57.1
7	1001	Wheat and meslin	141.4	164.2	219.1	140.0	229.6	202.0	166.4	180.9	173.0	87.9	136.6
8	2106	Food preparations NESOI	43.8	46.9	53.5	66.8	90.8	125.3	119.2	108.7	60.0	72.2	86.1
9	0207	Poultry meat	12.5	12.1	15.0	27.2	31.7	36.9	29.8	47.3	55.1	67.5	101.9
10	1006	Rice	25.3	5.6	3.1	56.9	74.0	68.2	139.8	58.3	51.5	54.4	49.2
		Subtotal	619.3	518.4	722.5	703.2	1,077.8	1,904.2	1,916.1	1,855.7	1,975.2	2,272.6	2,007.6
Fastest growing agricultural exports													
1	2207	Ethanol	0.1	0.2	0.3	0.2	10.1	6.4	4.2	10.2	57.6	78.8	116.0
2	0402	Milk concentrates	1.1	1.3	2.3	9.1	9.2	32.0	26.2	52.6	24.4	29.2	87.1
3	0406	Cheese and curd	1.0	1.5	2.4	5.5	10.6	16.1	13.4	13.3	16.3	19.4	24.7
4	2202	Waters and other nonalcoholic beverages	0.5	0.7	1.7	4.2	6.8	13.3	19.6	15.7	17.4	18.3	27.7
5	1901	Food preparations for infant use and other food preparations	2.5	3.5	3.7	5.1	6.4	9.4	12.5	19.2	16.7	15.8	11.7
		Subtotal	5.0	7.2	10.3	24.1	43.1	77.2	76.0	111.1	132.3	161.5	267.2
		Other agricultural products	276.2	303.0	390.3	375.1	417.0	494.1	428.7	434.8	534.0	629.7	620.2
		Total agricultural exports	900.6	828.5	1,122.8	1,102.2	1,527.8	2,469.1	2,416.5	2,391.5	2,584.0	2,985.0	2,779.0

Notes: Ranking is based on exports in 2018. NESOI = Not elsewhere specified or included. DDGS= Distillers' dried grains with solubles.
HS 0402 = Milk and cream, concentrated or sweetened.
HS 1901 = Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40 percent by weight of cocoa calculated on a totally defatted basis, NESOI; food preparations of goods of headings 0401 to 0404, not containing cocoa or containing less than 5 percent by weight of cocoa calculated on a totally defatted basis, NESOI.
HS 2202 = Waters containing added sugar or other sweetening matter or flavored, and other nonalcoholic beverages, not including fruit or vegetable juices of heading 2009.
HS 2207 = Undenatured ethyl alcohol of an alcoholic strength by volume of 80 percent vol. or higher; and ethyl alcohol and other spirits, denatured, of any strength.
HS 2303 = Residues of starch manufacture and similar residues, beet-pulp, bagasse and other waste of sugar manufacture, and brewing or distilling dregs and waste.
HS 2304 = Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of soybean oil.

Source: USDA, Economic Research Service calculations using data from U.S. Department of Commerce, Bureau of the Census, as compiled by USDA, Foreign Agricultural Service (2021a).

In addition to the 10 leading U.S. agricultural exports to Colombia, there are other U.S. agricultural products for which annual exports to Colombia have risen from small levels (less than $5 million per year) to tens of millions of dollars since the TPA took effect in 2012. Five such product categories were identified among the agricultural HS-4 codes:

- Ethanol (ethyl alcohol) (HS-4 2207);
- Milk concentrates (HS-4 0402);
- Waters and other nonalcoholic beverages (HS-4 2202);
- Cheese and curd (HS-4 0406); and
- Food preparations for infant use and other food preparations (HS-4 1901).

Table 7 lists the average growth rate for U.S. exports to Colombia in each of these 5 product categories during the periods 2013–18 and 2008–18. The average annual growth rates during 2013–18 ranged from 23 percent for HS 1901 food preparations to 773 percent for ethanol.

Table 7
Fast-growing U.S. agricultural exports to Colombia: Average annual growth rate for selected products

HS-4 Code	Product	Growth rate over period	
		2013–18	2008–18
		Percent	
2207	Ethanol	773	489
0402	Milk concentrates	50	175
2202	Waters and other nonalcoholic beverages	28	79
0406	Cheese and curd	34	44
1901	Food preparations for infant use and other food preparations	23	29

Notes: HS = Harmonized System. NESOI = not elsewhere specified or included.
HS 0402 = Milk and cream, concentrated or sweetened.
HS 0406 = Cheese and curd.
HS 1901 = Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40 percent by weight of cocoa calculated on a totally defatted basis, NESOI; food preparations of goods of headings 0401 to 0404, not containing cocoa or containing less than 5 percent by weight of cocoa calculated on a totally defatted basis, NESOI.
HS 2202 = Waters containing added sugar or other sweetening matter or flavored, and other nonalcoholic beverages, not including fruit or vegetable juices of heading 2009.
HS 2207 = Undenatured ethyl alcohol of an alcoholic strength by volume of 80 percent vol. or higher; and ethyl alcohol and other spirits, denatured, of any strength.

Source: USDA Economic Research Service calculations using data from U.S. Department of Commerce, Bureau of the Census, as compiled by USDA, Foreign Agricultural Service (2021a).

Next, we gathered data on the U.S. share of Colombian imports for each of the 15 agricultural product categories identified. To calculate this share, we used the U.S. agricultural export data from *GATS* in conjunction with the export data of other countries, as recorded in the United Nations Commodity Trade Statistics Database, or UN Comtrade (United Nations, Statistics Division, 2019). Specifically, for each of the 15 product categories, we used UN Comtrade to identify the top 10 countries other than the United States that exported to Colombia in this same product category during 2009-19. Table 8 shows the U.S. share of Colombian imports for each of the 15 product categories during this period.

Table 8
U.S. market share of Colombian imports of selected agricultural products (in percent of total)

HS-4 Code	Product	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
		Percent										
	Leading agricultural exports											
1005	Corn	37	18	20	7	18	96	98	97	97	95	65
2304	Soybean oilcake and other residues from soyoil	12	5	16	17	32	37	67	53	75	86	80
1201	Soybeans	65	43	33	56	31	53	100	92	100	100	100
0203	Pork	35	41	50	52	61	78	80	87	91	93	94
2303	DDGS and starch co-products	100	100	100	100	99	99	96	98	100	100	96
1507	Soybean oil	2	7	29	7	16	12	20	20	33	35	19
1001	Wheat and meslin	46	44	45	28	47	39	38	35	37	24	32
2106	Food preparations NESOI	31	30	37	43	38	44	35	30	25	26	28
0207	Poultry meat	4	4	12	57	88	91	85	89	93	98	97
1006	Rice	38	96	6	76	57	98	99	45	99	75	64
	Fast-growing agricultural exports											
2207	Ethanol	0	0	0	0	11	8	7	14	44	68	76
0402	Milk concentrates	0	0	10	10	59	36	42	43	42	39	57
0406	Cheese and curd	35	35	67	67	75	79	85	85	77	76	77
2202	Waters and other nonalcoholic beverages	3	3	11	15	16	19	8	5	5	5	33
1901	Food preparations for infant use and other food preparations	5	5	8	8	11	14	15	14	13	12	13

Notes: DDGS = distillers' dried grains with solubles. HS = Harmonized System. NESOI = Not elsewhere specified or included.
HS 0402 = Milk and cream, concentrated or sweetened.
HS 1901 = Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40 percent by weight of cocoa calculated on a totally defatted basis, NESOI; food preparations of goods of headings 0401 to 0404, not containing cocoa or containing less than 5 percent by weight of cocoa calculated on a totally defatted basis, NESOI.
HS 2202 = Waters containing added sugar or other sweetening matter or flavored, and other nonalcoholic beverages, not including fruit or vegetable juices of heading 2009.
HS 2207 = Undenatured ethyl alcohol of an alcoholic strength by volume of 80 percent vol. or higher; and ethyl alcohol and other spirits, denatured, of any strength.
HS 2303 = Residues of starch manufacture and similar residues, beet-pulp, bagasse and other waste of sugar manufacture, and brewing or distilling dregs and waste.
HS 2304 = Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of soybean oil.

Source: USDA, Economic Research Service calculations using data from U.S. Department of Commerce, Bureau of the Census, as compiled by USDA, Foreign Agricultural Service (2021a), and from UN Comtrade (United Nations, Statistics Division, 2020).

The share data in Table 8 reveal that the U.S. market share is already quite high in a number of the product categories examined. In 2019, the U.S. market share was greater than 50 percent for 9 of the 15 product categories, greater than 75 percent for 6 of the categories, and greater than 90 percent for 4 of the categories. Thus, for those product categories where the United States already supplies a large share of Colombia's imports, further growth in U.S. exports to Colombia must come from an increase in Colombia's domestic consumption of those products.

Metrics to Analyze Trade Opportunities

With the trade data in hand, we examine U.S. export performance in these 15 product categories more closely by using a variant of a growth-share matrix.[6] Growth-share matrices are widely used in market analysis and marketing strategy (see, for example, Mohajan, 2017; Morrison, 1991) and provide a simple way to identify market opportunities for specific goods and services. For each of the product categories, we compared the changes in U.S. exports to Colombia with the U.S. share of Colombian imports of that product. In our analysis, the term ΔX^{US} describes the year-to-year changes in U.S. exports to Colombia in terms of value, and the term s^{US} indicates this share for a given product in a given year.

For a given product (or product category), Colombia's imports (from all countries) during a particular year should equal the difference between total domestic consumption and total domestic production. If consumption increases and is matched by an increase in domestic production, then the opportunities for additional U.S. exports of that product are likely to be limited. Conversely, if domestic consumption of that product is higher than domestic supply—and if this difference remains or expands over time—it could represent a growing export opportunity for the United States and other exporters of that product. However, the share of imports in total consumption alone does not fully measure the extent to which U.S. products are represented in supplying the Colombian market since producers in other countries are also vying for that market. For this reason, our growth-share analysis includes the U.S. share of Colombian imports in addition to the changes in U.S. exports.

Drawing upon the trade data for each of the 15 agricultural products of interest, we calculated the annual averages of two variables: (1) the U.S. share of Colombian imports, s^{US}, for the period 2009-19 and (2) the year-to-year changes in U.S. exports to Colombia, ΔX^{US}, for 2009-18 (table 9). We then used these data to construct a growth-share matrix that categorizes our set of product categories according to these two variables (figure 4). The x-axis of figure 4 illustrates the average share of the Colombian market supplied by the United States, while the y-axis indicates the relative importance of each product category in terms of the annual increase in export value. The average annual changes in U.S. exports to Colombia are presented on the y-axis using a logarithmic scale in order to allow for ordinal comparisons. Wheat is not included in the growth-share matrix presented in figure 4 because its annual average of changes in U.S. exports to Colombia was negative during 2009-19.

This analysis allows direct comparisons across product categories in terms of market opportunities in the Colombian market. Different combinations of high and low changes in exports (ΔX^{US}) and of high and low shares (s^{US}) result in four different groups of U.S. products. The first group (quadrant I of figure 4) is characterized by a high average market share and high year-to-year changes in U.S. exports to Colombia. These large values indicate that the United States has maintained a leading position among Colombia's foreign suppliers and that the Colombian market is of growing importance to U.S. exporters. This first group of products includes corn, soybeans, and pork—which were respectively the first, third, and fourth leading U.S. agricultural exports to Colombia in 2018 (table 6).

[6]A growth-share matrix is a type of graph commonly used in market analysis to plot the growth of a variable against a share variable—for instance, growth in a firm's sales of a specific product versus the firm's share in the market for that product. This type of graph is sometimes called a Boston Consulting Group (BCG) matrix, in recognition of the firm where the graph was pioneered in 1970 (Boston Consulting Group, 2020; Hayes, 2020; Mohajan, 2018; Morrison and Wensley, 1991).

Table 9

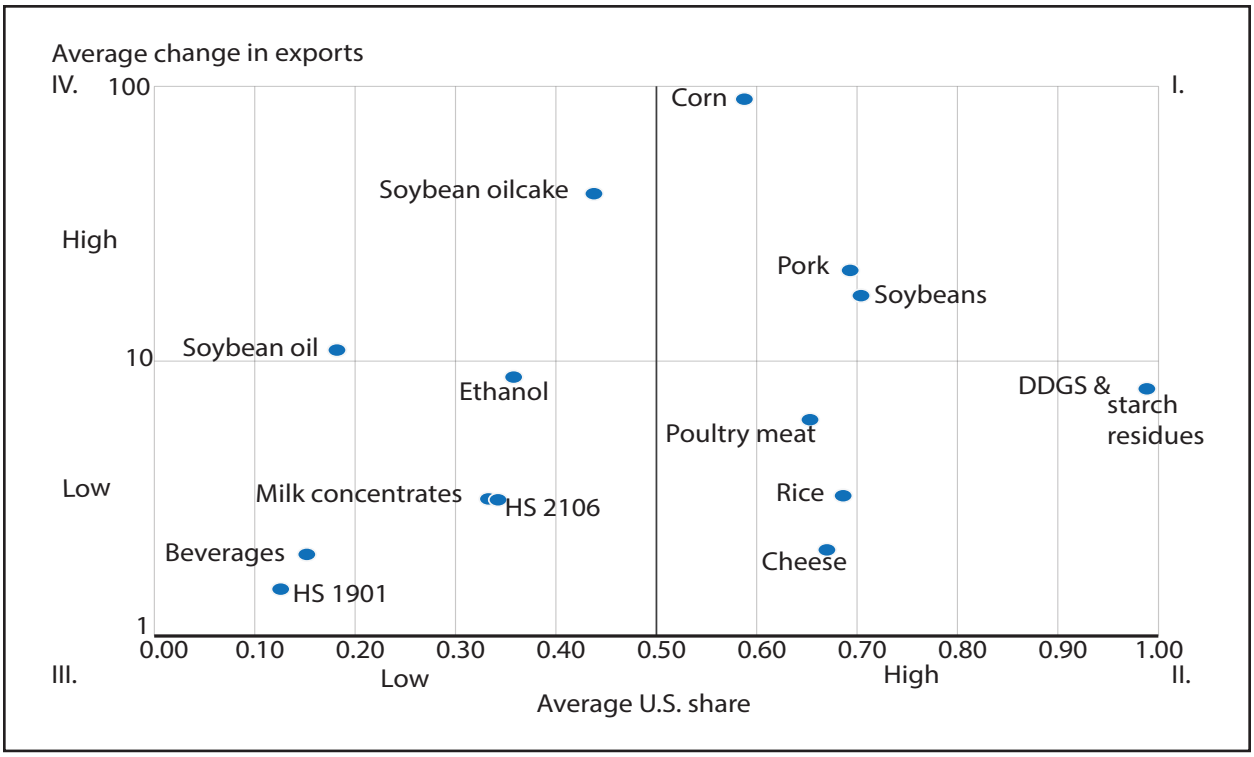
Year-to-year change in U.S. exports to Colombia and U.S. share of Colombian imports for selected agricultural products: annual averages

HS-4 Code	Product	Year-to-year change in exports, annual average, 2009-18	U.S. share, annual average, 2009-19
		U.S. dollars (millions)	*Percent*
	Leading agricultural exports		
1005	Corn	89.8	59
2304	Soybean oilcake and other residues from soyoil	40.7	44
1201	Soybeans	17.3	70
0203	Pork	21.4	69
2303	DDGS and starch co-products	7.9	99
1507	Soybean oil	11.0	18
1001	Wheat and meslin	-6.0	38
2106	Food preparations NESOI	3.2	33
0207	Poultry meat	6.1	65
1004	Rice	3.2	69
	Fast-growing agricultural exports		
2207	Ethanol	8.7	14
0402	Milk concentrates	3.1	34
0406	Cheese and curd	2.1	67
2202	Waters and other nonalcoholic beverages	2.0	15
1901	Food preparations for infant use and other food preparations	1.5	13

Notes: DDGS = distillers' dried grains with solubles. HS = Harmonized System. NESOI = Not elsewhere specified or included.
HS 0402 = Milk and cream, concentrated or sweetened.
HS 1901 = Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40 percent by weight of cocoa calculated on a totally defatted basis, NESOI; food preparations of goods of headings 0401 to 0404, not containing cocoa or containing less than 5 percent by weight of cocoa calculated on a totally defatted basis, NESOI.
HS 2202 = Waters containing added sugar or other sweetening matter or flavored, and other nonalcoholic beverages, not including fruit or vegetable juices of heading 2009.
HS 2207 = Undenatured ethyl alcohol of an alcoholic strength by volume of 80 percent vol. or higher; and ethyl alcohol and other spirits, denatured, of any strength.
HS 2303 = Residues of starch manufacture and similar residues, beet-pulp, bagasse and other waste of sugar manufacture, and brewing or distilling dregs and waste.
HS 2304 = Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of soybean oil.

