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Office of the Chief Economist

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Long-term Projections Report OCE-2020-1

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USDA Agricultural Projections to 2029

Interagency Agricultural Projections Committee

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USDA Long-term Projections

Long-term Projections on the Internet

USDA Agricultural Projections to 2029 is available in pdf at:

www.usda.gov/oce/commodity/projections/

https://www.ers.usda.gov/topics/farm-economy/agricultural-baseline-projections/

Data from the new USDA long-term projections are available electronically at:

https://usda.library.cornell.edu/concern/publications/qn59q396v?locale=en

Information on USDA's long-term projections process may be found at:

https://www.ers.usda.gov/topics/farm-economy/agricultural-baseline/questions-answers/

USDA Agricultural Projections to 2029. Office of the Chief Economist, World Agricultural Outlook Board, U.S. Department of Agriculture. Prepared by the Interagency Agricultural Projections Committee. Long-term Projections Report OCE-2020-1, 114 pp.

Abstract

This report provides projections for the agricultural sector to 2029. Projections cover agricultural commodities, agricultural trade, and aggregate indicators of the sector, such as farm income. The projections are based on specific assumptions about macroeconomic conditions, policy, weather, and international developments, with no domestic or external shocks to global agricultural markets. The Agriculture Improvement Act of 2018 is assumed to remain in effect through the projection period. The projections are one representative scenario for the agricultural sector for the next decade and reflect a composite of model results and judgment-based analyses. The projections in this report were prepared during July 2019 through January 2020, with the commodity projections based off the conditions as of the October 2019 WASDE.

While agricultural crop prices are tending to trend upwards only slowly in nominal terms, U.S. trade disputes with China that existed at the time of these projections were formulated have dampened expectations, particularly for soybeans. These projections assume the trade disputes to continue the duration of the projection period. Planted acreage drops slightly overall compared to recent years, primarily due to expected lower soybean plantings, while corn and wheat plantings are expected to remain mostly unmoved. Acreage enrolled in the Conservation Reserve Program (CRP) is also expected to rise, lowering total acres to the eight main crops. Energy costs are expected to increase, with crude oil import prices reaching $91 per barrel at the end of the projection. Low feed costs and continued strong global demand provide economic incentives for expansion in the livestock sector. Long-run developments for global agriculture reflect steady world economic growth and continued global demand for biofuel feedstocks, factors which combine to support longer run increases in disappearance, trade, and, to a lesser extent, prices of agricultural products. Although a relatively strong but slowly weakening U.S. dollar is expected to dampen growth in U.S. agricultural exports, the United States remains competitive in global agricultural markets, in part due to efficiency gains. Net farm income is expected to increase $1.4 billion in 2020 to $93.9 billion and remaining between $88.8 and $98.6 billion for the remainder of the decade, trending upward during the latter half.

Keywords: Projections, crops, livestock, biofuel, ethanol, biodiesel, U.S. dollar value, crude oil prices, trade, farm income, U.S. Department of Agriculture, USDA.

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USDA Long-term Projections: Background

USDA's long-term agricultural projections presented in this report are a departmental consensus on a long-run scenario for the agricultural sector. These projections provide a starting point for discussion of alternative outcomes for the sector.

The projections in this report were prepared during July 2019 through January 2020, with the Agriculture Improvement Act of 2018 assumed to remain in effect through the projection period. The scenario presented in this report is not a USDA forecast about the future. Instead, it is a conditional, long-run scenario about what would be expected to happen under a continuation of current farm legislation and other specific assumptions. Critical long-term assumptions are made for U.S. and international macroeconomic conditions, U.S. and foreign agricultural and trade policies, and growth rates of agricultural productivity in the United States and abroad. The report assumes that there are no domestic or external shocks that would affect global agricultural supply and demand. Normal weather is assumed. Changes in any of these assumptions can significantly affect the projections, and actual conditions that emerge will alter the outcomes.

The report uses as a starting point the short-term outlook from the October 2019 *World Agricultural Supply and Demand Estimates* report and the narrative discusses conditions as of that release date. Recent agreements and discussions such as the Phase One deal with China, the USMCA agreement, and a Japan-U.S. free trade agreement were not considered for these projections. The macroeconomic assumptions were completed in August 2019.

The projections analysis was conducted by interagency committees in USDA and reflects a composite of model results and judgment-based analyses. The Economic Research Service had the lead role in preparing the departmental report. The projections and the report were reviewed and cleared by the Interagency Agricultural Projections Committee, chaired by the World Agricultural Outlook Board. USDA participants in the projections analysis and review include the World Agricultural Outlook Board; the Economic Research Service; the Farm Production and Conservation Business Center, the Foreign Agricultural Service; the Agricultural Marketing Service; the Office of the Chief Economist; the Office of Budget and Program Analysis; the Risk Management Agency; the Natural Resources Conservation Service; and the National Institute of Food and Agriculture.

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USDA Agricultural Projections to 2029

Interagency Agricultural Projections Committee

Introduction and Projections Overview

This report provides long-run projections for the agricultural sector to 2029. Major forces and uncertainties affecting future agricultural markets are discussed, such as prospects for long-term global economic growth and population trends. Projections cover production and consumption for agricultural commodities, global agricultural trade and U.S. exports, commodity prices, and aggregate indicators of the sector, such as farm income.

The projections are a conditional scenario based on specific assumptions about the macroeconomy, agricultural and trade policies, the weather, and international developments. The report assumes that there are no domestic or external shocks that would affect global agricultural markets. Normal weather with trend crop production yields is generally assumed. Provisions of the Agriculture Improvement Act of 2018 are assumed to remain in effect. Thus, the projections are not intended to be a forecast of what the future will be, but instead are a description of what would be expected to happen under these very specific assumptions and circumstances. As such, the projections provide a neutral reference scenario that can serve as a point of departure for a discussion of alternative farm-sector outcomes that could result under different domestic or international conditions.

The projections in this report were prepared during July 2019 through January 2020 and reflect a composite of model results and judgment-based analyses. Short-term projections in this report commence with the October 2019 USDA *World Agricultural Supply and Demand Estimates* report, and most of the narrative reflects expectations at that time. Recent trade deals or discussions such as the Phase One deal with China, the USMCA agreement, and a Japan-U.S. free trade agreement were not considered for these projections. The macroeconomic assumptions were completed in August 2019.

These projections assume that the agricultural sector will continue to adjust to the China-U.S. trade tensions as they existed in October 2019 (which were assumed to last the duration of the projection period). This results in an expected shift away from U.S. soybean acres (about 5 million acres below the recent high of 90 million acres in 2017/18) due to lower returns relative to corn. Despite relatively high ending stocks in many years, total planted acreage to the major crops is expected to remain above 2019, but slightly lower than recent years. A three million acre increase from 24 to 27 million acres in the legislated cap to the Conservation Reserve Program (CRP), a change enacted in 2018, is expected to account for much of that decline. As markets develop in other parts of the world, it is expected that the demand for U.S. soybeans will eventually strengthen over time. In the livestock sector, relatively low feed costs and efficiency gains are expected to continue to provide economic incentives for expansion.

Prices for most crops continue to remain low relative to the recent past as U.S. and global production responded to the earlier high prices. Prices are expected to rise slowly over the ten-year projection period for most crops, with the exception of soybeans. The soybean price is expected to dip over the next two years before moving up thereafter. The increase in cotton prices is a bit more rapid than for the other crops. The restrained growth in prices reflects the expectation of abundant global supplies and competition from other exporters (the U.S. is a net exporter of all major field crops except barley and oats).

Relatively low feed costs continue to improve livestock-sector net returns, with meat to feed ratios being comparatively strong and providing economic incentives for expansion. Nominal prices for beef cattle and broilers initially rise, but then decline to levels below 2020 by the end of the projection period as production rises. Hog and turkey prices drop in 2021 and then climb slowly. Egg prices increase slowly throughout. Nominal farm-level milk prices are projected to decline for several years and then climb to above the starting point after 2025.

Fluctuating prices and production in the beef sector lead to slightly variable but generally steady livestock receipts in the first half of the decade, but receipts grow over the latter half as production gains generally outweigh lower prices for all species. Crop cash receipts, however, are expected to grow throughout the decade. Gross cash income rises continuously from $425 billion in 2020 to $464 billion in 2029. Net farm income declines in the near term and but ends the period $4.7 billion higher than in 2020.

Developments for global agricultural import demand and U.S. trade largely reflect income growth in developing countries and a relatively strong but slowly weakening U.S. dollar over the coming decade. With steady world economic growth and continued demand growth for animal products and feeds, longer run increases in the disappearance, trade, and, to a lesser extent, prices of agricultural products should be supported. Global trade competition will continue to be strong, and the strength of the U.S. dollar will continue to restrain growth in many U.S. agricultural exports, other than corn, cotton, broilers, and pork, which are expected to experience solid growth. Nonetheless, the United States remains competitive in global agricultural markets, in part due to efficiency gains.