Source: USDA, Economic Research Service calculations using data from U.S. Department of Commerce, Bureau of the Census, as compiled by USDA, Foreign Agricultural Service (2021a), and from UN Comtrade (United Nations, Statistics Division, 2020).

Figure 4
Growth-share matrix plot for selected U.S. agricultural exports to Colombia



Notes: For the agricultural product categories indicated, this figure compares the annual averages of the year-to-year changes in U.S. exports to Colombia with the annual averages of the U.S. share of Colombia's imports. Table 9 lists the data shown in the figure.
DDGS = distillers' dried grains with solubles. NESOI = not elsewhere specified or indicated.
HS 1901 = Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40 percent by weight of cocoa calculated on a totally defatted basis, NESOI; food preparations of goods of headings 0401 to 0404, not containing cocoa or containing less than 5 percent by weight of cocoa calculated on a totally defatted basis, NESOI.
HS 2106 = Food preparations NESOI.

Source: USDA, Economic Research Service calculations.

For the second group of product categories—soybean oilcake and soyoil (quadrant IV of figure 4)—the Colombian market is of growing importance to U.S. exporters, but the U.S. share of that market was low compared with other product categories during the period examined. These products have generated opportunities for U.S. exporters wanting to capitalize on the increasing demand for these products, and it may be possible for the United States to expand its market share of these imports in the future. Conversely, the third group (quadrant II of figure 4) consists of product categories with a high U.S. market share but relatively low changes in U.S. exports to Colombia. In this case, the Colombian market is likely saturated with imports, and future import growth will depend mainly on further increases in domestic consumption. In this group, we find products such as poultry meat, rice, DDGS and starch residues, and cheese.

Finally, the last group of product categories (quadrant III of figure 4)—including milk concentrates, food preparations in HS 1901 and 2106, waters and other nonalcoholic beverages, and ethanol—experienced smaller increases in U.S. exports to Colombia with the United States maintaining a relatively low market share. These characteristics suggest that for this last group of product categories, U.S. exporters find it relatively difficult to compete in the Colombian market, compared with other product categories. Ethanol is an especially interesting case because it has the highest average annual increase in exports among the product categories in this fourth group, to the extent of being on the frontier of the second group of product categories (quadrant IV of figure 4).

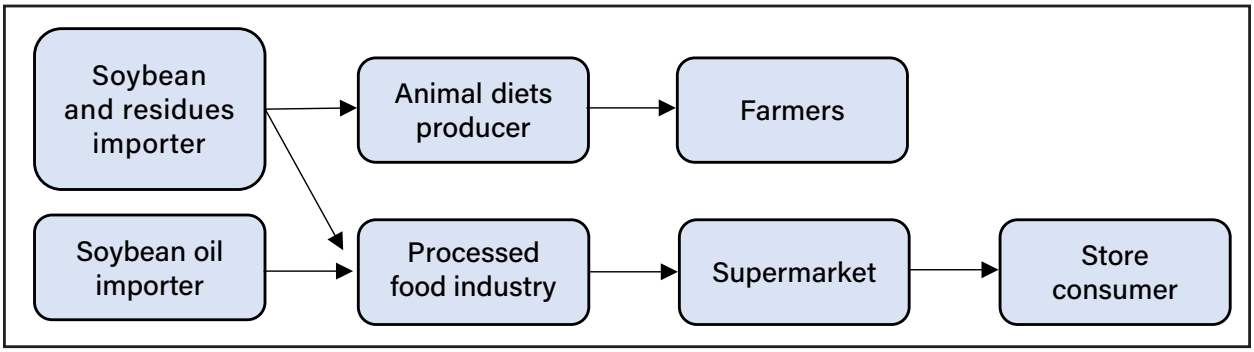
Commodity-Specific Experiences

In the previous section, a systematic approach was employed to identify U.S. products with significant trade opportunities in the Colombian market. In this section, we use a value chain analysis to examine the experiences of specific agricultural exports. We primarily focus on products with fast import growth—i.e., those that appear in the upper quadrants of figure 4. We also examine trends in trade values, trade volumes, domestic consumption, and domestic production—when such information is available. Corn and wheat are included in the analysis, given their important export values. In the case of fast-growing products, we analyze ethanol and milk concentrates. For each product, we analyze the main challenges for growth, as well as the main features of the TPA that have enabled the success of U.S. agricultural exporters in the Colombian market. The intent is not to assess the effects of the TPA, as this would require an econometric model or a simulation model accounting for the full set of factors influencing agricultural trade between the two countries. Instead, our goal is to conduct a descriptive analysis of product-specific changes in trade value and to highlight possible ways that the TPA facilitated U.S.-Colombia agricultural trade.

Soybeans and Soybean Products

Imported soybeans and soybean products follow supply chains that run through the food processing sector before reaching the final consumer (figure 5). Soybean oil imports go directly to food manufacturing companies processing and packaging the oil to distribute it to other packaged food companies, supermarkets, and hypermarkets. Often, soybean meal imports first go to feed manufacturers before making their way to livestock and poultry producers. Thus, the rising demand for imported soybeans and soybean products is linked to increasing Colombian meat expenditures.

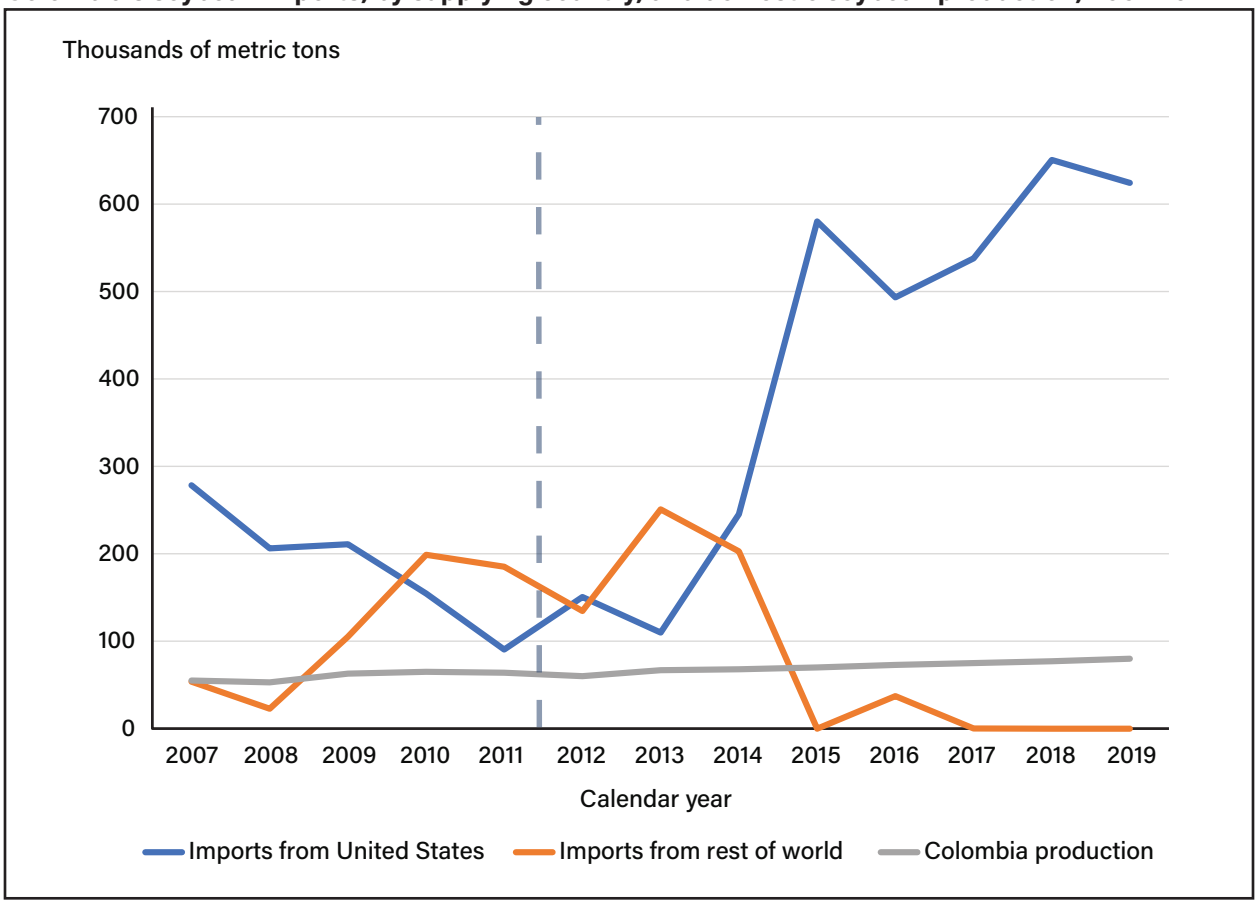
Figure 5
Supply chain for imported soybeans and soybean products



Source: USDA, Economic Research Service.

The United States supplies almost all of Colombia's soybean imports (figure 6). Prior to 2015, Argentina, Bolivia, and Paraguay also were important soybean suppliers to Colombia, but their soybean exports to Colombia have decreased to negligible levels in recent years. In 2019, U.S. trade statistics indicate that the United States exported about 638,000 metric tons of soybeans to Colombia, with a total value of $221 million (USDA, FAS, 2021a). Colombia's soybean imports have increased more than threefold since 2011. Domestic soybean production in Colombia modestly trended upward over the past decade (2009-19) and supplied about 20 percent of Colombia's total soybean consumption during 2017–19 (USDA, FAS, 2021b).

Figure 6
Colombia's soybean imports, by supplying country, and domestic soybean production, 2007–19

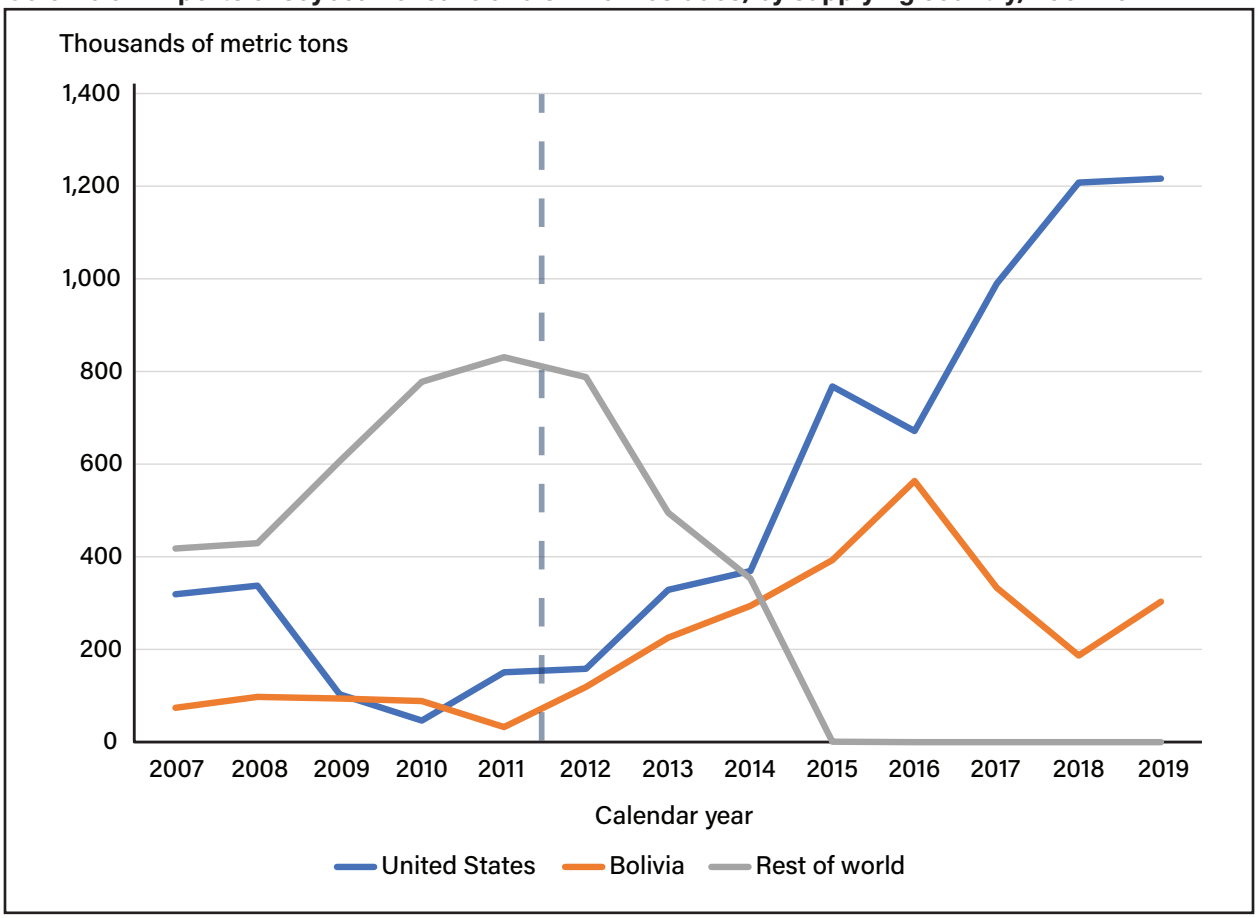


Notes: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012. Production estimates correspond to marketing year; for instance, the quantity of production for the 2018/19 marketing year is displayed with the import data for calendar year 2019.

Source: USDA, Economic Research Service calculations using import data from Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN) as compiled by Trade Data Monitor, LLC (2021) and production estimates from USDA, FAS (2021b).

Since the TPA's implementation in 2012, the United States has solidified its position as Colombia's leading foreign supplier of soybean oilcake and similar residues (HS-4 Code 2304), and imports from Bolivia in this product category have decreased since 2016 (figure 7). In 2019, U.S. exports to Colombia of soybean oilcake and similar residues totaled 1.3 million metric tons ($425 million), according to U.S. statistics (USDA, FAS, 2021a). U.S. soybean oilcake exports to Colombia increased six-fold during 2011–19. Prior to the TPA, these exports were subject to an import tariff of 20 percent. This tariff was eliminated immediately upon the TPA's implementation (USTR, 2019).

Figure 7
Colombian imports of soybean oilcake and similar residues, by supplying country, 2007–19

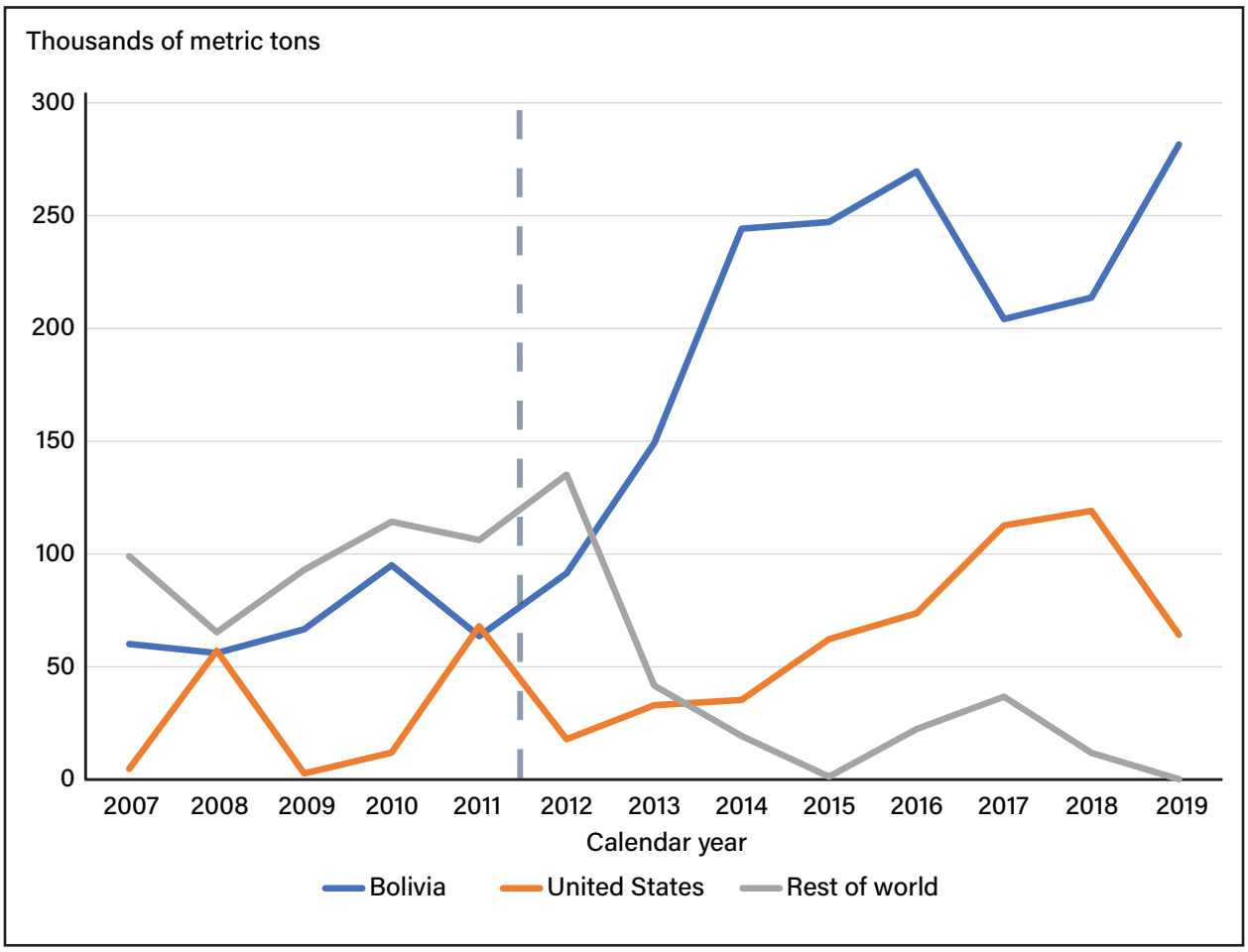


Note: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012.

Source: USDA, Economic Research Service calculations using data from Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN), as compiled by Trade Data Monitor, LLC (2021).

Bolivia is Colombia's leading foreign supplier of soyoil (HS-4 Code 1507), followed by the United States (figure 8). In 2019, Bolivia accounted for 81 percent of Colombia's soyoil imports, while the United States provided 19 percent. Since the TPA's implementation in 2012, Colombian imports of U.S. soyoil have increased, with the exception of a decline in import volume in 2019.

Figure 8
Colombian soyoil imports by supplying country, 2007–19



Note: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012.

Source: USDA, Economic Research Service calculations using data from Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN), as compiled by Trade Data Monitor, LLC (2021).

The TPA established a transitional tariff-rate quota (TRQ) for U.S. crude soyoil, with a duty-free quota that gradually expanded each year during the first 9 years of the TPA. The TRQ was eliminated on January 1, 2021. Since that date, there has been no tariff or quota barrier to U.S. soyoil exports to Colombia. When the TRQ was in place, over-quota exports were charged a tariff that was successively reduced each year until the TRQ was eliminated. Prior to the TPA, these exports faced an import tariff of 24 percent.

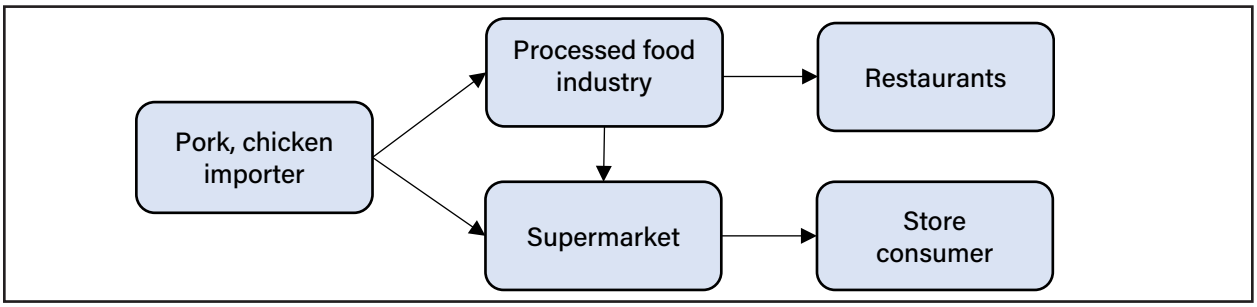
In 2020—the last year of the transitional TRQ—the duty-free quota equaled 42,699 metric tons, and the over-quota tariff equaled 2.4 percent. By 2019, the phasing out of the TRQ had already reached the point where the over-quota tariff was sufficiently low that the TRQ was no longer a major impediment to U.S. soyoil exports to Colombia. In that year, U.S. soyoil exports to Colombia totaled 76,000 metric tons ($57 million) (USDA-FAS, 2021), the duty-free quota totaled 41,057 metric tons, and the over-quota tariff totaled 4.8 percent.

These trends in U.S.-Colombia agricultural trade suggest an increased demand for poultry products. Accordingly, because soybeans and soybean products are an important production input for poultry and, combined with the decreased import tariff, the market share of U.S. soybeans and soybean-product exports has increased in the Colombian market.

Pork and Poultry Meat

U.S. pork and poultry meat exports to Colombia supply two types of value chains (figure 9). Unprocessed cuts of meat are transported to be processed by being cut, packaged, and distributed to restaurants and supermarkets. Other products—especially pork cuts that are already packaged—are then sold directly to supermarkets.

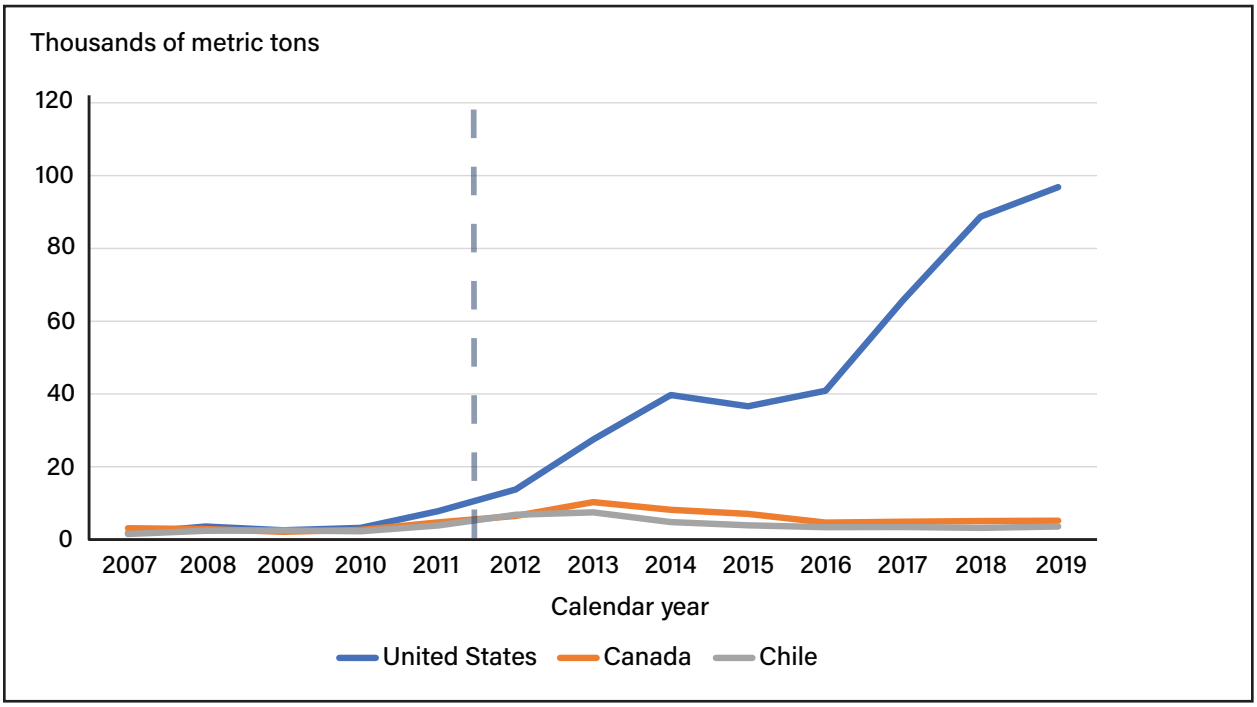
Figure 9
Supply chains for Colombian imports of pork and poultry meat



Source: USDA, Economic Research Service.

Since the TPA provided more liberal trade guidelines for U.S.-Colombia agricultural trade, Colombia has significantly increased U.S. pork and poultry imports, from a few thousand metric tons in 2010 to nearly 100,000 metric tons in 2019. Colombian pork and poultry imports from other countries have remained stable. The United States has become Colombia's predominant foreign pork supplier (figure 10). In 2019, the United States supplied 92 percent of Colombia's pork imports, and Canada and Chile supplied nearly all of the remaining 8 percent.

Figure 10
Colombian pork imports, by supplying country, 2007–19

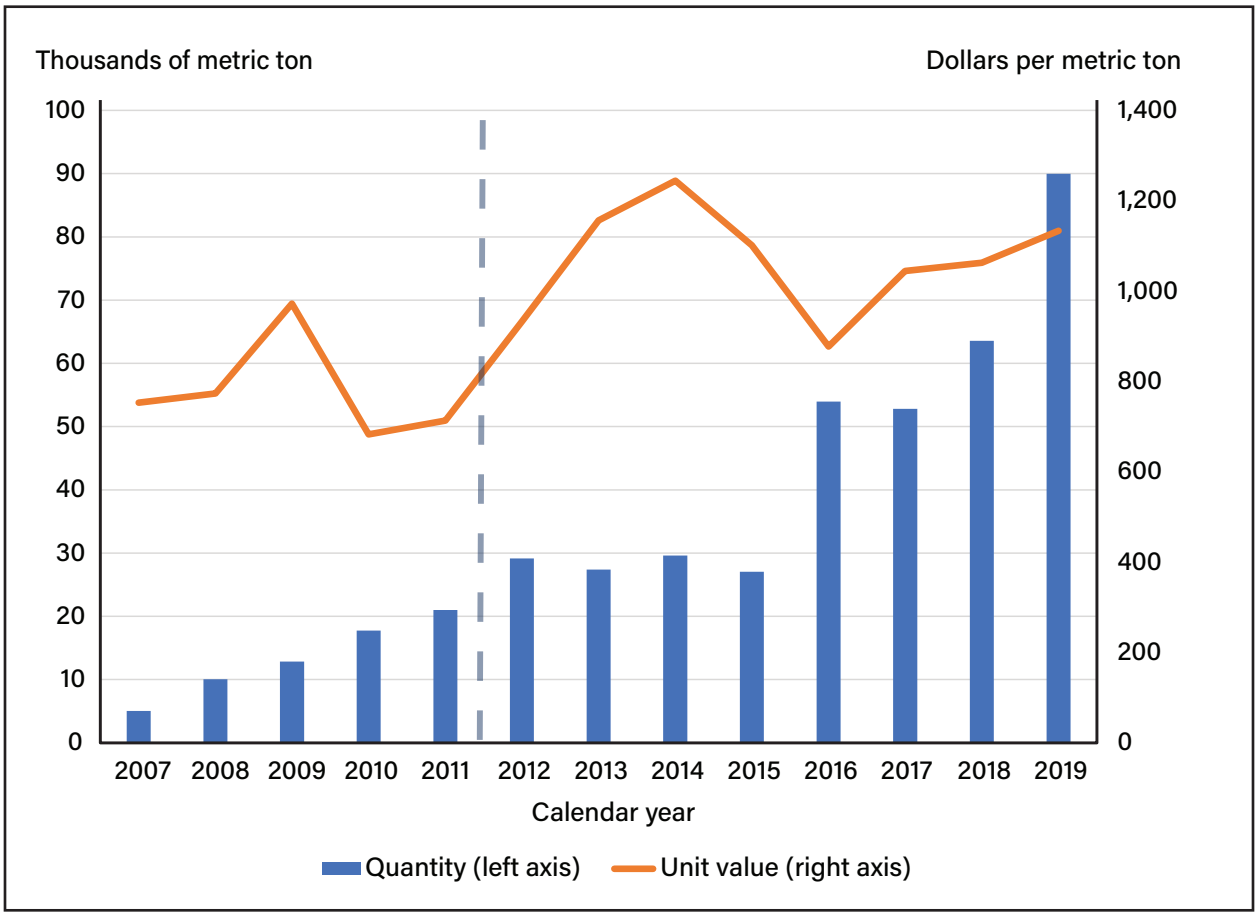


Notes: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012. Pork is defined as HS-4 category 0203. USDA's definition of pork in its Foreign Agricultural Trade of the United States classification system is broader and includes products in other HS-4 codes as well.

Source: USDA, Economic Research Service calculations using data from Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN), as compiled by Trade Data Monitor, LLC (2021).

The United States has also become Colombia's main foreign poultry meat supplier since the TPA's implementation in 2012. U.S. poultry meat exports to Colombia have more than tripled since 2012. Exports climbed from about 21,000 metric tons in 2011 to 90,000 metric tons in 2019, while the unit value has fluctuated (figure 11). These exports consist almost entirely of frozen chicken cuts and edible offal.

Figure 11
U.S. poultry meat exports to Colombia, 2007–19: Quantity and unit value



Notes: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012. Poultry meat is defined as HS-4 category 0207. USDA's definition of poultry meat in its Foreign Agricultural Trade of the United States classification system is slightly broader and includes products in other HS-4 codes.

Source: USDA, Economic Research Service calculations using data from U.S. Department of Commerce, Bureau of the Census, as compiled by USDA, Foreign Agricultural Service (2020a).

Over the last decade (2009-18), Colombian per capita pork and chicken consumption increased, even in years of economic downturn (table 10). This increase is partly because of the TPA, which boosted local production via increased feedstuffs imports, in addition to the TPA making U.S. pork and chicken imports more broadly available. Between 2011 and 2019, pork consumption increased 103 percent, and chicken consumption increased 50 percent.

Table 10
Annual per capita consumption of pork and chicken in Colombia, 2009–19

Meat	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	Kilograms										
Pork	4.2	4.77	5.52	6.0	6.82	7.41	7.81	8.5	9.18	10.32	11.2
Chicken	23.2	24.0	23.7	24.6	27.8	29.3	30.4	31.1	33.0	35.6	36.5

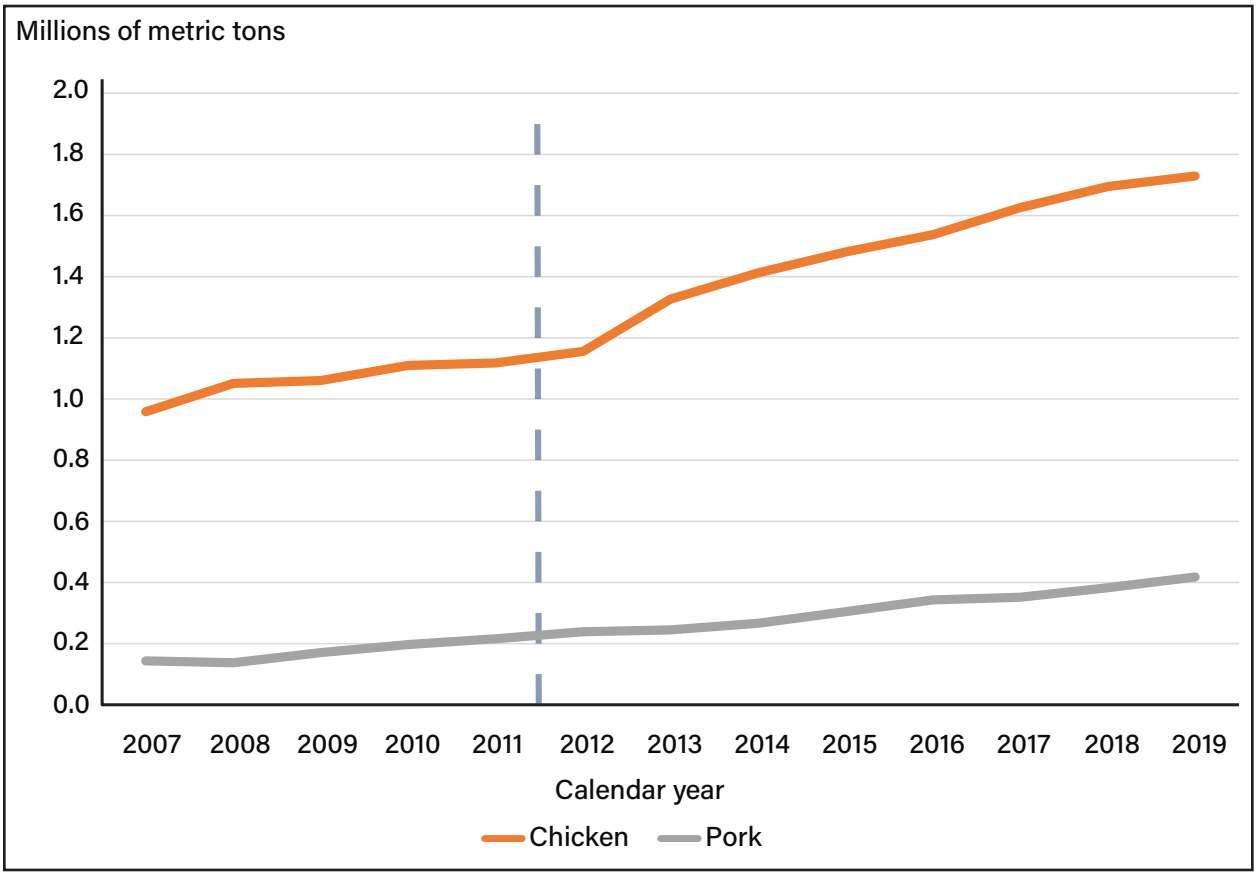
Source: USDA, Economic Research Service calculations using data from Asociación de Porcicultores de Colombia (Porkcolombia, 2020) and Federación Nacional de Avicultores de Colombia (FENAVI, 2021).