Key Assumptions

Macroeconomic Overview

- Global macroeconomic conditions reflect real economic growth that is lower than in the 2010-2019 period, a relatively strong but declining U.S. dollar, and rising oil prices, which are expected to reach $91 per barrel by 2029.

Economic Growth

- Global real economic growth is projected to average 2.7 percent annually over the next decade, 2020-29. The United States is expected to average 1.8 percent growth annually, while developed countries as a group are expected to experience an average of 1.5 percent annual growth. Meanwhile, growth in the developing countries remains faster than the global average, but declines from 4.8 percent annual average growth during 2010-19, to 4.3 percent during 2020-29.

- The strongest growth remains in developing countries. Although China's economic growth slows as it transitions to a more consumer-oriented economy, annual growth still averages 5.5 percent. India is expected to remain among the world's fastest-growing economies, averaging 6.3 percent. Asia, in general, is expected to have strong economic growth – with average annual growth of 5 percent in Asia-less-Japan. Africa and the Middle East are anticipated to maintain growth rates of 3.6 and 2.9 percent, respectively. Latin American growth is expected to rebound, growing at 2.6 percent per year compared to 1.8 percent annually during 2010-19. The growth is marked by a recovery in Brazil from its recent deep recession and Argentina's recession in 2018 and 2019, which is anticipated to gradually recover over the next decade. Mexican growth is expected to slow and fall further behind global growth.

- Relatively weak long-run real growth is expected for the developed countries, especially in Japan (less than 1 percent) and the European Union (EU) (1.4 percent), in part due to slowly growing or shrinking of the working-age population.

- While the U.S. will continue to grow modestly, stronger growth in developing economies will cause the U.S. share of global gross domestic product (GDP) to fall slowly over the next ten years.

- Regional tensions persist within Russia and Ukraine, limiting their growth, but Ukraine is projected to increase average annual growth during 2020-29 compared to the prior decade, while Russia's growth rate is projected as flat.

- Steady global economic growth supports longer-term gains in world food demand, global agricultural trade, and U.S. agricultural exports. Economic growth in developing countries is especially important because food consumption and feed use are particularly responsive to income growth in those countries. Historically, increases in income cause changes in consumption patterns away from traditional staple foods toward increased diet diversification.

Population

- Economic growth over the next decade contributes to the continued slowing of population growth around the world as birth rates decline. Growth in the global population is projected to

remain at less than 1 percent (0.9) per year compared with an average annual rate of 1.1 percent over 2010-19 and 1.2 percent from 2000-09.

- Population growth rates in most regions are projected at 1.0 percent annually or less, with the exception of Africa and the Middle East with projected growth rates of 2.3 percent and 1.3 percent, respectively. The share of the world population accounted for by developing countries continues to rise, accounting for 83.0 percent in 2029.

- Population gains in developing countries, along with economic growth and expansion of the middle class, are particularly important for continued growth in global food demand. Populations in developing countries, in contrast to those in more-developed countries, tend to be both younger and—with economic growth—urbanizing more quickly, factors that generally lead to the expansion and diversification of food consumption.

Value of the U.S. Dollar

- The U.S. dollar is expected to depreciate over the coming ten years. Despite its weakening, the dollar is anticipated to remain above the values of a decade ago.

- A relatively strong but declining U.S. dollar will keep the relative price of U.S. exports high, dampening export growth, particularly for bulk commodities. Although trade competition will continue to be strong, the United States is projected to remain competitive in global agricultural markets due, in part, to product quality and market efficiency. While exports are projected to rise, contributing to long-term increases in cash receipts for U.S. farmers, the U.S. is expected to lose global market share between 2020 and 2029 in most commodities due to increased global competition. The exceptions are corn and soybean oil.

Energy Prices

- Demand for petroleum is growing fastest in developing countries—in particular, countries such as China and India—as increasing populations and expanding manufacturing sectors translate to increased energy demand.

- As global economic activity improves, crude oil prices are assumed to increase from their recent lows (under $40 per barrel in 2016 for the first time since 2004). The U.S. nominal refiner acquisition cost for crude oil imports is expected to remain under $80 per barrel until 2026 and rise to about $91 per barrel by the end of the projection period. Continued advances in drilling technologies will allow non-OPEC suppliers, including the United States, to respond quickly to unforeseen price increases, diminishing how high crude prices can go moving forward.

U.S. Agricultural Policy

- The Agriculture Improvement Act of 2018 is assumed to be in effect through the projection period. Similarly, the trade tariffs in place as of October 2019 are assumed to remain in effect throughout the next ten years. The projections only include policies in place or already expected to be implemented as of October 2019. Recent trade agreements or discussions including the Phase One deal with China, the USMCA agreement, and a Japan-U.S. free trade agreement were not considered for these projections.

- Acreage enrolled in the Conservation Reserve Program (CRP) is assumed to rise to nearly 27 million acres, which is the maximum level legislated by the 2018 Farm Act.

- The impact of trade tensions and weather problems led to higher direct Government payments to farmers in 2019, mostly reflecting payments under the Market Facilitation Programs (version 1 and version 2), as well as ongoing payments under the Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) programs. Beyond 2019, direct Government payments are expected to be lower, but still higher than the 2010-19 average of $12.6 billion, averaging $13.5 billion annually during 2020-29. We assume no additional Market Facilitation Payments (MFP) beyond those of phase three, round two.

U.S. Biofuels

- Biofuel projections were completed before the final renewable fuel standards for cellulosic biofuel, advanced biofuel, and total renewable fuel for 2020 were announced by the U.S. Environmental Protection Agency (EPA) (the biomass-based diesel standard for 2020 was set in 2018). Thus, the biofuel projections incorporate EPA's final rule for these requirements published on July 29, 2019.

- Corn is the major feedstock for U.S. ethanol production, accounting for about 98 percent of production. Sorghum follows with only 2 percent. Over the baseline period, corn use for ethanol production is projected to increase in most years, rising 5 percent over the baseline period. Ethanol exports are assumed to account for the gain in use, and imports remain mostly flat. Demand for corn to produce ethanol continues to have a strong presence in the sector, accounting for at least one-third of total U.S. corn use through the projection period.

- Underpinning the projections are declines in overall gasoline consumption in the United States. The 10-percent ethanol "blend wall" is assumed to constrain domestic ethanol use over the next decade. Most gasoline in the United States continues to be a 10-percent ethanol blend (E10). Some growth in the E15 (15-percent ethanol blend) market will occur with the approval of year-round blending, but infrastructure and other constraints limit growth. The E85 (51 to 85-percent ethanol blend) market remains small. The impact of Small Refinery Exemptions on biofuels consumption is expected to diminish.

- According to EIA data, motor gasoline prices will increase 12 percent over the baseline period. This, combined with a more efficient vehicle fleet, will have a dampening effect on gasoline consumption, which, in turn, limits ethanol consumption due to the "blend wall".

- The biomass-based diesel use volume requirement, as administered by the EPA under the Renewable Fuels Standard, was 2.1 billion gallons for 2019, is raised to 2.43 billion gallons for 2020 and 2021, and is assumed to continue at that level. Projections assume this volume requirement remains at the proposed-rule level throughout the projection period and that the biodiesel tax credit is not in place. Some production of biodiesel and renewable diesel above the biomass-based diesel volume requirement is assumed to continue meeting a portion of the nonspecific advanced biofuel requirement.

- Soybean oil (methyl esters) for biodiesel production is steady at 8.5 billion pounds per year through the baseline period. Other feedstocks used to produce biomass-based diesel continue to include corn oil extracted from dry-milled distillers' grains, other first-use vegetable oils, animal fats, and recycled vegetable oils.

International Policy

- Agricultural trade projections assume that trade agreements, sanitary and phytosanitary restrictions, and domestic policies in place as of October 2019 remain in place throughout the projection period.

- The ban Russia imposed on agricultural imports from Western countries (including the EU, the United States, and Canada) was implemented in August 2014 and has been renewed each year since then. We assume this policy will continue to be renewed and that Russia will continue to use policies to stimulate its domestic pork and poultry production and to reduce its reliance on imports.

- During 2018, China imposed retaliatory tariffs of 25 percent or more on nearly all U.S. agricultural commodities. The projections to 2029 assume these tariffs remain in effect throughout the projection period, since there was no indication as of October 2019 if or when the tariffs would be removed.