Department-level[7] statistics indicate that there are great disparities across regions in Colombian meat consumption. For example, per capita pork consumption in 2018 ranged from a high of about 30.0 kilograms in Antioquia Department to 11.8 kilograms in the Capital District (Bogotá). Negligible levels of pork consumption, however, were recorded in the Departments of Guaviare, Sucre, Magdalena, Arauca, César, Guajira, San Andrés, Vaupés, and Vichada (Asociación de Porcicultores de Colombia [Porkcolombia], 2021), suggesting that comprehensive meat consumption data are not available for each of Colombia's departments. Still, what departmental data are available suggest that a more geographically complete integration of the Colombian food system would lead to additional meat sales. Moreover, this integration could take place both within Colombia and between Colombia and its international trading partners. Additionally, further income growth—particularly among Colombia's low- and middle-income households—could help to foster a more thoroughly integrated food system. Possible factors hindering increased meat sales—and other commodities requiring a controlled environment for distribution—are regional disparities in wealth, long distances between some regions and coastal ports, and a lack of cold chain infrastructure.

Increased access to U.S. feedstuffs—as a result of the TPA—could bolster Colombian livestock production by lowering the cost of feedstuffs and hence livestock production costs overall. Colombian meat production data suggest that this has been the case for both chicken and pork production (figure 12). Between 2011 (the last year before the TPA's implementation) and 2019, chicken production increased by 55 percent, and pork production increased by 94 percent.

[7]Departments in Colombia are akin to States in the United States. Colombia consists of 32 departments and a Capital District (Bogotá). Each department has its own governor and departmental assembly.

Figure 12
Chicken and pork production in Colombia, 2007–19



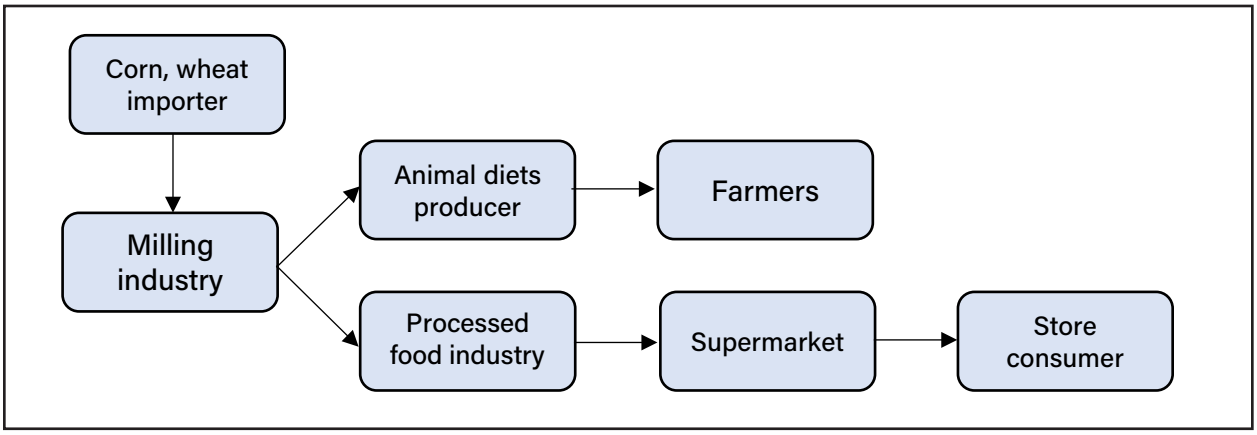
Note: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012.

Source: USDA, Economic Research Service calculations using data from USDA, Foreign Agricultural Service (2021b).

Corn and Wheat

Corn and wheat imports are supply chain inputs—similar to soybeans and soybean products—that manufacturers use to make various food and feed products (figure 13). The balanced animal feed sector and the food processing sector are the main destinations for Colombia's corn imports (SIC, 2012). Roughly 95 percent of imported corn is used as animal feed, mostly by the poultry sector (Gómez, 2020). Notwithstanding, Colombia's domestic corn production is used primarily by the country's processed food industries, and some is purchased for direct household use (for instance, as an ingredient in soup). Some small-scale farms in Colombia grow corn as a subsistence crop.

Figure 13
Colombia's value chain for imported corn and wheat



Source: USDA, Economic Research Service.

Imports (from all countries) supply roughly 80 percent of Colombia's total corn consumption (USDA-FAS, 2020b). Additionally, corn imports are projected to increase by about 40 percent over the next 8 years, according to the National Federation of Growers of Cereals and Legumes (FENALCE—Federación Nacional de Cultivadores de Cereales y Leguminosas), the country's main association of grain farmers (Quintero Vega, 2018). The United States is Colombia's leading foreign corn supplier—largely due to the TPA—which established separate transitional TRQs for U.S. yellow and white corn. These transitional TRQs are duty-free quotas that gradually expand each year for the first 11 years of the agreement. At the start of the 12th year (2023), the TRQs will be eliminated, and there will be no tariff or quota limits on U.S. corn exports to Colombia. While the transitional TRQ is in place, over-quota exports are charged a tariff that is successively reduced each year until the TRQ is eliminated, which is generally the case for the transitional TRQs established by the agreement. In 2020, the duty-free quotas were 3,102,656 metric tons for yellow corn and 201,673 metric tons for white corn, with over-quota duties of 6.25 percent and 5 percent, respectively. In 2021, the duty-free quotas are 3,257,789 metric tons for yellow corn and 211,756 metric tons for white corn—with over-quota duties of 4.17 percent and 3.33 percent, respectively.

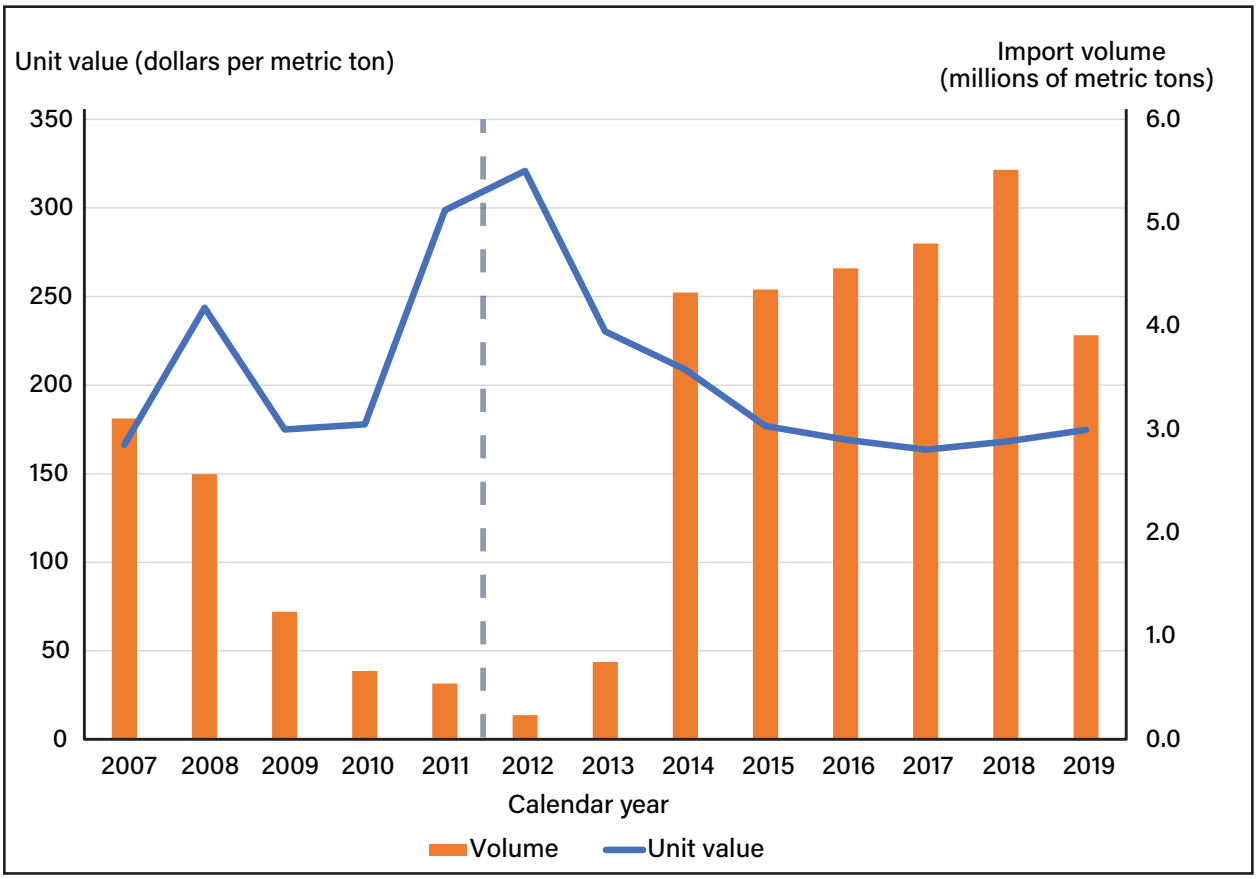
U.S. corn exporters face competition in the Colombian market primarily from Argentina and Brazil. As full members of the Southern Common Market (Mercosur), Argentina and Brazil also are associate members of the Andean Community (CAN—Comunidad Andina), a status which has given them preferential access to the Colombian corn market through the CAN's price band system for yellow corn.[8] U.S. corn exports to Colombia are exempt from the price band system due to the TPA. During some parts of 2019, the price of yellow corn rose above the price band's ceiling, resulting in the import tariff on yellow corn from Mercosur falling below the over-quota tariff on yellow corn from the United States.[9] Within this context, U.S. corn exports to Colombia dropped from 5.5 million metric tons ($927 million) in 2018 to 3.9 million metric tons ($683 million) in 2019, and the U.S. share of Colombian corn imports fell from 99 percent to 66 percent (figure 14).[10]

[8]The full members of Mercosur (Southern Common Market; Argentina, Brazil, Paraguay, and Uruguay) have associate membership in the Andean Community, and the full members of the Andean Community (Bolivia, Colombia, Ecuador, and Peru) have associate membership in Mercosur.

[9]One Colombian newspaper report (Mouthón, 2019) attributed the rise in corn prices that year to flooding in certain U.S. production areas.

[10] For a detailed explanation of the CAN's price band system and how it affects U.S. exports to Colombia of corn and other grains, see USDA, Foreign Agricultural Service, Office of Agricultural Affairs, Bogotá (2019).

Figure 14
U.S. corn exports to Colombia: Unit value and volume, 2007-19

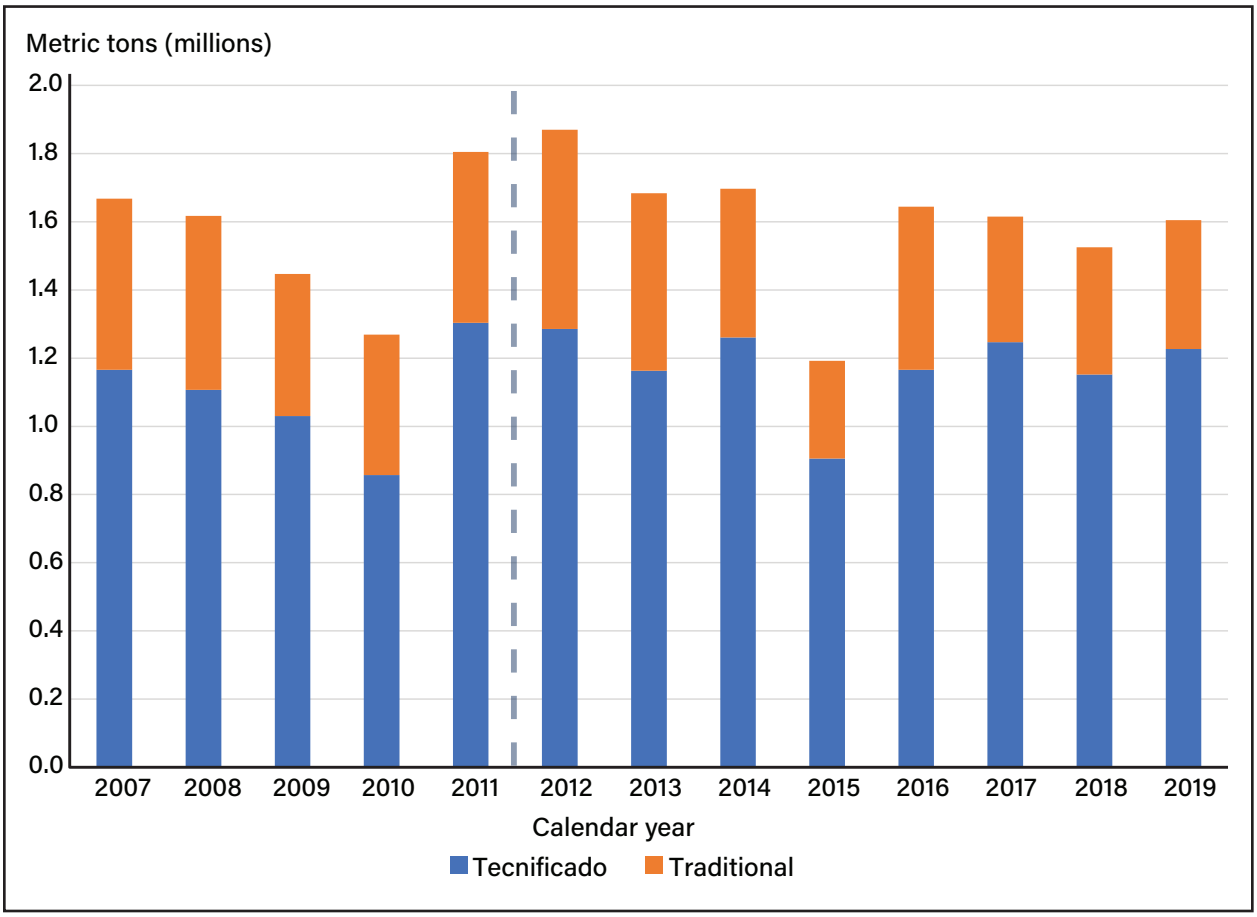


Note: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012.

Source: USDA, Economic Research Service calculations using data from U.S. Department of Commerce, Bureau of the Census as compiled by USDA, Foreign Agricultural Service (2020a).

Colombia's corn farmers are striving to increase the share of corn produced using more advanced production systems—which are often referred to as "tecnificado" (technified)—as opposed to traditional means of production (Centro Virtual de Negocios, 2019). Quintero Leal (1999: 77) defines the technified production system as taking place "on flat terrain, mechanized, on plots larger than 5 hectares, uses improved seed, chemical fertilizers, and pesticides" (translated from original). However, statistics for 2015-19 do not indicate a clear change in production resulting from this effort (figure 15).