- The projections reflect Argentina's reintroduction—due to fiscal pressure—of a ten-percent export tax on corn and wheat, which had been eliminated in December 2015. In the case of soybeans and products, export taxes—which had been reduced by one-half of a percentage point per month since January 2018—were modified to reflect a fixed 18-percent rate for all soybean products, plus a variable rate of 4 Argentine pesos per U.S. dollar in export value that varies by percentage based on the exchange rate. The current tax on soybeans and products is equivalent to a 28-percent rate (see the discussion in the Agricultural Trade section for more details of Argentina's export tax policy). The projections do not incorporate revised export taxes for agriculture and foreign exchange controls announced by the new Argentine President Alberto Fernandez, with former President Cristina de Kirchner elected vice-president, both inaugurated on December 20, 2019.

- The projections do not account for the provisions of the United States-Mexico-Canada Agreement (USMCA), which has been ratified by Mexico, but as of February 1, 2020, had not yet been ratified by the United States and Canadian Governments. The USMCA is the successor agreement to the North American Free Trade Agreement (NAFTA). It broadly preserves the agricultural market access achieved through NAFTA, while providing additional market access for U.S. exports to Canada of dairy, poultry, and egg products.

International Biofuels

- Global production of biofuels is projected to continue to increase during the next decade, although at a slower pace than over the previous half-decade. This slowdown, in part, reflects crude oil prices, that despite their projected growth, are expected to remain below the levels reached earlier in the decade. In addition, of the countries with biofuel programs, blending growth is likely to slow as many have already reached or approached their biofuel use targets, and further significant increases are unlikely due to insufficient feedstock supply and import

restrictions. Furthermore, the remaining countries with larger gasoline fuel pools that have not yet adopted a fuel ethanol program are unlikely, in most cases, to so over the baseline period. As alternative sources of engine power (electric, natural gas) gain ground and transportation habits change (e.g., greater use of public transport and ride-sharing), increases in oil-based fuel use are likely to be restrained. Given the outlook for slowing growth in biofuel use, demand for biofuel feedstocks is also projected to grow more slowly.

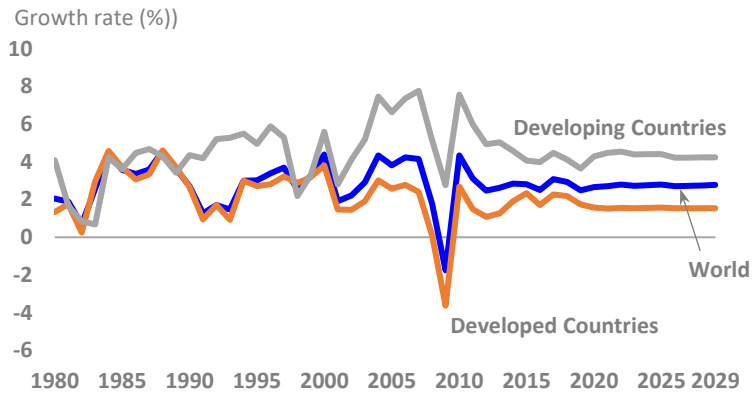
- The United States, Brazil, and the EU remain the world's largest biofuel producers. Brazil and the United States drive much of the global production expansion of ethanol, while Brazil and Indonesia drive much of global biodiesel expansion. The United States is expected to remain the world's leading exporter of ethanol, with Canada and Brazil likely to remain the leading importers. Indonesia and Argentina are expected to remain among the world's leading exporters of biodiesel, with the EU, the United States and China likely to remain the leading importers. Ethanol blending goals announced by China in 2017 and biofuel blending goals set forth in India's 2018 Biofuels Policy have not been adopted for inclusion in these baseline projections, by assumption.

Macroeconomic Assumptions

The macroeconomic assumptions underlying USDA's long-term projections include slowing growth compared to 2010-19 in both developed and developing economies. Real global gross domestic product (GDP) is expected to grow 2.7 percent annually during 2020-29. Developing countries average 4.3 percent annual growth (down from 4.8 percent during 2010-19). Developed country growth will slow to an average of 1.5 percent compared to 1.9 percent in 2010-19.

Long-term global growth is expected to trend much slower than the rates that prevailed during the 2000s prior to the Great Recession in 2009. The continued maturing of large developing countries such as China and India, and of other emerging markets drive the slower developing country growth rates. Aging and even declining populations are also lowering potential growth in several large developed and developing economies.

Real Gross Domestic Product Growth Rates

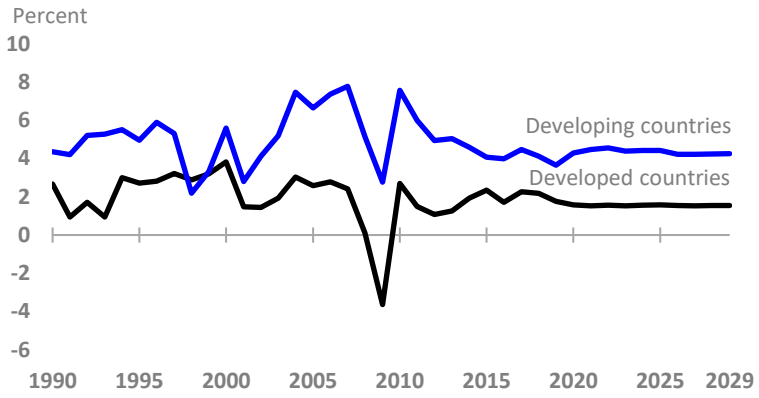


Despite trade and geopolitical tensions, stronger near-term growth is expected in most developing country regions. However, growth rates in China and other large developing countries are projected to significantly slow relative to levels that prevailed during 2000-09 and 2010-19. China's annual GDP growth rate fell from 10.4 percent during 2000-09 to 7.6 percent in the 2010-19 decade. China is projected to grow 5.5 percent annually during 2020-29. Developing country growth is expected to continue outpacing that of developed countries as they continue to exploit gains from investments in basic physical and economic infrastructure and rely more on markets to improve the allocation of resources.

In August 2019, when the macroeconomic assumptions for this report were completed, the United States GDP growth was expected to grow 2.5 percent in 2019, above its projected long-term trend rate of 1.8 percent annually. Growth was expected to slow during 2021-23, partly due to the reduction in trade as a result of the U.S. and Chinese bilateral tariff increases that existed at the time these projections were made, and then climb back to the ten-year average. Other high income developed economies less the United States are expected to have growth near trend in 2019, with a slight rise over the mid-range of the forecast period and a gradual return to the long-term trend of 1.4 percent.

In the United States, lower long-term trend growth rates generally reflect slowing labor force and productivity growth. Demographic changes, such as the retirement of the "Baby Boom" generation and slowing fertility, drive the bulk of the slowdown in labor force growth, although immigration mitigates this trend.

GDP growth: Developing countries are projected to grow at more than double the rate of developed countries



Developing countries are projected to grow at more than double the rate of developed countries. Economic growth in developing countries is projected to average 4.3 percent annually during the projection period. While this represents a growth slowdown compared to recent history, it is substantially above the 1.5 percent rate projected for developed countries (growth rates for developed country, developing country, and other regional aggregations, as well for individual countries, are available in the USDA, Economic Research Service International Macroeconomic Data Set - https://www.ers.usda.gov/data-products/international-macroeconomic-data-set/).

As a result, developing countries' share of global GDP is projected to rise to 45 percent in 2029 from 39 percent in 2019. Asian nations (less Japan) account for the bulk of this increase, rising from 24 percent of global GDP to 31 percent by 2029. This region averages 5.1 percent growth over the period 2020-2029, followed by African countries at 3.5 percent, among the larger regions. Latin American countries are projected to grow at an average of 2.6 percent, and the region encompassing the former Soviet Union is projected to grow at 2.3 percent.

- Near term, growth is expected to be at or below the projected long-term trend for most developing regions in 2020. India is expected to average over 6 percent growth during 2020-29. China's growth, while still strong, slips below 6 percent in 2023 and the remainder of the projection period. China is expected to account for over 17.8 percent of the world economy in 2029, up from 13.7 percent in 2019. Expectations of slowing growth are due in large part to the process of structural change as China moves to a more domestic consumer-oriented and market-driven economy, as well as declining population growth and the bilateral imposition of tariffs on trade between China and the U.S.

- Latin American GDP growth is projected to increase in 2020 and beyond after a recent period marked by very slow growth and recession in some of its largest economies. Brazil's economy is expected to continue to recover over the long term from its deep recession of the past few years amid a complicated political environment, particularly uncertainty about pension, tax, and other structural reforms. Growth in both Argentina and Brazil, however, is expected to be slow relative to other developing countries due to difficult economic challenges. Still, growth is expected to be higher during the projection period compared to 2010-19. Meanwhile, Mexico is expected to experience sluggish growth in the near-term reflecting weakening investment and private consumption, and rising borrowing costs, but is expected to rebound in

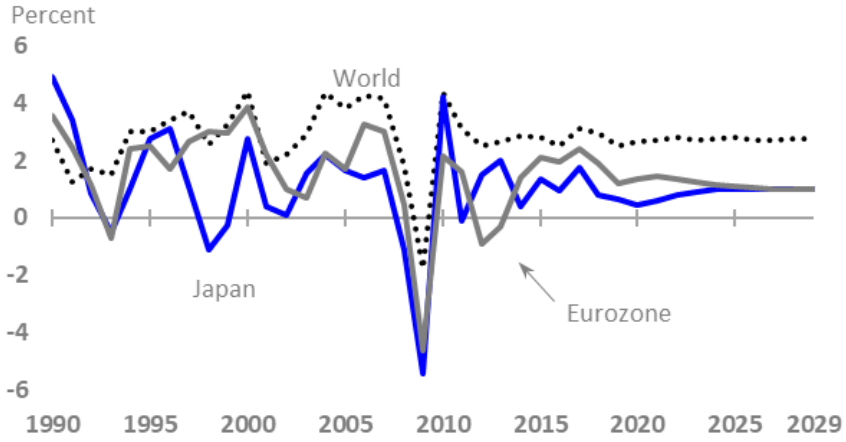
later years. Venezuela has experienced very significant reductions in GDP in an unstable domestic environment.

- Economic growth in Sub-Saharan Africa, the poorest region in the world, is projected to average 3.6 percent per year, identical to growth during 2010-19. Two large Sub-Saharan African countries, South Africa and Nigeria continue to face significant slower near-term growth relative to the early 2000's. Nigeria is expected to converge onto a rate slightly above the regional average, while South Africa will be below. Growth on the continent is generally expected to continue raising standards of living and reducing poverty rates, although low per capita GDP levels imply significant poverty will persist. The West African Community (ECOWAS) of 15 Sub-Saharan countries continues to exceed the economic growth of its neighbors and is expected to average annual growth rates of 4.7 percent for 2020-29.

- The Middle East is expected to grow 2.9 percent over the projection period, and North Africa is expected to grow at an average annual rate of 3.6 percent.

- Growth prospects for the Former Soviet Union region are expected to be between 2.3 and 2.4 percent over the coming decade. The growth rates indicate a significant drop from recent history; these countries averaged 5.0 percent growth during 2000-15.

Developed-country gross domestic product growth

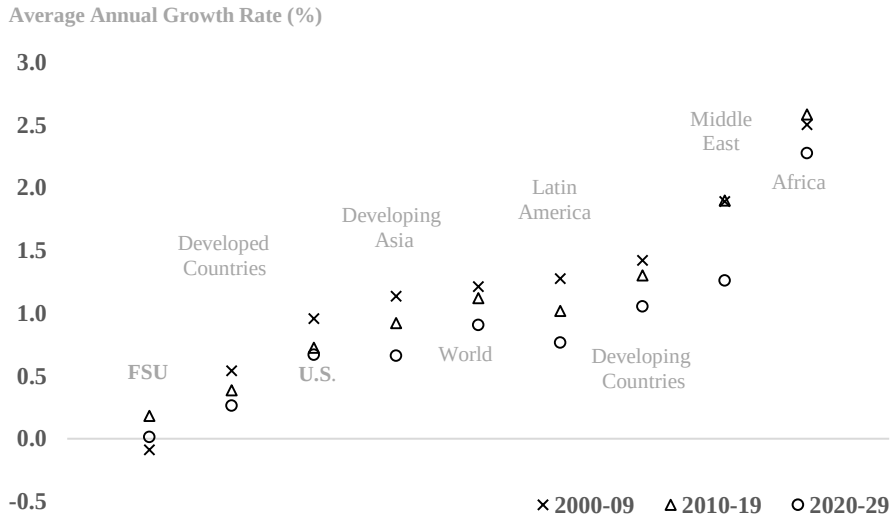


- Developed-country growth is expected to average 1.5 percent over the projection period compared to 2.7 percent annual average world growth for the same period. As noted, U.S. economic growth is expected to continue to grow slightly above the average of the rest of the developed world throughout the projection period, averaging 1.8 percent annually. Growth in exports will likely be hindered by higher tariffs imposed over the past several years. Long-term growth is projected to be slower than the 2010-19 average of 2.3 percent as the labor force ages and population growth declines, and as productivity decelerates. Inflation is expected within 2.1 and 2.2 percent annually in the United States over the projection period.

- Growth in the European Union is expected to average 1.4 percent for the decade. Meanwhile, Japan's growth remains below 1.0 percent per year the first four years of the projection period but is expected to return to the long-run 0.9 percent trend in the latter half of the forecast period. In Japan, negative population growth is expected to limit overall growth rates. Long-term growth in developed countries, in general, is expected to be lower than in the past as slowly growing (or even declining), and aging populations imply slower labor force and productivity growth rates.

- The Canadian economy's GDP growth, like other economies, is expected to be slightly lower in the coming decade, moving to a growth rate of 1.9 percent for most of the forecast period.

World Population



World population growth is projected to continue slowing over the next decade, dropping to 0.9 percent per year for the projection period compared to an annual rate of 1.2 percent over 2000-2009 and 1.1 percent in 2010-19.

- Developed countries have very low projected population growth rates, averaging 0.3 percent per year over the coming decade. U.S. population growth is projected to be faster than other developed countries, growing 0.7 percent per year on average, in part reflecting the role of immigration. Only small population increases are expected for the European Union, averaging just under 0.1 percent over the next decade. The population in Japan is projected to continue falling by an average of 0.4 percent per year.

- Population growth rates in developing countries will likely be lower than in previous decades due, in part, to rising incomes and higher life expectancy, both of which tend to lower birth rates. Growth rates are expected to remain above those in the rest of the world at nearly 1.1 percent per year over the projection period. As a result, developing countries' share of the global population is projected to increase modestly to 83 percent by 2029, compared to 82 percent in 2019.

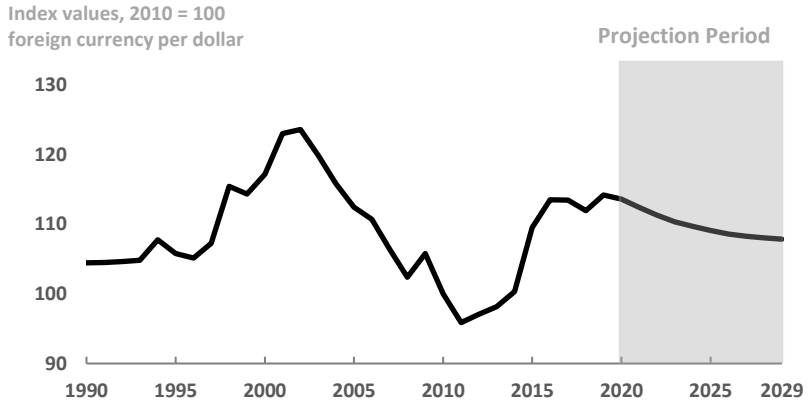
- Africa is expected to have the highest population growth at an average of almost 2.3 percent per year from 2020–29, with Sub-Saharan Africa leading the continent at 2.4 percent per year. Although population growth has fallen compared to historical rates, the decline is modest relative to the declines seen in Latin American and Asian countries. Latin America's population is expected to grow at just under 0.8 percent per year over the next decade, on average, compared to 1.3 percent during 2000-09. Asia's population is expected to grow at roughly 0.6 percent per year, also down significantly from 1.1 percent annually during 2000-09.

- China and India together accounted for over 36 percent of the world's 2019 population. Population growth in both countries has declined, and by the end of the decade these two countries are expected to account for roughly 35 percent of the world's population

- Population growth in the former Soviet Union is expected to average less than 0.1 percent per year over the projection period, while the Russian and Ukrainian populations are both expected to decline. Continued emigration, low birth rates, and relatively high mortality rates all contribute to falling populations in this region.

- Population growth in the Middle East and North Africa is forecast to average slightly above 1.3 and 1.5 percent annually, respectively.

U.S. Agricultural Real (Inflation Adjusted) Trade-Weighted Dollar



The U.S. real agricultural trade-weighted dollar index (2010=100) is expected to average 113.6 in 2020 and decline gradually to just under 108 in 2029. Despite recent depreciation against the dollar, the currencies of some key trading partners are expected to appreciate over time, while currencies of other major trading partners will remain steady.

- After 2020, the dollar is expected to decline moderately in value relative to the Canadian dollar. The U.S. dollar initially depreciates relative to the euro and yen, and then strengthens slightly in the later years of the projection period.