Figure 15
Corn production in Colombia, 2007–19



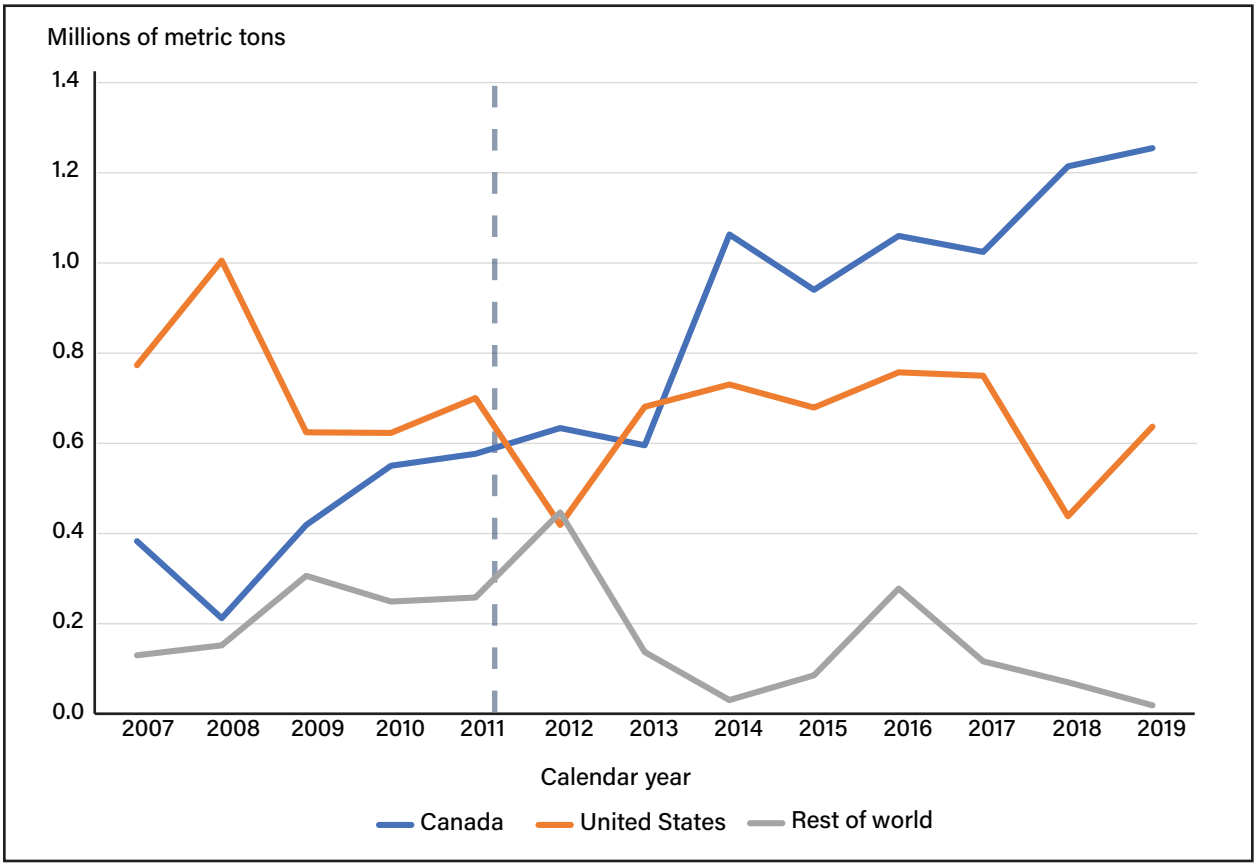
Note: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012.

Source: USDA, Economic Research Service calculations using data from Federación Nacional de Cultivadores de Cereales y Leguminosas (FENALCE), Departamento Económico y Apoyo a la Comercialización (2020).

Competition with Canada is one of the main challenges facing U.S. wheat exporters in the Colombian market (USDA, FAS, Bogotá, 2019). Like the United States, Canada has a free-trade agreement (FTA) with Colombia, and Colombia's agreements with both the United States and Canada provide duty-free access to the Colombian wheat market.[11] In this policy context, Canada has been Colombia's leading foreign wheat supplier since 2014. In 2019, Canada supplied 66 percent of Colombia's total wheat and meslin imports, while the United States accounted for 33 percent (figure 16). U.S. wheat exports to Colombia have fluctuated since the TPA's implementation, without indicating a clear upward or downward trend. In 2019, U.S. wheat exports to Colombia totaled about 646,000 metric tons ($137 million), according to U.S. trade statistics (USDA, FAS, 2021a). Wheat imports from countries other than Canada and the United States had practically disappeared by 2019, underscoring the importance of FTAs to gaining access to the Colombian wheat market.

[11]The text of the Canada-Colombia agreement is available at Mincomercio (2020).

Figure 16
Colombian wheat and meslin imports by supplying country, 2007–19



Note: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012.

Source: Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN), as compiled by Trade Data Monitor, LLC (2021).

Colombia relies almost entirely on imports to satisfy its wheat demand. From 2014 to 2018, Colombia's total wheat imports ranged from 1.7 to 2.1 million metric tons, compared with a range of 1.3 to 1.6 million metric tons during 2009–13 (FENALCE, 2019b). Imported wheat is primarily used by the wheat milling industry (Rau and Gómez, 2019). This wheat is first channeled to mills to produce flour, which is then used by manufacturers of baked products, pasta, and cereals.

Overall, Colombian import trends indicate the United States is the predominant supplier of Colombian corn imports, and Canada is the predominant supplier of Colombian wheat imports. Similar to soybeans, growth in U.S. corn exports to Colombia appears to be driven by dietary changes in Colombia, combined with the gradual reduction of tariffs through the TPA.

Ethanol

Ethanol is of great importance to agriculture because a number of crops serve as feedstocks for making ethanol. During the 21st century, ethanol has seen much wider use in the United States, Colombia, and many other countries as an oxygenate in gasoline.[12] In the United States, corn is the predominant feedstock used to produce fuel ethanol, while in Colombia, sugarcane is the sole feedstock (USDA, FAS, Bogotá, 2020: 8). In addition to serving as an oxygenate in gasoline and being the main ingredient in alcoholic beverages, ethanol

[12]Oxygenates are added to gasoline in order to increase the amount of oxygen in the resulting blend, with the aim of reducing the air pollution generated from burning the fuel (U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, 2021; U.S. Department of Energy, Energy Information Administration, 2021).

has many other uses, including "as a solvent in the manufacture of varnishes and perfumes; as a preservative for biological specimens; in the preparation of essences and flavorings; in many medicines and drugs; as a disinfectant and in tinctures (e.g., tincture of iodine)" (*Columbia Electronic Encyclopedia*, 2012). To discourage human consumption of ethanol not intended for beverage use, ethanol is often denatured through the addition of poisonous, nauseating, foul-tasting, and/or bad-smelling substances.[13]

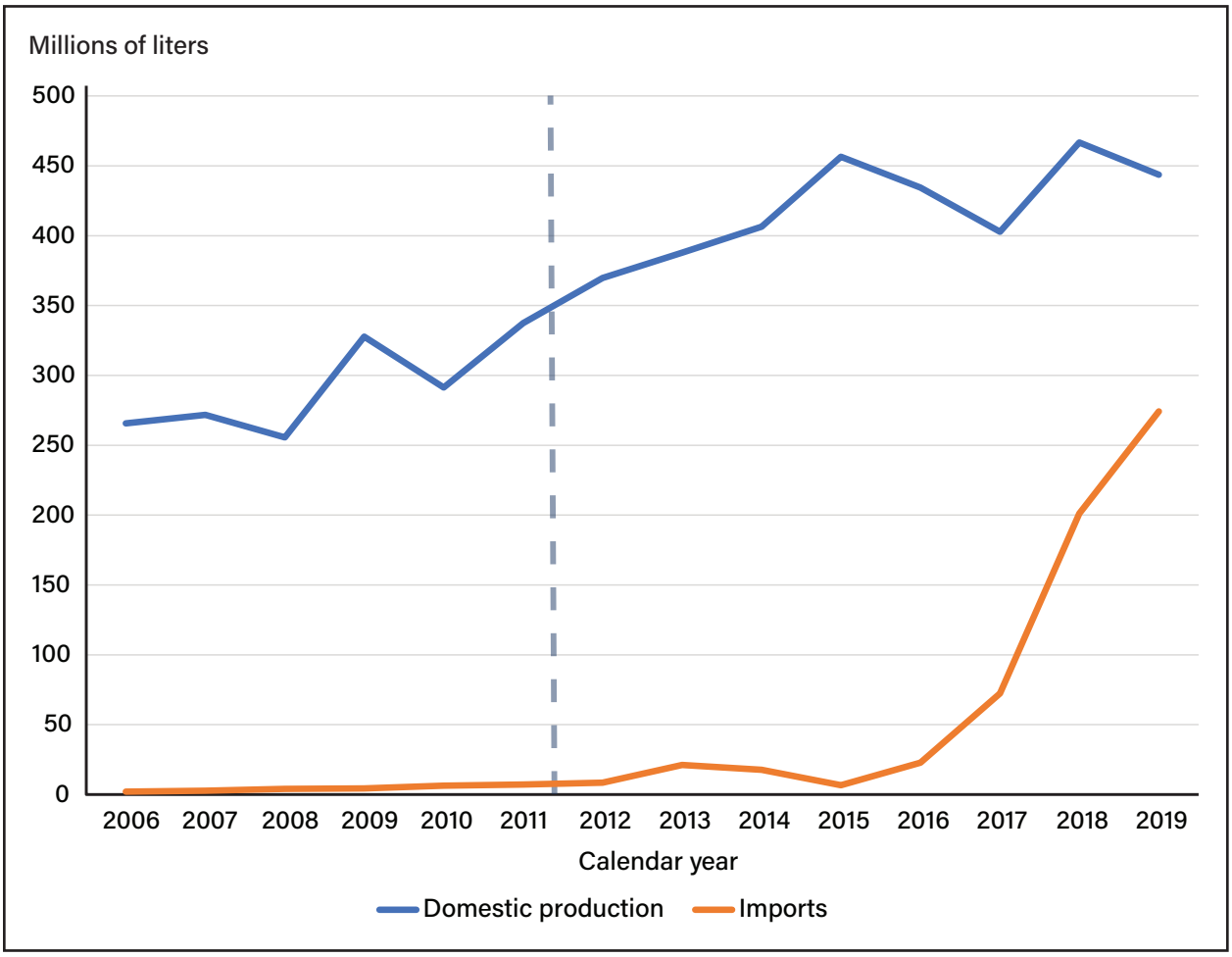
How ethanol is categorized in international trade statistics and the differences in how the U.S. and Colombian Governments categorize ethanol in their respective trade statistics complicate the analysis of U.S.-Colombia ethanol trade. At the six-digit level, the Harmonized System customarily distinguishes between undenatured ethanol (HS-6 2207.10) and denatured ethanol (HS-6 2207.20). At the 10-digit level, U.S. trade statistics make additional distinctions between fuel and nonfuel ethanol. According to U.S. trade statistics, the United States exported 315 million liters of ethanol to Colombia in 2019, totaling $116 million (USDA, FAS, 2021a). Of the 315 million liters of U.S. ethanol exported to Colombia, about 300 million liters—239 million denatured and 62 million undenatured—were used for fuel. Colombian trade statistics do not provide detail on ethanol beyond the six-digit level, and the HS-6 code 2207.20 is considered within the fuel ethanol category in Colombia's import statistics (USDA, FAS, Bogotá, 2020: 7). According to Colombian trade statistics, Colombia imported 274 million liters of denatured ethanol in 2019, and the United States supplied 265 million of those liters (DIAN, as compiled by Trade Data Monitor, LLC, 2021).

In Colombia, ethanol is used to oxygenate gasoline. The mandated blend level for gasoline in Colombia is E10—meaning that 10 percent of the final product is composed of ethanol. However, three departments along the border with Venezuela—where cross-border smuggling is an issue—are excluded from the E10 mandate (USDA, FAS, Bogotá, 2020: 10). Most ethanol-oxygenated gasoline in the United States is also E10.

Colombia's fuel ethanol production trended upwards from 2008 to 2019, averaging about 438,000 liters per year during 2017–19. In 2016, U.S. fuel ethanol exports to Colombia also began to rise rapidly (figure 17), and by 2019, the United States supplied roughly 40 percent of Colombian demand for fuel ethanol. Much of this export growth derives from the market access provided by the TPA. Tariffs on U.S. denatured ethanol (HS 2207.20) were phased out at the beginning of 2016. Imports of U.S. undenatured ethanol (HS 2207.10) gained duty-free status immediately upon the agreement's implementation on May 15, 2012 (Gómez, 2019).

[13]Throughout this report, we use the World Trade Organization's (WTO) definition of agricultural trade. At the start of calendar year 2021, USDA adopted this definition. The WTO definition considers ethanol to be an agricultural product, while the definition previously used by USDA did not.

Figure 17
Colombian production and imports from the United States of fuel ethanol, 2006–19



Note: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012.

Source: USDA, Economic Research Service calculations using trade data from U.S. Department of Commerce, Bureau of the Census, as compiled by USDA, Foreign Agricultural Service (2021), and production data from ASOCAÑA (2020).

Increased fuel ethanol imports from the United States have amplified concerns about the economic competitiveness of Colombia's sugarcane-based fuel-ethanol sector, as well as the compatibility of free trade with Colombia's domestic policies that regulate fuel and biofuel prices.[14] Technical regulations on biofuels, blending mandates for biofuels, and price controls for fuels and biofuels are all established by Colombia's Ministry of Mines and Energy (USDA, FAS, Bogotá, 2020: 2). With respect to fuel ethanol, the price "is established as the higher of the following two calculations: the opportunity cost of using refined sugar to produce ethanol (the international price equivalence for refined sugar at the London market) and the international price for gasoline adjusted by technical factors (increased octane and reduction on sulfur content)" (USDA, FAS, Bogotá, 2020: 5).

These concerns led the Colombian Government to begin a countervailing duty (CVD) investigation in January 2019 of fuel ethanol imports from the United States in response to a petition filed by Colombia's National Federation of Biofuels. In May 2020, the Colombian Government issued a final determination in favor of the petitioners and applied a CVD of $0.066 per kilogram on such imports, to be in effect for 2 years. USDA, FAS, Bogotá (2020: 7) estimated that the CVD is equivalent to an ad valorem tariff of about 10.5-12.1 percent.[14]

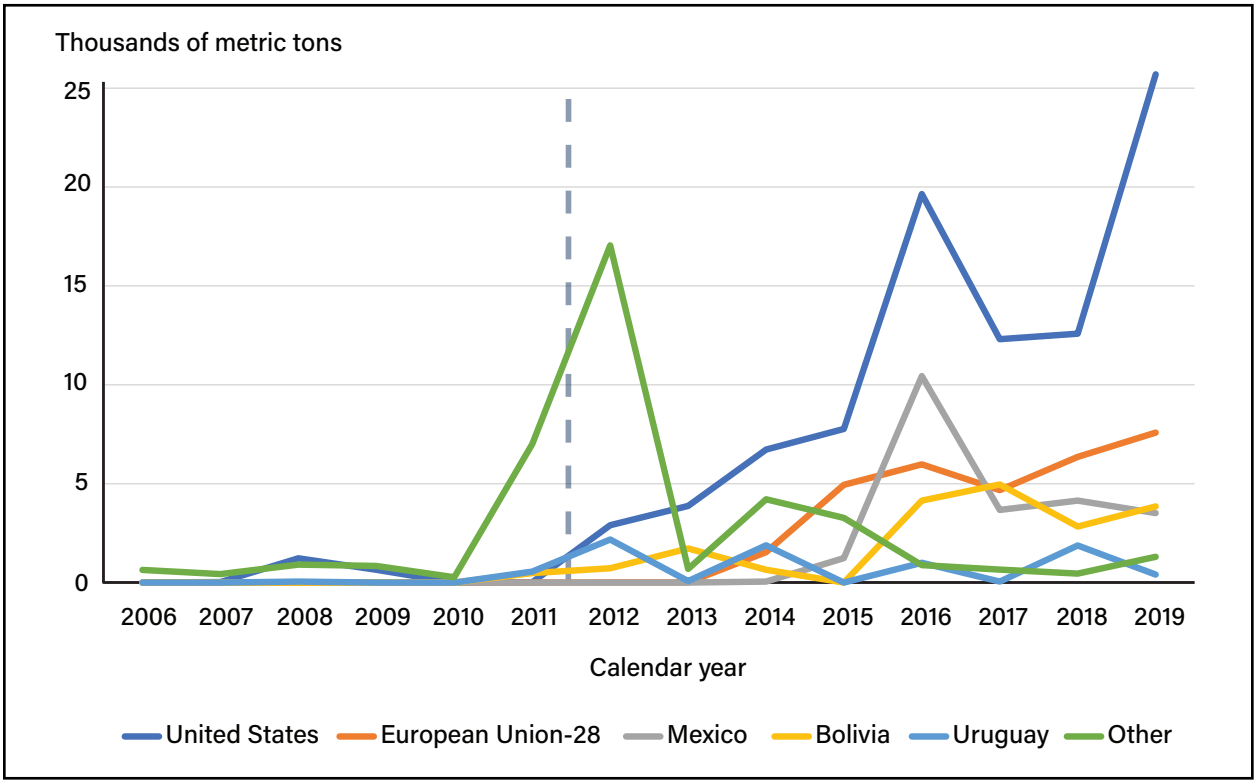
[14] An ad valorem tariff is "a charge levied on imports, defined in terms of a fixed percentage of value" (Organisation for Economic Co-operation and Development, 2001).

Colombia's domestic and foreign suppliers of fuel ethanol have a shared interest in the prompt recovery of the Colombian economy in the wake of the COVID-19 crisis. As a result of the pandemic, Colombian demand for transport fuel in general (and fuel ethanol in particular) has flagged. Gasoline use in 2020 was forecast to be about 87 percent of its 2019 level, according to Colombia's Ministry of Mines and Energy (USDA, FAS, Bogotá, 2020: 8). As an emergency measure during the first 6 months of the COVID-19 pandemic, the Colombian Government prohibited additional ethanol imports from April 7 to July 8, 2020. Following this measure, the Colombian Government then authorized up to 6 million liters of imports to supply Colombia's northern coast from July 9 to August 8, 2020, before allowing ethanol imports to resume nationwide (USDA, FAS, Bogotá, 2020: 6).