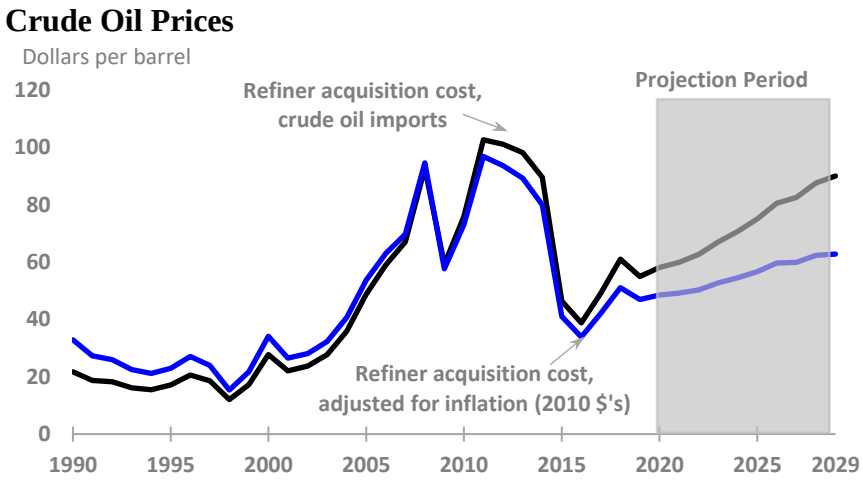
- The dollar performance varies with respect to developing country currencies. The dollar is expected to be generally stable, on average, relative to Latin American currencies, but decline relative to South Asian, Southeast Asian, and Middle Eastern currencies. The dollar depreciates between 0.3 and 2.2 percent per year relative to African currencies.

- The dollar is expected to weaken against the Mexican peso in 2019 and 2020, with the depreciation tapering off in 2021. After that, the dollar is expected to appreciate slowly over the remainder of the decade.

- The U.S. dollar is expected to appreciate by 1.6 percent in 2020 against the Brazilian real, followed by less than 0.1 percent annual appreciation over the remainder of the period.

- The dollar has remained relatively strong against the yuan in recent years but is expected to depreciate as the currency floats more freely in the future. The weakening dollar is expected to help agricultural exports from the U.S. but lower the purchasing power of U.S. buyers.

- The dollar is expected to depreciate steadily in real terms against a trade-weighted basket of currencies in the former Soviet Union. The dollar is expected to depreciate against the ruble, at roughly 1.3 percent annually. Against Ukraine's hryvnia, the dollar's value is expected to drop more than 5.3 percent in 2020 and 2021, and to slowly ease down to a roughly 3-percent decrease per year for the remainder of the projection period.



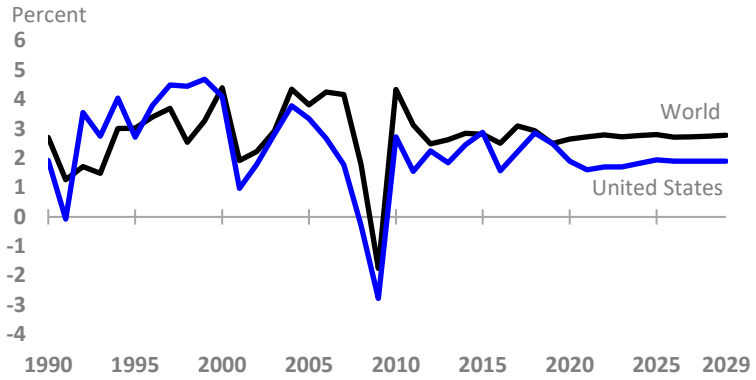
Oil prices are anticipated to rise over the projection period, to just over $90 per barrel in nominal terms, up from $58 per barrel in 2020. This is consistent with U.S. Energy Information Administration forecasts, which assume rising global demand, especially in developing countries.

- Despite an expected slowing of demand over time as richer nations transition away from hydrocarbon fuels, oil prices are anticipated to rise over the projection period due to increasing demand from developing nations. Oil prices will also continue to be supported by coordinated supply management disseminating from the consortium of oil-producing nations.

- Demand is expected to decline in more economically developed countries from increased energy efficiency and transitions away from oil. Per capita oil use is declining across many developed nations.

- Geopolitical uncertainty is expected to continue to influence oil markets. Events over the past few years have affected oil trade and contributed to price volatility. Uncertainty with exports originating from Iran and Venezuela is expected to continue to inflate prices globally. At the same time, recent advances in exploration and mining technologies have allowed increased production from other regions in the world, including the U.S. These new technologies also have increased the flexibility and response of suppliers to react to short-term supply shocks. The ability to quickly shift production and extract oil will help place a ceiling on oil prices.

U.S. and World GDP growth rates, 1990-2029



U.S. Agricultural Implications

The United States will remain among the most competitive agricultural exporters. However, slowing global economic growth, compared to the 2010-19 decade, is expected to suppress growth in U.S. agricultural exports over the projection period. The projections suggest that developing countries will continue to account for most of the growth in U.S. agricultural exports due to their economic and population growth as both total income and per capita incomes rise. Developed countries' economies and populations are growing more slowly and are expected to contribute less to global trade growth.

Developing countries, including China, have historically been one of the main drivers of demand for U.S. exports. However, China's imports of U.S. agricultural goods are expected to be limited due to tariffs that were in place as of October 2019, which are assumed to continue through the projection period. The Phase One agreement between the United States and China is not incorporated into these projections.

- The U.S. dollar is expected to weaken over the coming ten years but remains strong throughout the projection period relative to its value earlier in the decade. A stronger dollar dampens demand for U.S. agricultural exports over the projection period as it increases the relative cost of U.S. goods. A competitive business environment and well-developed logistical supply chains will remain important for U.S. exports to remain competitive while the strong dollar persists.

- Although developing country growth rates are expected to decline on average relative to the higher rates of recent decades, incomes are expected to continue to rise briskly compared to developed economies. Income growth shifts developing countries' import demand toward purchases of high values goods, such as animal products, or for feed grains, oilseeds, and oilseed products required for domestic production of livestock products.

- Low energy prices in the early years of the projection period will curb the costs of production for agricultural producers in the United States and elsewhere. Increasing interest rates over the projection period are expected to raise the costs of borrowing for producers.

Table 1. U.S. macroeconomic assumptions

Item	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Gross Domestic Product												
Nominal, billion dollars	20,494	21,447	22,292	23,102	23,964	24,883	25,868	26,925	27,983	29,084	30,229	31,421
Real, billion 2010 chain-weighted dollars	17,844	18,290	18,638	18,936	19,258	19,585	19,942	20,329	20,714	21,107	21,508	21,917
percent change	2.9	2.5	1.9	1.6	1.7	1.7	1.8	1.9	1.9	1.9	1.9	1.9
Disposable personal income												
Nominal, billion dollars	15,522	16,220	16,885	17,527	18,228	18,994	19,791	20,623	21,468	22,348	23,265	24,218
percent change	4.9	4.5	4.1	3.8	4.0	4.2	4.2	4.2	4.1	4.1	4.1	4.1
Nominal per capita, dollars	47,404	49,112	50,762	52,320	54,034	55,919	57,876	59,909	61,960	64,091	66,305	68,606
percent change	4.3	3.6	3.4	3.1	3.3	3.5	3.5	3.5	3.4	3.4	3.5	3.5
Real, billion 2010 chain-weighted dollars	13,783	14,114	14,411	14,670	14,963	15,278	15,598	15,926	16,260	16,602	16,951	17,307
percent change	2.8	2.4	2.1	1.8	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Real per capita, 2010 chained dollars	42,036	42,736	43,322	43,791	44,357	44,979	45,614	46,265	46,930	47,612	48,310	49,026
percent change	2.1	1.7	1.4	1.1	1.3	1.4	1.4	1.4	1.4	1.5	1.5	1.5
Personal consumption expenditures												
Real, billion 2010 chain-weighted dollars	12,412	12,709	12,976	13,223	13,487	13,757	14,032	14,313	14,585	14,862	15,144	15,432
percent change	2.6	2.4	2.1	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9
Inflation measures												
GDP chained price index, 2010=100	114.8	117.3	119.6	122.0	124.4	127.1	129.7	132.4	135.1	137.8	140.5	143.4
percent change	2.3	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0
CPI-U, 1982-84=100	251.1	256.1	261.8	267.3	273.0	278.9	284.9	291.0	297.1	303.5	310.0	316.7
percent change	2.4	2.0	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.2	2.2
PPI, finished goods 1982=100	204.1	207.3	210.6	213.5	216.8	220.2	223.7	227.2	230.8	234.4	238.1	241.8
percent change	3.1	1.5	1.6	1.4	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6
PPI, crude goods 1982=100	190.8	182.6	186.5	188.7	191.9	197.2	201.5	206.3	212.3	214.0	219.2	221.4
percent change	0.0	-4.3	2.1	1.2	1.7	2.8	2.1	2.4	2.9	0.8	2.4	1.0
Crude oil price, $/barrel												
EIA refiner acquisition cost, imports	61.0	55.0	58.0	59.9	62.6	67.0	70.7	75.1	80.5	82.5	87.6	90.1
percent change	24.0	-9.7	5.5	3.2	4.5	7.1	5.5	6.2	7.3	2.4	6.2	2.9
Real 2010 chain-weighted dollars	51.1	46.9	48.5	49.1	50.3	52.8	54.5	56.7	59.6	59.9	62.3	62.8
percent change	21.3	-8.2	3.4	1.2	2.4	4.9	3.3	4.0	5.2	0.4	4.1	0.8
Labor compensation per hour												
nonfarm business, 2005=100	104.6	108.0	112.0	116.4	120.9	125.4	129.8	134.3	139.0	143.9	148.9	154.1
percent change	0.1	3.2	3.7	3.9	3.9	3.7	3.5	3.5	3.5	3.5	3.5	3.5
Interest rates, percent												
3-month Treasury bills	1.94	2.40	2.40	2.50	2.50	2.50	2.60	2.60	2.60	2.70	2.70	2.70
Bank prime rate	4.91	5.40	5.25	5.26	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
10-year Treasury bonds	2.91	2.60	2.80	3.10	3.20	3.40	3.50	3.50	3.50	3.50	3.50	3.50
Labor and population												
Civilian unemployment rate, percent	3.9	3.5	3.7	4.2	4.2	4.3	4.4	4.4	4.5	4.5	4.5	4.5
Nonfarm payroll employees, millions	149.1	151.0	152.4	153.0	153.4	153.7	154.2	154.8	155.6	156.4	157.2	157.9
percent change	1.7	1.3	0.9	0.4	0.3	0.2	0.3	0.4	0.5	0.5	0.5	0.5
Total population, millions	327.9	330.3	332.6	335.0	337.3	339.7	342.0	344.2	346.5	348.7	350.9	353.0
percent change	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6

Domestic macroeconomic assumptions were completed in August 2019.

CPI-U is the consumer price index for all urban consumers. PPI is the producer price index. EIA is the Energy Information Administration, U.S. Department of Energy.

Table 2. Global real GDP growth assumptions

Region/country	GDP, 2019	GDP share 2016-18	Per capita GDP, 2018	2019	2020	2021	2022	2023	2024	Average 2000-2009	Average 2010-2019	Average 2020-29
	Bil. 2010 dollars	*Percent*	*2010 dollars*	*Percent change in real GDP*								
World	84,014	100.0	11,198	2.5	2.7	2.7	2.8	2.7	2.8	2.8	2.9	2.7
North America	20,235	24.1	55,324	2.4	1.9	1.6	1.7	1.7	1.8	1.8	2.3	1.8
Canada	1,945	2.3	53,826	1.4	1.8	1.9	1.9	1.9	1.9	2.1	2.2	1.9
United States	18,290	21.8	55,380	2.5	1.9	1.6	1.7	1.7	1.8	1.8	2.3	1.8
Latin America	5,860	7.1	9,129	0.3	1.9	2.2	2.5	2.5	2.6	3.0	1.8	2.6
Mexico	1,317	1.6	10,344	0.5	1.6	1.9	2.4	2.4	2.3	1.5	2.7	2.2
Cuba	77	0.1	6,955	0.9	1.2	1.4	2.0	2.8	3.5	5.6	2.1	3.4
Caribbean & Central America	456	0.5	5,878	2.4	2.4	2.5	2.6	2.8	2.8	2.8	2.5	2.8
South America	4,009	4.9	9,416	0.0	1.9	2.3	2.5	2.6	2.6	3.4	1.4	2.7
Argentina	445	0.6	9,865	-1.5	2.5	2.7	2.5	2.4	2.3	2.6	1.5	2.3
Brazil	2,333	2.8	11,092	1.0	2.0	2.1	2.3	2.4	2.5	3.4	1.3	2.6
Other	1,232	1.5	7,228	-1.4	1.6	2.6	2.8	3.0	3.0	4.0	1.5	2.9
Europe	20,767	25.0	37,879	1.5	1.5	1.6	1.6	1.5	1.4	1.6	1.6	1.4
European Union	19,478	23.4	37,598	1.4	1.5	1.6	1.6	1.4	1.4	1.6	1.6	1.4
Other Europe	1,290	1.5	42,713	1.6	2.0	1.7	1.7	1.6	1.6	2.1	1.8	1.7
Former Soviet Union	2,395	2.9	8,367	2.1	2.3	2.4	2.4	2.3	2.3	5.9	2.2	2.3
Russia	1,749	2.1	12,320	1.7	1.9	1.9	1.9	1.9	1.9	5.5	1.9	1.9
Ukraine	135	0.2	3,073	2.7	3.0	3.1	3.1	3.1	3.1	4.8	0.4	3.1
Other	511	0.6	5,094	3.5	3.7	3.8	3.7	3.6	3.5	8.5	4.3	3.4
Asia and Oceania	28,463	33.3	6,993	4.2	4.2	4.3	4.4	4.2	4.2	4.4	4.9	4.2
East Asia	20,063	23.6	12,526	3.9	3.9	4.0	4.1	3.9	3.9	4.3	4.7	3.8
China	11,511	13.2	8,283	6.3	6.1	6.0	6.0	5.5	5.5	10.4	7.6	5.5
Hong Kong	291	0.4	40,254	0.8	1.7	2.2	2.1	2.0	2.0	4.2	3.1	2.0
Japan	6,245	7.6	49,623	0.6	0.4	0.6	0.8	0.9	1.0	0.5	1.3	0.9
South Korea	1,409	1.7	27,293	2.0	2.2	2.6	2.5	2.4	2.3	4.7	3.2	2.3
Taiwan	555	0.7	23,532	1.5	1.5	1.8	2.0	2.0	2.0	3.8	3.2	1.9
Southeast Asia	3,048	3.6	4,632	4.6	4.7	4.8	4.8	4.7	4.6	5.0	5.2	4.6
Cambodia	21	0.0	1,253	6.9	6.6	6.5	6.2	6.3	6.0	8.5	7.0	6.1
Indonesia	1,205	1.4	4,547	5.0	5.1	5.3	5.4	5.3	5.2	5.1	5.4	5.1
Malaysia	398	0.5	12,355	4.3	4.4	4.5	4.5	4.5	4.5	4.8	5.3	4.4
Burma	75	0.1	1,343	6.7	6.9	7.1	6.9	6.7	6.5	12.4	7.1	6.5
Philippines	342	0.4	3,176	6.0	6.0	5.9	5.7	5.5	5.2	4.5	6.3	5.3
Thailand	456	0.5	6,625	3.5	3.5	3.3	3.2	3.2	3.2	4.3	3.7	3.2
Vietnam	200	0.2	2,042	6.5	6.5	6.3	6.2	6.0	5.8	6.6	6.3	5.9
South Asia	3,625	4.2	2,045	6.3	6.4	6.4	6.3	6.2	6.2	6.0	6.7	6.1
Bangladesh	207	0.2	1,288	7.6	6.3	6.0	6.0	5.7	5.7	5.6	6.7	5.7
India	3,023	3.5	2,305	6.6	6.8	6.8	6.6	6.5	6.4	6.3	7.0	6.3
Pakistan	259	0.3	1,227	3.5	3.4	3.5	4.0	4.3	4.5	4.5	4.2	4.6
Oceania	1,727	2.1	45,419	2.2	2.5	2.6	2.6	2.6	2.6	3.2	2.6	2.6
Australia	1,504	1.8	63,455	2.1	2.5	2.6	2.6	2.6	2.6	3.2	2.6	2.6
New Zealand	191	0.2	41,623	2.4	2.3	2.2	2.1	2.1	2.2	2.9	2.8	2.2
Middle East	3,764	4.6	11,285	-0.2	2.1	2.8	3.0	3.1	3.2	4.0	3.5	2.9
Iran	518	0.7	6,162	-6.5	-1.0	1.0	2.3	3.0	3.4	4.5	1.3	2.6
Iraq	215	0.3	5,212	2.3	2.1	2.6	3.0	3.5	4.0	4.5	5.3	4.0
Saudi Arabia	712	0.9	21,164	1.8	2.1	2.2	2.0	1.9	1.9	3.5	3.6	1.9
Turkey	1,218	1.5	14,916	-1.5	2.8	4.1	4.0	4.0	4.0	4.0	5.6	3.6
Other	1,102	1.3	11,841	2.8	2.9	2.7	2.7	2.7	2.7	4.4	2.6	2.8
Africa	2,529	3.0	2,012	3.0	3.3	3.4	3.6	3.6	3.6	5.1	3.3	3.6
North Africa	733	0.9	3,714	3.5	4.0	3.6	3.7	3.6	3.6	4.5	2.7	3.6
Egypt	296	0.3	2,908	5.5	5.4	4.7	4.8	4.5	4.2	5.0	3.8	4.4
Morocco	126	0.2	3,650	2.9	3.7	4.1	4.0	4.0	3.8	4.8	3.5	3.8
Sub-Saharan Africa	1,796	2.1	1,695	2.8	3.1	3.3	3.5	3.6	3.7	5.4	3.6	3.6
South Africa	432	0.5	7,723	0.6	1.6	1.5	1.7	2.0	2.2	3.6	1.7	2.0
Nigeria	479	0.6	2,294	2.0	2.0	2.8	3.5	3.5	3.8	7.7	3.6	3.5
West African Community	207	0.2	1,157	6.1	5.8	5.5	5.1	4.8	4.5	3.6	5.8	4.7
Other Sub-Saharan Africa	679	0.8	1,101	3.8	4.0	4.1	4.2	4.2	4.2	6.0	4.2	4.2