Milk Concentrates

In 2019, Colombian imports of milk concentrates—or milk containing added sweetening (HS-4 Code 0402)—totaled roughly $108 million. Milk powder accounted for 99.6 percent of these imports. With the TPA's implementation, the United States has emerged as Colombia's leading foreign milk-powder supplier. The TPA provides a transitional TRQ for U.S. milk powder, with a duty-free quota that gradually expands from 5,500 metric tons in 2012 to an unlimited quantity starting in 2026. Over-quota exports are subject to a tariff that is gradually reduced each year and then eliminated by 2026. According to U.S. trade statistics (USDA, FAS, 2021a), in 2019, Colombian milk powder imports from the United States totaled about 33,000 metric tons ($87 million), compared with a duty-free quota of 10,718 metric tons (figure 18). In 2020, the duty-free quota equaled 11,790 metric tons, and the over-quota tariff equaled 13.2 percent. For 2021, the duty-free quota equals 12,969 metric tons, and the over-quota tariff equals 11 percent.

Figure 18
Colombian milk concentrate imports, by supplying country, 2006–19

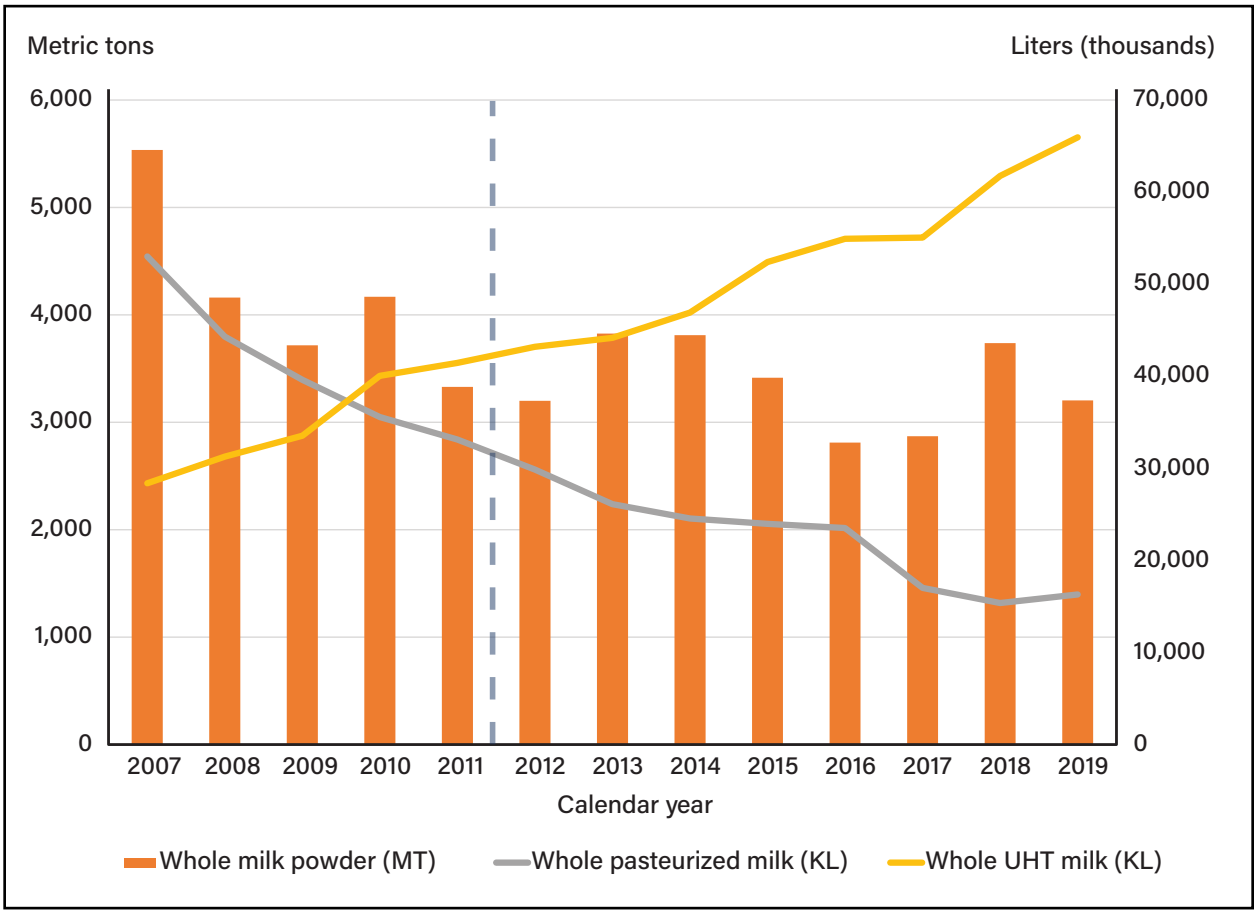


Notes: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012. Trade values expressed in liters were converted to kilograms using the conversion ratio of 77.32 liters per kilogram. AVCalc LLC (2020) lists this ratio for condensed, sweetened, canned milk.

Source: USDA, Economic Research Service calculations using data from Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN), as compiled by Trade Data Monitor, LLC (2021).

Changes in consumer preferences, rising incomes, and the further development of the food retail sector are reshaping the Colombian dairy market. For many Colombians, this means a shift away from powdered milk and toward milk subjected to ultra-high temperature processing (UHT milk). Unlike powdered milk, UHT milk is ready to drink. Similar to powdered milk, UHT milk does not require refrigeration (at least, not until the carton is opened). Between 2011 and 2019, powdered milk production in Colombia declined slightly, from about 3,300 metric tons to 3,250 metric tons, while UHT milk production increased from about 41 million liters to 66 million liters (figure 19). Most Colombian powdered milk imports currently go directly to the food manufacturing sector for further processing. Thus, greater use of the marketing channel that brings agricultural imports directly to Colombian retailers could lead to increased imports of powdered milk, even with the shift in consumer preferences toward UHT milk.

Figure 19
Colombian production of whole powdered milk, whole UHT milk, and whole pasteurized milk in Colombia, 2007–19



Notes: UHT = Ultra-high temperature processing. The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012.

Source: USDA, Economic Research Service calculations using data from Miniagricultura, Unidad de Seguimiento de Precios de Leche (2021).

Conclusion

This report examined the 10 leading U.S. agricultural exports to Colombia in terms of value, in addition to 5 other U.S. agricultural exports to Colombia that have significantly increased since the implementation of the U.S.-Colombia Trade Promotion Agreement (TPA) in May 2012. Food is one of the largest categories of household expenditures in Colombia. The combined effect of expanded purchasing power, a larger middle class, and consumers willing to try new foods generated many changes in the Colombian diet from 2009 to the start of the COVID-19 pandemic in 2020. On average, Colombians were consuming more chicken and pork and had increased their expenditures on food away from home, convenience food, and fresh food—most notably fish and seafood, meat, and vegetables. With many analysts forecasting that the Colombian economy will recover in 2021, these trends are likely to resume in the near future. Ultimately, the breadth and depth of these changes will depend on Colombian economic growth and on the development of the country's food system to encompass all Colombian income groups and geographical regions.

Changes in Colombian consumer demand have created new opportunities for foreign and domestic agricultural suppliers. The Colombian market offers great potential for the United States and other foreign suppliers of bulk commodities such as corn, wheat, and soybeans—as well as intermediate products such as soybean oil and soybean residues used in livestock and poultry production. Moreover, increased domestic production of livestock and poultry aligns well with dietary changes underway in Colombia. These export opportunities are bolstered by the limited growth in Colombian production of major feed crops such as corn and soybeans. In addition, Colombia produces small levels of certain crops such as soybeans and wheat relative to consumption. Overall, low productivity in these subsectors of Colombian agriculture translates into high production costs and high supply prices relative to international prices. These circumstances make many U.S. agricultural products appealing to Colombian buyers.

For many of the products analyzed in this report, U.S. agricultural exports to Colombia have risen significantly since the TPA's implementation, sometimes displacing other foreign suppliers. In several instances, the United States already supplies a very high share of Colombian imports, even though those products are subject to transitional tariff-rate quotas (TRQs) specified by the TPA. As a result, the pace of U.S. export growth over the next decade is likely to be determined by the speed at which these restrictions are phased out. However, the United States is not Colombia's only free-trade partner. Many of the countries that compete with the United States for a share of the Colombian market also have free-trade agreements with Colombia—including Canada, the European Union, and Colombia's fellow members of the Andean Community (Bolivia, Ecuador, and Peru). Given Colombia's geographic location as a South American country with ports on both the Caribbean Sea and the Pacific Ocean, each of these trade partners— along with Colombia's own agricultural producers and consumers—has a stake in a rules-based trading system that links Colombia to the international market.

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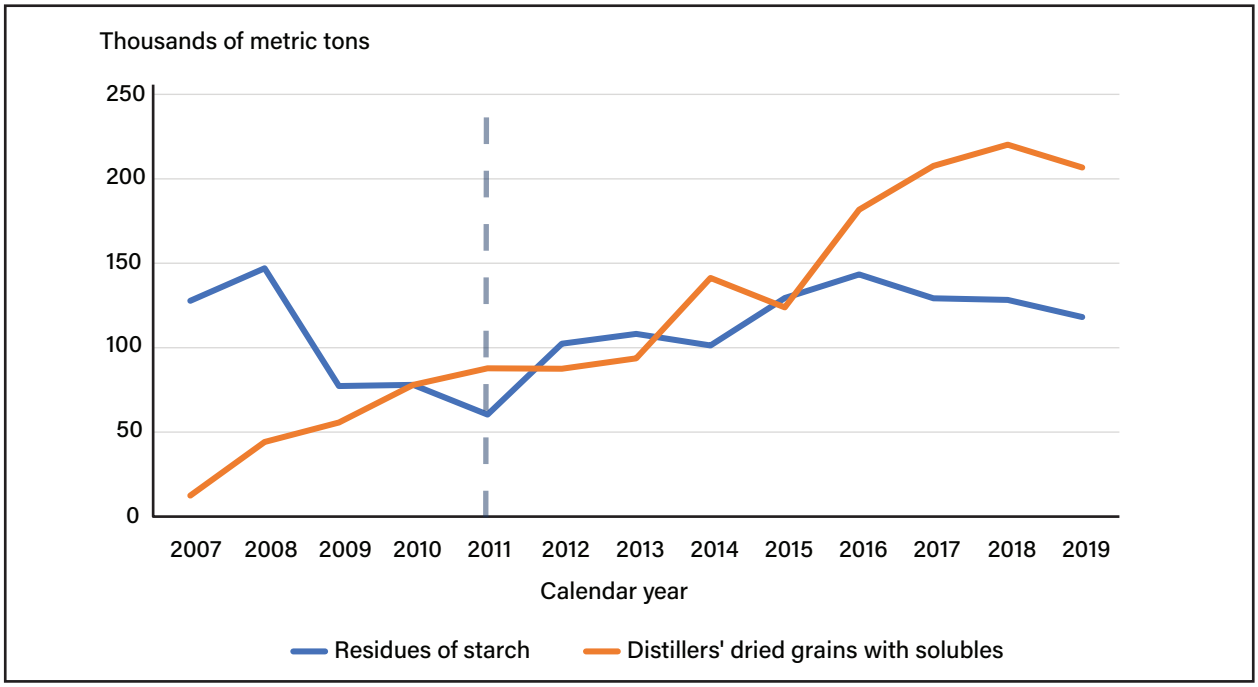
Appendix A: Additional Commodity Analysis

Distillers' Dried Grains with Solubles and Starch Residues

Colombia's main foreign supplier of products with HS-4 Code 2303 is the United States. In 2019, the United States supplied 96 percent of Colombian HS 2303 imports in terms of value (DIAN, as cited by Trade Data Monitor, LLC, 2021). Colombia's imports in this category fall into two main subcategories: (1) distillers' dried grains with solubles (DDGS) and (2) starch residues—which are either corn gluten meal or corn gluten feed. DDGS are a co-product of corn-based ethanol production, whereas corn gluten meal and corn gluten feed are co-products of corn-based starch or sweetener production. All these products have high protein contents and are close substitutes for many feed products.

Colombia immediately eliminated its 15-percent tariffs on DDGS, corn gluten meal, and corn gluten feed from the United States with the TPA's implementation in 2012. In this policy context, U.S. DDGS exports to Colombia have continued rising (appendix figure 1). These exports have been on an upward trend since 2007—around the time when the U.S. ethanol industry was seeking new markets for ethanol and its co-products. In contrast, U.S. exports of starch residues to Colombia fluctuated during 2009-19—showing no clear trend. In 2019, the United States exported to Colombia about 207,000 metric tons ($43 million) of DDGS and 118,000 metric tons ($50 million) of starch residues. Given the high U.S. share of Colombian imports of DDGS and starch residues, as well as the elimination of the import tariffs that formerly hampered this trade, further growth in U.S. exports to Colombia of DDGS, corn gluten meal, and corn gluten feed will depend largely on further growth in Colombian feed demand.

Appendix Figure 1
U.S. exports to Colombia of distillers' dried grains with solubles (DDGS) and starch residues, 2007–19



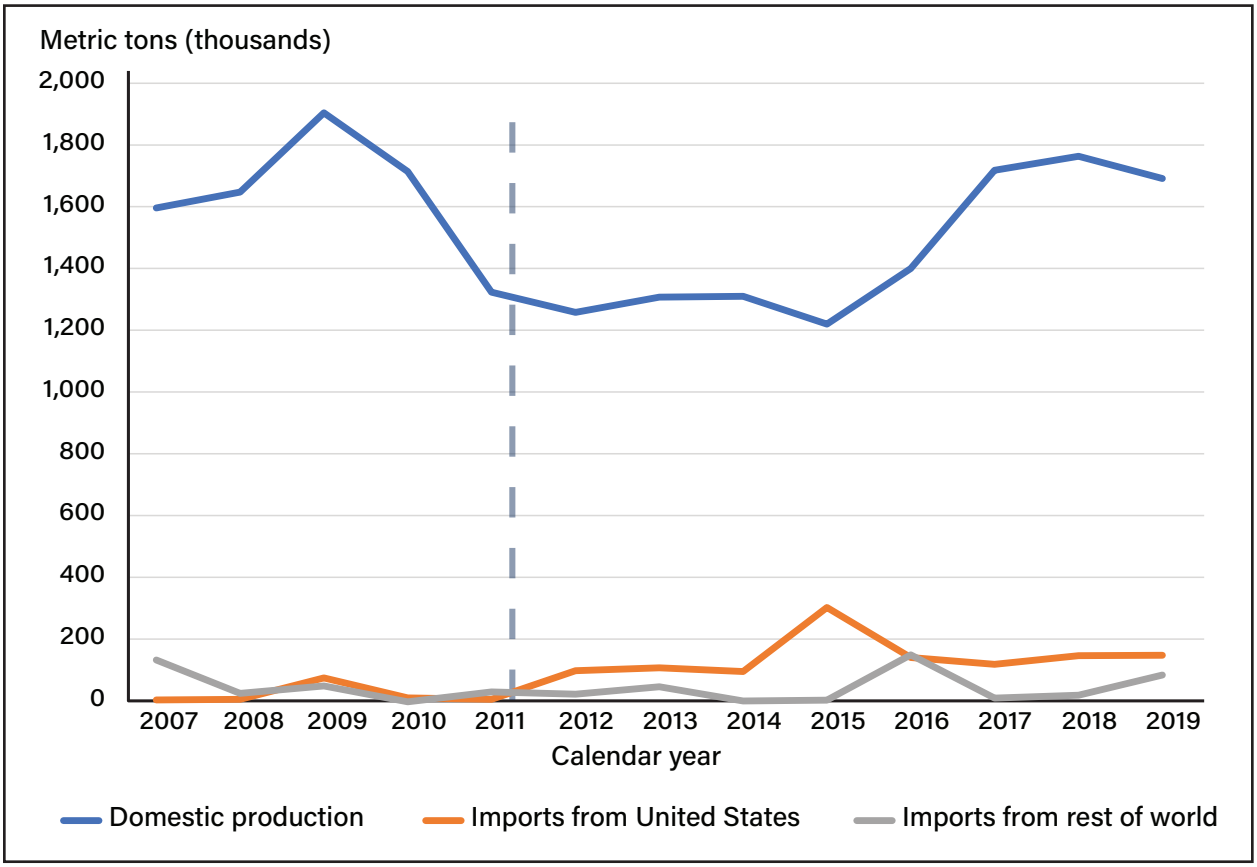
Note: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012.

Source: USDA, Economic Research Service calculations using data from the U.S. Department of Commerce, Bureau of the Census, as compiled by USDA, Foreign Agricultural Service (2021).