Source: Historical data from various sources; compiled in the International Macroeconomic Data Set, U.S. Department of Agriculture, Economic Research Service. International macroeconomic assumptions were based on information available in August 2019.

Table 3. Population growth assumptions

Region/country	Population in 2019	2018	2019	2020	2021	2022	2023	Average 2000-09	Average 2010-19	Average 2020-29
	Millions				*Percent change*					
World[1]	7,506	1.1	1.0	1.0	1.0	1.0	0.9	1.2	1.1	0.9
North America	366	0.7	0.7	0.7	0.7	0.7	0.7	0.9	0.7	0.7
Canada	36	0.7	0.7	0.7	0.7	0.7	0.6	0.8	0.8	0.6
United States	330	0.7	0.7	0.7	0.7	0.7	0.7	1.0	0.7	0.7
Latin America	642	0.9	0.9	0.9	0.9	0.8	0.8	1.3	1.0	0.8
Mexico	127	1.1	1.1	1.0	1.0	1.0	0.9	1.3	1.3	0.9
Cuba	11	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	0.1	-0.2	-0.2
Other Caribbean & Cent. America	78	1.1	1.0	1.0	1.0	1.0	1.0	1.5	1.2	0.9
South America	426	0.9	0.9	0.8	0.8	0.8	0.8	1.3	1.0	0.7
Argentina	45	0.9	0.9	0.9	0.8	0.8	0.8	1.0	1.0	0.8
Brazil	210	0.7	0.7	0.7	0.7	0.6	0.6	1.2	0.8	0.6
Other	170	1.1	1.0	1.0	1.0	1.0	0.9	1.4	1.1	0.9
Europe	548	0.2	0.2	0.2	0.1	0.1	0.1	0.4	0.2	0.1
European Union	518	0.2	0.2	0.2	0.1	0.1	0.1	0.4	0.2	0.1
Other Europe	30	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.2
Former Soviet Union	286	0.2	0.2	0.2	0.1	0.0	0.0	-0.1	0.2	0.0
Russia	142	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.4	0.0	-0.2
Ukraine	44	-0.2	0.0	-0.1	-0.3	-0.5	-0.5	-0.7	-0.4	-0.5
Other	100	0.7	0.7	0.7	0.7	0.6	0.6	0.7	0.8	0.6
Asia and Oceania	4,071	0.8	0.8	0.8	0.7	0.7	0.7	1.1	0.9	0.6
East Asia	1,602	0.3	0.3	0.3	0.2	0.2	0.1	0.5	0.4	0.1
China	1,390	0.4	0.4	0.3	0.3	0.2	0.2	0.5	0.4	0.1
Hong Kong	7	0.3	0.3	0.2	0.2	0.2	0.1	0.7	0.3	0.1
Japan	126	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	0.1	-0.1	-0.4
South Korea	52	0.5	0.4	0.4	0.3	0.3	0.3	0.5	0.5	0.2
Taiwan	24	0.2	0.1	0.1	0.1	0.1	0.0	0.5	0.2	0.0
Southeast Asia	658	1.0	1.0	0.9	0.9	0.9	0.9	1.4	1.1	0.8
Cambodia	17	1.5	1.5	1.4	1.4	1.3	1.3	1.6	1.6	1.2
Indonesia	265	0.8	0.8	0.8	0.8	0.7	0.7	1.3	1.0	0.7
Malaysia	32	1.4	1.3	1.3	1.3	1.2	1.2	2.1	1.5	1.2
Burma	56	0.9	0.9	0.9	0.8	0.8	0.8	1.0	1.0	0.7
Philippines	108	1.6	1.6	1.5	1.5	1.5	1.5	2.0	1.6	1.4
Thailand	69	0.3	0.3	0.3	0.2	0.2	0.2	0.6	0.4	0.1
Vietnam	98	0.9	0.9	0.8	0.8	0.8	0.7	1.3	1.0	0.7
South Asia	1,773	1.2	1.2	1.1	1.1	1.1	1.1	1.6	1.3	1.0
Bangladesh	161	1.0	1.0	1.0	1.0	0.9	0.9	1.4	1.1	0.9
India	1,312	1.2	1.1	1.1	1.1	1.1	1.0	1.6	1.3	1.0
Pakistan	211	1.4	1.4	1.4	1.4	1.4	1.3	2.0	1.5	1.3
Oceania	38	1.1	1.1	1.1	1.0	1.0	1.0	1.4	1.2	1.0
Australia	24	1.0	1.0	1.0	1.0	0.9	0.9	1.2	1.1	0.9
New Zealand	5	0.8	0.8	0.7	0.7	0.7	0.7	1.1	0.8	0.7
Middle East	334	1.7	1.6	1.5	1.4	1.3	1.3	1.9	1.9	1.3
Iran	84	1.2	1.2	1.1	1.0	1.0	0.9	1.2	1.3	0.9
Iraq	41	2.6	2.5	2.4	2.5	2.5	2.5	2.8	3.4	2.4
Saudi Arabia	34	1.7	1.6	1.6	1.6	1.6	1.6	2.0	3.0	1.6
Turkey	82	0.5	0.5	0.5	0.6	0.7	0.6	1.3	1.0	0.6
Other	93	2.9	2.7	2.4	1.9	1.5	1.5	2.9	2.4	1.6
Africa	1,257	2.5	2.4	2.4	2.4	2.3	2.3	2.5	2.6	2.3
North Africa	197	1.9	1.8	1.8	1.7	1.7	1.6	1.7	2.0	1.5
Egypt	102	2.4	2.4	2.3	2.2	2.2	2.1	2.1	2.5	2.0
Morocco	35	1.0	0.9	0.9	0.9	0.9	0.9	1.2	1.0	0.8
Sub-Saharan Africa	1,060	2.6	2.5	2.5	2.5	2.5	2.4	2.7	2.7	2.4
South Africa	56	1.0	1.0	1.0	1.0	0.9	0.9	1.3	1.0	0.9
Nigeria	209	2.6	2.6	2.6	2.6	2.5	2.5	2.6	2.9	2.5
West African Community	179	2.6	2.6	2.6	2.6	2.5	2.5	2.7	2.6	2.5
Other Sub-Saharan Africa	616	2.7	2.6	2.6	2.6	2.5	2.5	2.8	2.8	2.5

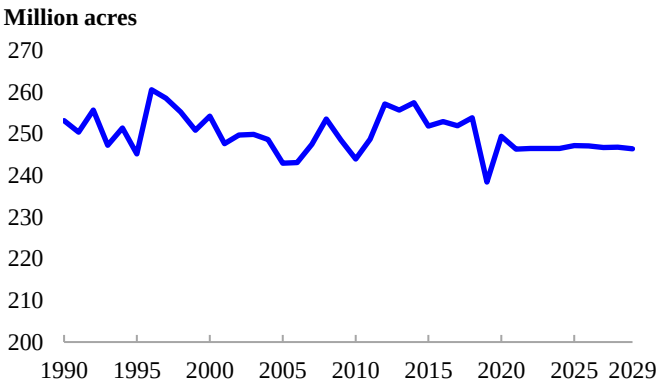
1/ Totals for the world include countries not otherwise listed in the table.

Source: U.S. Department of Commerce, U.S. Census Bureau, International database: http://www.census.gov/population/international/data/idb/informationGateway.php. The population assumptions were completed in August 2019 based on the August 2019 Census update.