Rice

For marketing years 2016-17 and 2018-19, imports supplied roughly 8 percent of Colombia's domestic rice consumption (USDA, FAS, 2021b). The United States is Colombia's main foreign supplier of rice, accounting for 79 percent of Colombia's total rice imports during 2017–19 (appendix figure 2). In the last several years, Peru and Ecuador have also emerged as significant rice suppliers to Colombia because of trade policy developments. Imported rice is almost completely directed to the milling industry—which grinds, cleans, and packages the product and then sells it to supermarkets.

Appendix Figure 2
Colombia's domestic rice production and rice imports, by supplying countries, 2007–19



Notes: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012. Production estimates correspond to marketing year; for instance, the quantity of production for the 2018/19 marketing year is aligned with the import data for calendar year 2019.

Source: USDA, Economic Research Service calculations using domestic production estimates from USDA, Foreign Agricultural Service (2020b) and import data from Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN) as compiled by Trade Data Monitor, LLC (2021).

Colombia's domestic rice production increased between 2015 and 2019, partly because of policy incentives. In 2019, the Colombian Government intended to limit the total area planted to rice to 480,000 hectares to avoid overproduction while focusing governmental credit and marketing supports on growers participating in this initiative (Rau and Gómez, 2019). In Colombia, rice's average production cost remained stable during 2010-19 at about $1,700 per hectare (Miniagricultura, 2019). This cost—expressed on a per hectare basis—is less than the average U.S. cost of $2,365 per planted hectare estimated for 2016–18 (USDA, ERS, 2019). However, U.S. rice yields are roughly 80 percent higher than Colombian yields. In marketing years 2017–19, estimated yields (on a milled basis) averaged 8.38 metric tons per hectare in the United States and 4.69 metric tons per hectare in Colombia (USDA, FAS, 2021b). So, on a per ton basis, U.S. production costs are lower than Colombia's. Overall, U.S. costs are $282 per metric ton, while Colombian costs are $362 per metric ton.

Rice is one of Colombia's main staple foods as per capita consumption climbed from 40 kilograms in 2012 to 43 kilograms in 2019. The increase in consumption is partly due to the influx of Venezuelan migrants and increased consumption in rural areas, where per capita consumption tends to be about 10 kilograms higher. As is the case in Colombia, rice is a staple food in Venezuela, and many Venezuelan migrants in Columbia are turning to rice—a relatively affordable product—for part of their food intake. Between 2012 and 2019, per capita rice consumption in Colombia increased from 45 to 52 kilograms in rural areas and from 37 to 42 kilograms in urban areas (DANE, as cited by Fedearroz, 2021).

Sales opportunities for Colombia's foreign rice suppliers depend on market access. For the United States, access to the Colombian rice market is defined by a transitional TRQ established by the TPA. This TRQ features a duty-free quota that gradually expands each year for the first 18 years of the TPA. In 2030, the TRQ will be eliminated, and then there will be no tariff or quota barriers facing U.S. rice exports to Colombia. During the transition to free trade, over-quota exports are charged a tariff that is successively reduced each year until the TRQ is eliminated in 2030. In 2019, the United States exported 147,000 metric tons of rice to Colombia, with a value of $49 million (USDA, FAS, 2021a). The duty-free quota in 2019 was 107,508 metric tons, and the over-quota tariff equaled 67.7 percent. For 2020, the duty-free quota was 112,346 metric tons (milled equivalent basis), and the over-quota tariff was 61.5 percent. For 2021, the duty-free quota equals 117,402 metric tons, and the over-quota tariff is 55.4 percent.

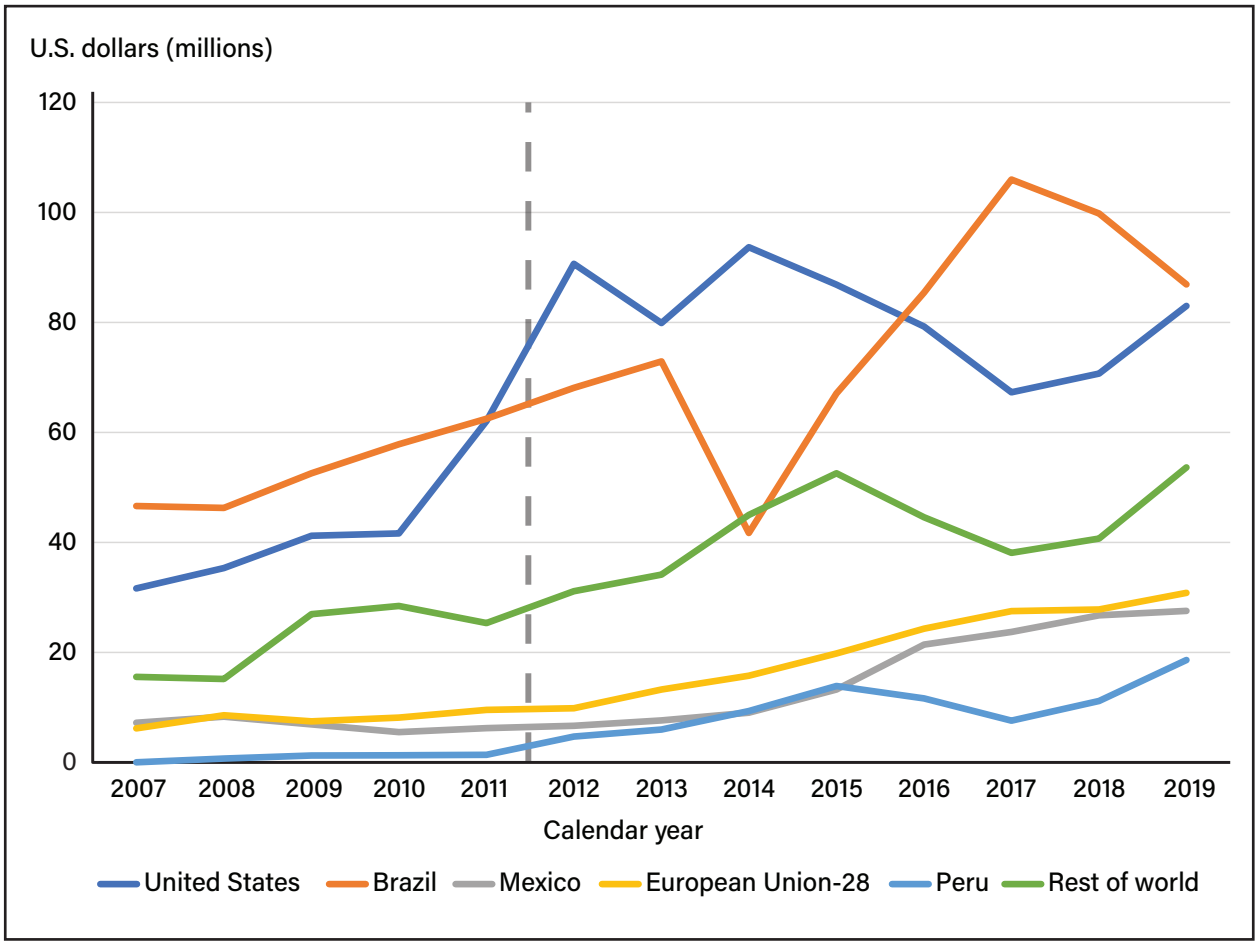
For Ecuador and Peru, access to the Colombian rice market is defined by the terms of the Andean Community (CAN—Comunidad Andina). Under the auspices of the CAN, Ecuador filed a lawsuit against Columbia regarding market access to the Colombian rice market. Through this lawsuit, Ecuador secured a duty-free import quota for its rice exports to Colombia, starting in 2018. For 2019, the import quota equaled 91,000 metric tons (Rau and Gómez, 2019), but Ecuador's rice exports to Colombia only reached about 29,000 metric tons, corresponding to roughly 13 percent of Colombia's total rice imports. Peru also filed a lawsuit against Colombia under the auspices of the CAN and secured a duty-free import quota increasing each year from 2018 until 2021. In 2021, Peru gains unlimited access to the Colombian rice market. The 2019 quota was 60,000 metric tons (Rau and Gómez, 2019). Peru exported about 35,000 metric tons of rice to Colombia that year, about 15 percent of Colombia's total rice imports.

Food Preparations not Elsewhere Specified or Included (HS-4 2106)

"Food preparations not elsewhere specified or included" (NESOI) (HS-4 2106) is a category of various processed products. These products include protein concentrates and textured protein substances (HS-6 2106.10), as well as a variety of other food preparations (HS-6 2106.90), some of which are not effectively specified by the Harmonized System (HS). Beverage preparations with a low alcoholic content previously had their own HS-6 Code in Colombia's Harmonized System but are now classified under HS-6 2106.90. In general, products under HS-4 2106 are intermediate goods used in the manufacture of processed foods, animal feeds, and beverages.

Multiple countries supply HS 2106 products to Colombia, including Brazil and four of Colombia's free-trade partners: the United States, the European Union (EU), Mexico, and Peru (appendix figure 3). From 2012 to 2015, the United States was Colombia's leading foreign supplier of products in this category, while Brazil was the leading foreign supplier from 2016 to 2019. However, the difference between imports from Brazil and imports from the United States was less than $4 million in 2019, according to Colombian trade statistics (DIAN, as compiled by Trade Data Monitor, LLC, 2021). U.S. HS 2106 exports to Colombia totaled $86 million in 2019, according to U.S. trade statistics (USDA, FAS, 2021a).

Appendix Figure 3
Colombian imports of food preparations not elsewhere specified or included (HS 2106) by supplying country, 2007–19



Notes: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012. HS 2106 = Food preparations not elsewhere specified or included (NESOI).

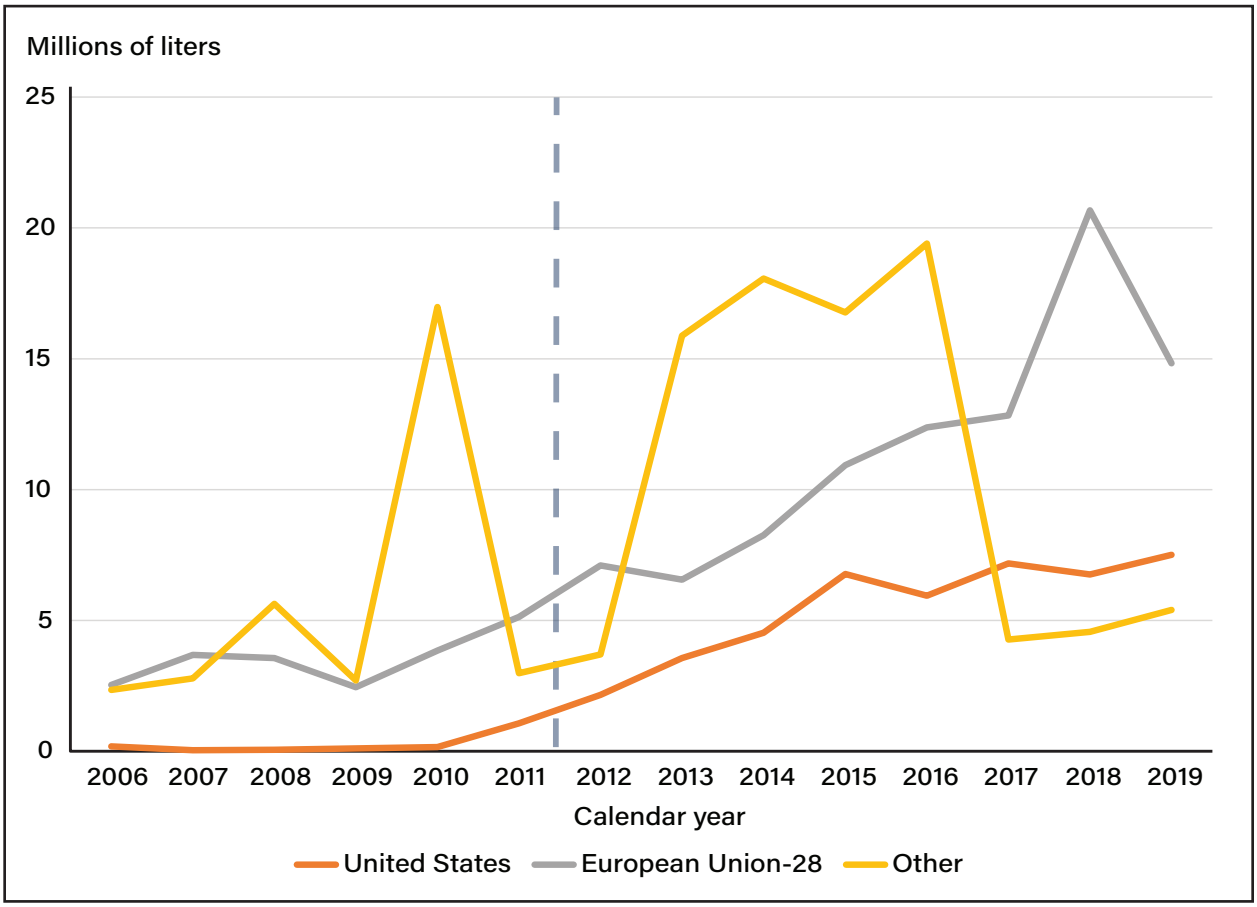
Source: USDA, Economic Research Service calculations using data from Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN), as compiled by Trade Data Monitor, LLC (2021).

Waters and Other Nonalcoholic Beverages[15]

HS-4 Code 2202 ("waters and other nonalcoholic beverages") covers a variety of nonalcoholic beverages—including mineral waters, carbonated soft drinks, nonalcoholic beer, milk-based drinks, and fruit and vegetable juices that have been fortified with vitamins or minerals, but not fruit and vegetable juices classified under HS 2009. Roughly 10 percent of Colombia's HS 2022 imports (from all countries) consist of waters—including mineral water and soft drinks—and about 90 percent consist of other nonalcoholic beverages, such as fortified juices and nonalcoholic beer. Since 2012, U.S. HS 2202 exports to Colombia have more than tripled in volume (appendix figure 4). The value of these exports in 2019 was about $28 million, according to U.S. trade statistics (USDA, FAS, 2021a).

[15]The analysis presented here does not include imports under HS-4 2202 entering Colombia through the country's free trade zones. These zones offer firms that establish operations within those zones with advantages in taxes, tariffs, customs procedures, financing, and/or regulations (PROCOLOMBIA, 2019). Colombian trade statistics indicate that imports under this heading (through the free trade zones) increased from 0 in 2014 to nearly $170 million in 2018, before again dropping to 0 in 2019 (DIAN, as compiled by Trade Data Monitor, LLC, 2021).

Appendix Figure 4
Colombian imports of waters and other nonalcoholic beverages (HS 2202), by supplying country, 2009–18

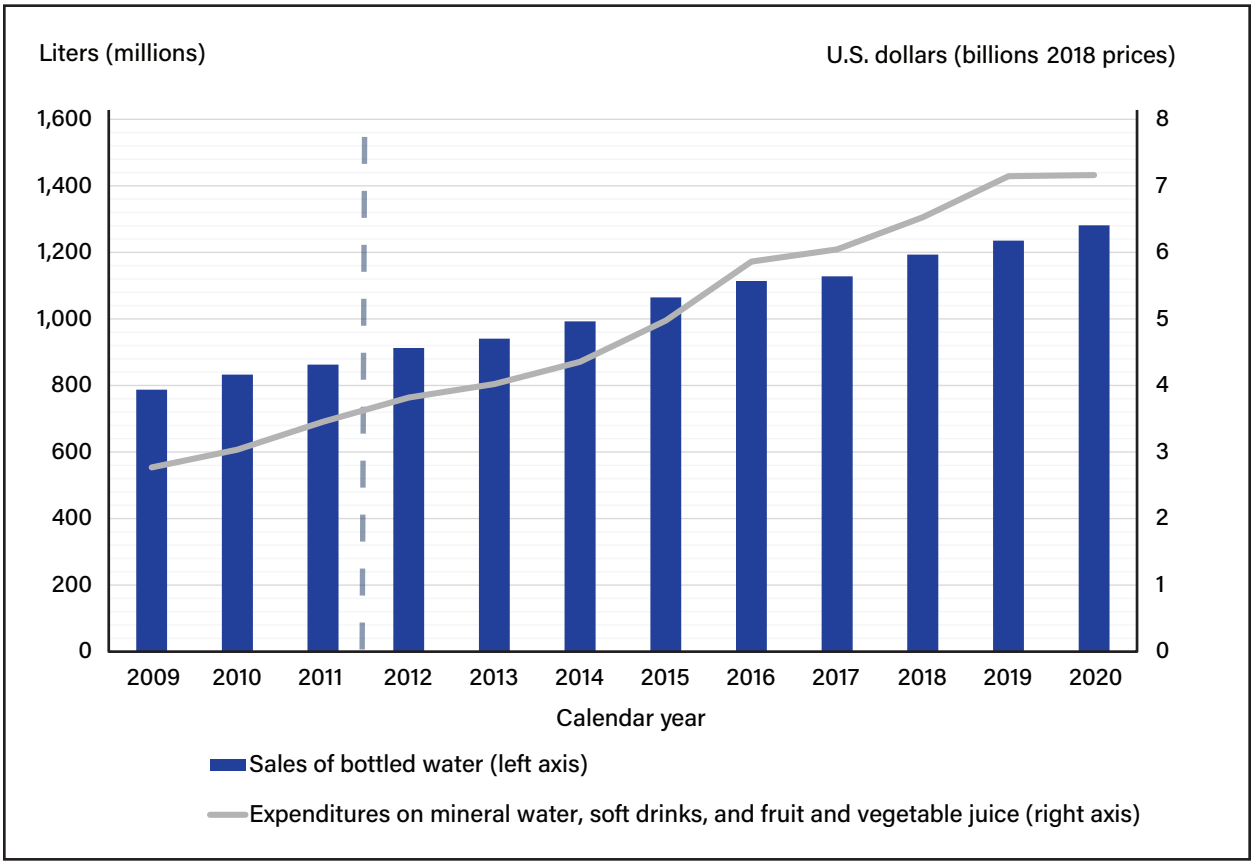


Notes: Figure does not include imports recorded as coming from Colombia or Colombia's free-trade zones. The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012. HS 2202 = Waters, including mineral waters and aerated waters, containing added sugar or other sweetening matter or flavored, and other nonalcoholic beverages, not including fruit or vegetable juices of heading 2009.

Source: USDA, Economic Research Service calculations using data from Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN), as compiled by Trade Data Monitor, LLC (2021).

Between 2011 and 2019, annual bottled water sales in Colombia increased from about 863 million liters to 1.2 billion liters (appendix figure 5). Colombian demand for bottled water is influenced by several factors. First, access to safe drinking water is still a challenge for many Colombians. According to 2015 estimates, 73 percent of Colombian households have access to safely managed drinking water, and 24 percent have access to basic drinking water services requiring 30 minutes or more for collection, with the remaining 3 percent having access either to unimproved water or surface water (UNICEF and WHO, 2019a,b). Second, bottled water is a lower-calorie alternative to soft drinks (both bottled water and soft drinks are classified in HS 2022), which makes it more appealing to consumers. Third, bottled water is widely available for individual or bulk sale throughout the Colombian food retail sector (convenience stores, supermarkets, hypermarkets, etc.), making it especially accessible.

Appendix Figure 5
Bottled water sales and expenditures on mineral water, soft drinks, and fruit and vegetable juice in Colombia, 2009–20



Note: The vertical line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012.

Source: USDA, Economic Research Service calculations using data from Euromonitor International.

Two firms account for most of Colombia's domestic bottled water production. In 2015, FEMSA had a 47.5-percent market share, and Postobón SA had 43.1 percent (appendix table 1). FEMSA is a multinational corporation active in the nonalcoholic and alcoholic beverage sector, with operations in 11 Latin American countries (FEMSA, 2019). Postobón is the largest participant in Colombia's nonalcoholic beverage sector and is 100-percent Colombian owned (Postobón, 2019).

Appendix Table 1
Leading producers of bottled water in Colombia

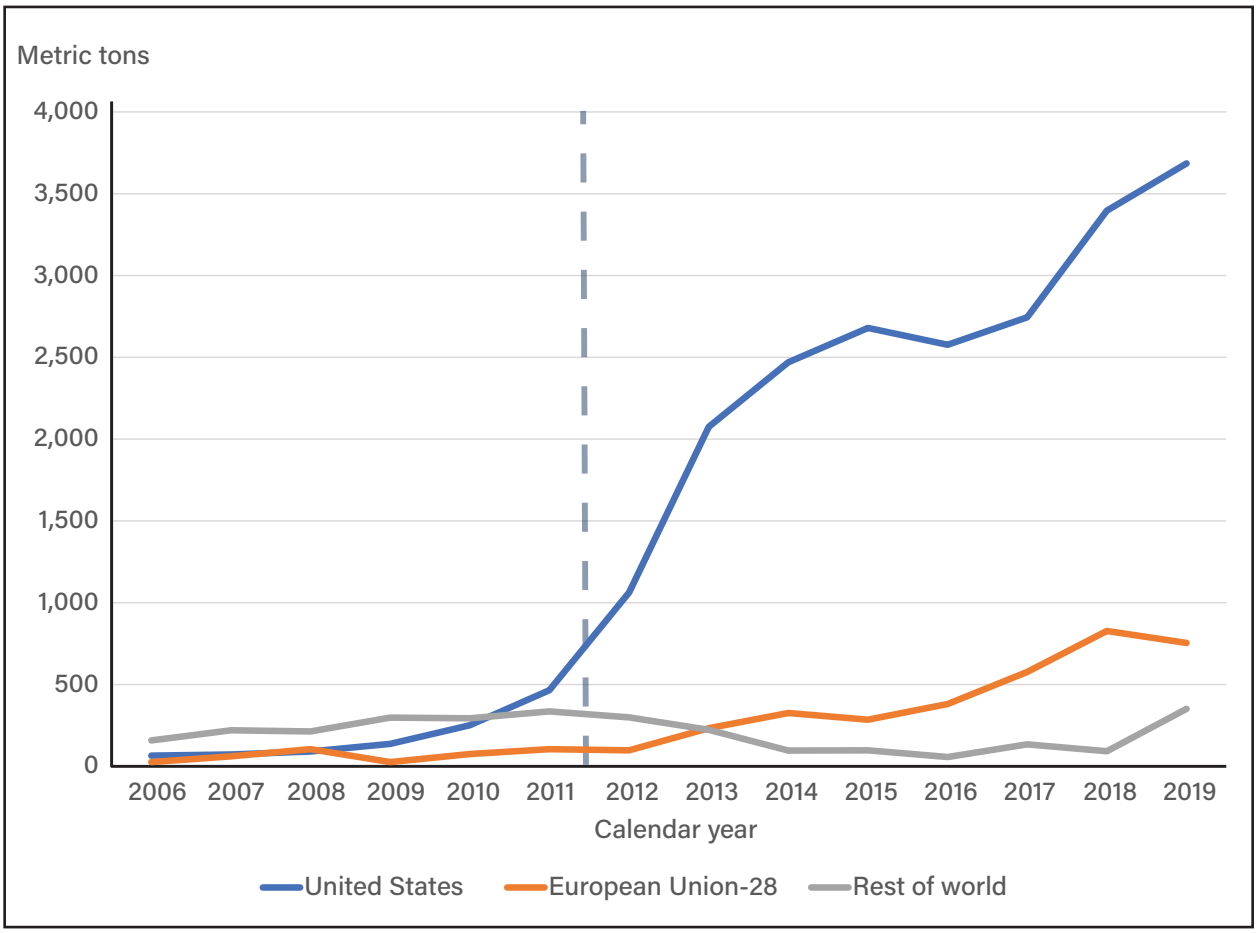
Company	Market share in 2015
	Percent
FEMSA	47.5
Postobon SA	43.1
Grupo Exito	7.0
Dircemex	0.3
Inverleoka SA	0.2
Global Wine and Spirits	0.1

Source: USDA, Economic Research Service calculations using data from Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN) and Euromonitor International.

Cheese and Curd

Colombia is well known for its fresh cheese. Colombian cheese is often manufactured in small-scale production processes and then locally marketed, with different regions having their own specialty cheeses (Miller, 2019). Prior to 2012, Colombia's annual imports of cheese and curd (HS 0406) had never exceeded 1,000 metric tons (DIAN, as compiled by Trade Data Monitor, LLC, 2021). However, with the TPA's implementation in 2012 and the provisional implementation of the FTA between the EU, Colombia, and Peru in 2013, imports have significantly increased (appendix figure 6). In 2019, cheese and curd imports from all countries totaled roughly 4,791 metric tons, with a total value of $28 million (DIAN, as compiled by Trade Data Monitor LLC, 2021).

Appendix Figure 6
Colombian imports of cheese and curd, by supplying country, 2006–19



Note: The vertical line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012.

Source: USDA, Economic Research Service calculations using data from Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN), as compiled by Trade Data Monitor, LLC (2021).

Colombian cheese imports tend to be different from the fresh cheese traditionally produced in the country. In 2019, fresh cheese and curd accounted for 34 percent (in terms of volume) of Colombia's total cheese and curd imports; processed cheese—not grated or powdered—accounted for 17 percent; grated or powdered cheese accounted for 15 percent; blue-veined cheese NESOI accounted for 1 percent; and cheese NESOI—including cheddar and colby—accounted for 34 percent. With broader access to imported cheese, annual per capita cheese consumption in Colombia increased from 0.6 kilograms in 2009 to 1.4 kilograms in 2016 (Nielsen data cited by Grupo Éxito, 2018).

The United States supplied 77 percent of Colombia's cheese and curd imports in 2019 in terms of volume. The TPA includes a transitional TRQ for U.S. cheese, with a duty-free quota that gradually expands from 2,310 metric tons in 2012 to an unlimited quantity starting in 2026. Over-quota exports are subject to a tariff that is gradually reduced each year and then eliminated in 2026. In 2019, U.S. cheese and curd exports to Colombia equaled about 4,548 metric tons—according to U.S. statistics—compared with a duty-free quota of 4,502 metric tons (USDA, FAS, 2021a). For 2020, the duty-free quota equaled 4,952 metric tons, and the over-quota tariff equaled 13.2 percent or 8 percent—with fresh cheese, grated or powdered cheese, and blue-veined cheese being subject to the lower tariff. For 2021, the duty-free quota equals 5,447 metric tons, and the over-quota tariff equals 11 percent or 6.67 percent—with the same three cheese types again being subject to the lower tariff.

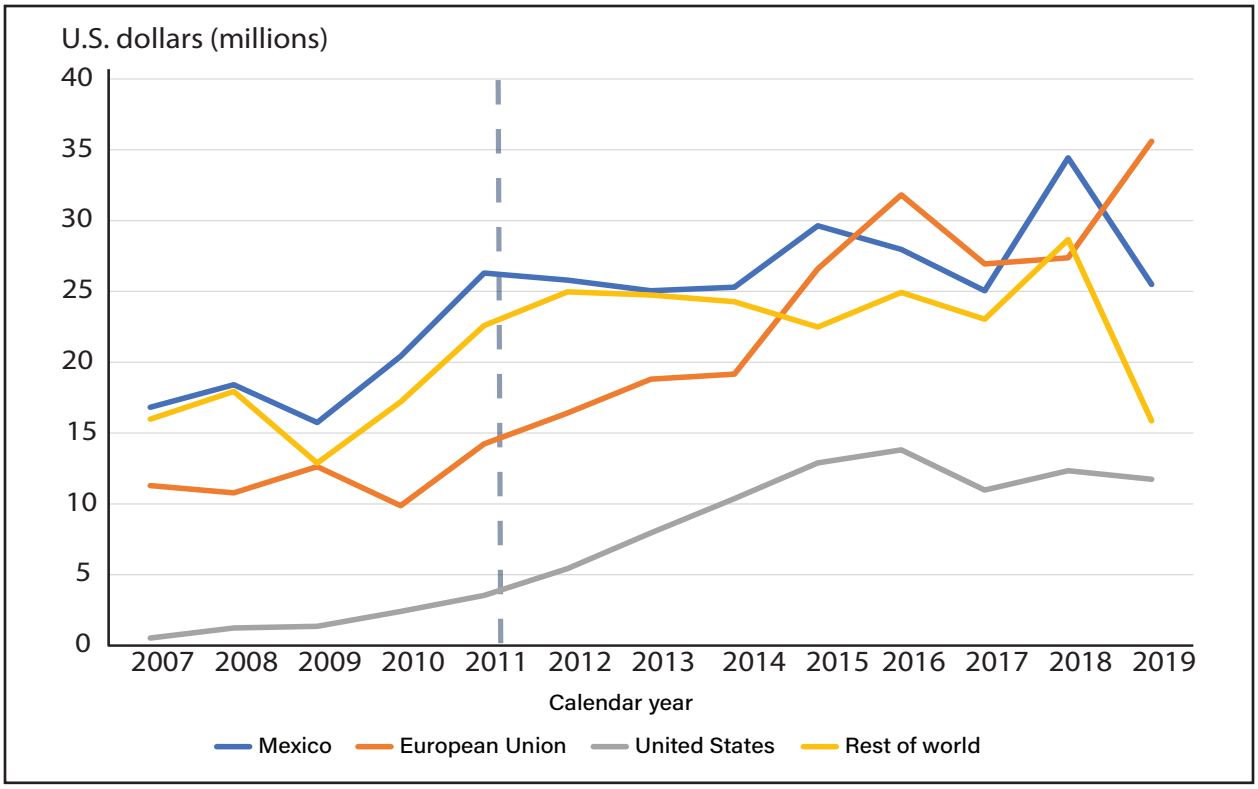
Food Preparations for Infant Use and Other Food Preparations (HS-4 1901)

Another fast-growing category of U.S. agricultural exports to Colombia is HS-4 Code 1901. This category includes three subheadings:

- Food preparations for infant use put up for retail, NESOI;
- Malt extract and food products of flour, meal, etc.—with cocoa (if any) under 40 percent and milk or cream products with cocoa (if any) under 50 percent, NESOI; and
- Mixes and doughs for the preparation of bread, pastry, cakes, biscuits, and other bakers' wares of Heading 1905.

During 2017–19, Colombian HS 1901 imports averaged $93 million per year. Food preparations for infant use accounted for 73 percent of these imports; malt extract, food products of flour, meal, etc., and milk or cream products accounted for 17 percent; and mixes and doughs accounted for 10 percent. The EU was Colombia's leading supplier of HS 1901 imports (with a share totaling 33 percent), followed by Mexico (31 percent) and the United States (13 percent). Since the TPA's implementation, Colombian HS 1901 imports from the United States have tripled in value—increasing from $4 million in 2011 to $12 million in 2019, according to Colombian trade statistics (DIAN, as compiled by Trade Data Monitor, LLC, 2021) (appendix figure 7). In terms of value, mixes and doughs accounted for 66 percent of U.S. HS 1901 exports to Colombia, food preparations for infant use accounted for 19 percent, and malt extract accounted for the remaining 15 percent.

Appendix Figure 7
Colombian imports of HS 1901 products, by supplying country, 2007–19



Notes: The vertical dashed line denotes the first (partial) calendar year of the U.S.-Colombia Trade Promotion Agreement (TPA), which took effect on May 15, 2012. HS 1901 = Malt extract; food preparations of flour, groats, meal, starch, or malt extract, not containing cocoa or containing less than 40 percent by weight of cocoa calculated on a totally defatted basis, not elsewhere specified or included; food preparations of goods of headings 0401 to 0404, not containing cocoa or containing less than 5 percent by weight of cocoa calculated on a totally defatted basis, not elsewhere specified or included.

Source: USDA, Economic Research Service calculations using data from Dirección de Impuestos y Aduanas Nacionales de Colombia (DIAN), as compiled by Trade Data Monitor, LLC (2021).

For food preparations for infant use for retail sale, the TPA provides a transitional TRQ (identified in the TPA's text as being for "processed dairy products") in which the duty-free quota gradually expands from 1,100 metric tons in 2012 to an unlimited quantity starting in 2026. Over-quota exports are subject to a tariff that is gradually reduced each year until the tariff is eliminated in 2026. In 2019, U.S. exports to Colombia of food preparations for infant use totaled roughly 354 metric tons, according to U.S. statistics (USDA, FAS, 2021a), compared with the duty-free quota of 2,144 metric tons. For 2020, the duty-free quota equaled 2,594 metric tons, and the over-quota tariff equaled 8 percent. For 2021, the duty-free quota equals 2,853 metric tons, and the over-quota tariff equals 6.67 percent. Prior to the TPA, these exports were subject to an import tariff of 20 percent. For the other products in HS 1901, U.S. malt extract exports to Colombia were subjected to an import tariff of 15 percent prior to the TPA, and U.S. exports to Colombia of all other HS 1901 products were subject to an import tariff of 20 percent. These latter two tariffs were immediately eliminated upon the TPA's implementation.

Colombia's other FTA partners are also obtaining—or have already obtained—freer access to the Colombian market for HS 1901 products. Mexico already has duty-free access through its FTA with Colombia, and the European Union is gradually obtaining freer access through its FTA with Colombia and Peru.[16] The price of infant formula in Colombia, compared with other countries in Latin America, is still relatively high—about $20 per kilogram, compared with $17 in Mexico and $8 in Argentina (Advanced Lipids, 2018). Further trade liberalization is likely to place downward pressure on this price, leading to higher import quantities from multiple countries, including the United States.

[16]The Foreign Trade Information System of the Organization of American States (OAS, 2019) provides the texts for Colombia's TPAs with Mexico and the European Union.