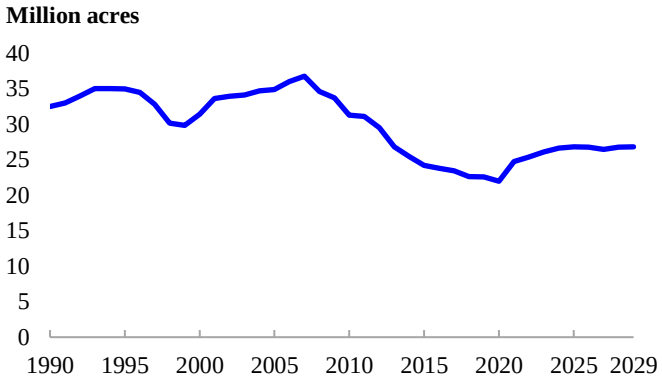
U.S. Crops

Rising global demand for varied diets and protein is projected to stimulate demand for feed grains and soybeans. Accompanying this increased demand is rising competition to the U.S. from countries such as Brazil, Argentina, and to a certain extent, Ukraine. While global demand for wheat is growing more slowly, it is still increasing significantly, and rising exports from the Black Sea region and the EU will constrain growth in U.S wheat exports. The U.S. also faces challenges related to the ongoing trade tensions with China and a strong U.S. dollar, which will keep the relative price of U.S. exports high, dampening export growth. Although trade competition will continue to be strong, the United States is projected to remain competitive in global agricultural markets due, in part, to product quality and market efficiency. Despite obstacles, the U.S. gains global export market share for corn, but U.S. global export market share declines somewhat for soybeans, wheat, cotton, and rice.

(a) Planted area for eight major crops



(b) Conservation Reserve Program

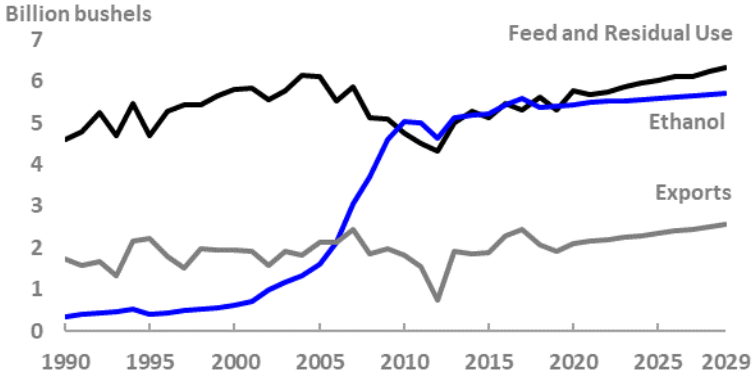


- All eight major field crops are expected to end the projection period (2029/30) with higher prices than at the beginning (2020/21). Soybean prices dip in the near term before climbing slowly but will remain fairly low, reflecting in part the trade tensions with China and tariff policies that were in effect at the time these projections were made. Feed grains prices are also projected to remain low, while rice, cotton, and to a lesser extent, wheat, rise steadily from a low base. Even with relatively low prices, net returns (returns over variable costs) are projected on an upward trend, keeping planted acres for the three main field crops (corn, soybeans, wheat) mostly flat, while yield growth pulls production up – particularly for corn and soybeans.

- Plantings of the eight major U.S. crops (corn, soybeans, wheat, upland cotton, sorghum, rice, barley, and oats) are expected to remain at between 246.3 and 249.4 million acres over the next decade. Plantings for these crops averaged nearly 257 million acres during the recent peak in 2012-14, and 250 million acres between 2015/16 and 2019/20.

- The farm programs from the 2018 Farm Act were in place when generating these projections and are assumed to extend through the projection period. Acreage enrolled in the Conservation Reserve Program (CRP) is assumed to rise to nearly 27 million acres, which is the maximum level legislated by the 2018 Farm Act, up from the 2014 Farm Act cap of 24 million acres. The total acreage enrolled in CRP is projected to rise from 22 million acres in 2020 to 26.8 million acres in 2029.

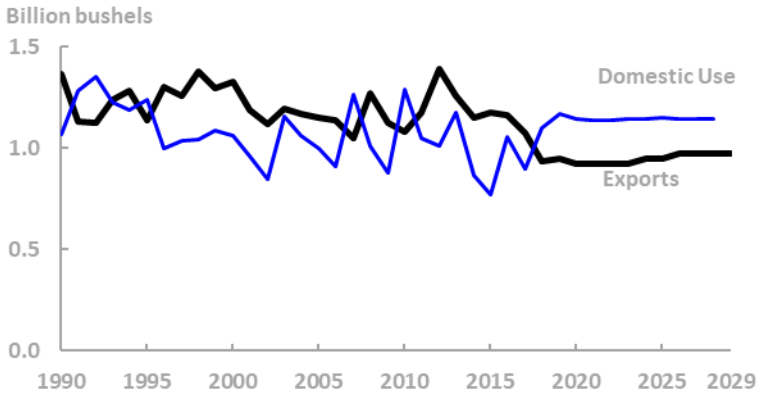
U.S. corn: Feed and residual use, ethanol, and exports



U.S. corn production is projected to mostly grow over the next decade from yield growth, as well as relative prices are likely to encourage corn over soybean plantings. Expanding meat production is expected to boost feed usage and use for food, seed, and industrial is projected to increase over the baseline period. Planted area is expected to increase sharply in the near-term and then recede to 89.0 to 88.5 million acres for the rest of the projection period, similar to more recent years, as markets adjust to a new trade equilibrium and demand for U.S. soybeans grows again. Through the baseline period, supply and use are both projected to increase by 7.0 percent.

- Higher planted acreage in 2020/21, combined with increasing yields, lead to growing stocks, restraining corn prices. Relatively low corn prices suggest increased feed and residual use.
- Corn-based ethanol production is projected to rise slowly over the entire period. Constraints on the expansion of higher ethanol blends (E15 and E85), rising fuel efficiency, rising oil costs, and changing consumer lifestyles resulting in lower miles driven all support a decline in domestic ethanol consumption. Increasing ethanol exports are assumed to more than offset trends in domestic use.
- Food, seed, and industrial use of corn (other than ethanol production) rises slowly during the first half of the baseline period but declines overall as high fructose corn syrup production slows, more than offsetting increased starch and glucose use.
- In 2020/21, U.S. corn exports are expected to be 53.3 million tons (2.1 billion bushels), compared to 29.6-36 million tons for Ukraine, Brazil, and Argentina, the next largest exporters. Rising incomes, particularly in emerging economies, increase the demand for animal protein, bolstering the demand for feed corn (and corn byproducts). A projected slowly weakening, but still strong, United States dollar modestly improves export prospects. Despite continued competition from Brazil, Argentina, and Ukraine, growing domestic feed use, and slowly increasing demand for ethanol, the United States' market share of global corn trade will rise slightly from 30.5 percent to 31.6 percent by 2029/30. This is well below the shares prior to 2010, when the United States last exceeded 50 percent of global export market share.

U.S. wheat: Domestic use and exports



U.S. sowings of wheat are projected to range between 45.0 and 46.5 million acres throughout the projections, below the recent five-year average of 48.8 million, as domestic use and exports both experience slow growth and ending stocks are drawn down. With exports generally flat, the U.S. share of global wheat trade continues to decline, particularly due to growing competition from the Black Sea region.

- Food use of wheat is projected to continue to increase at a slightly slower rate than U.S. population growth, reflecting a mature market and long-term per capita trends.

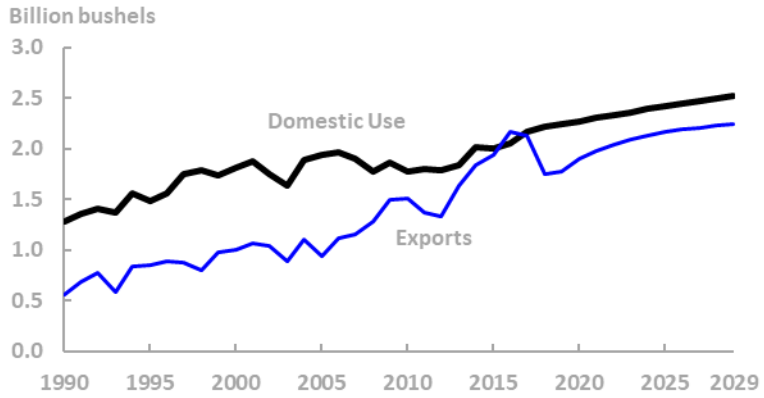
- Wheat-to-corn price ratios remain stable throughout the projection period. However, on ample supplies of other feed grains, wheat feed and residual levels are forecast to decline in the first years of the projection period before stabilizing.

- Expectations for essentially flat domestic supplies and demand suggest that U.S. wheat imports will be flat over the projection period. Modest production shifts across wheat classes in the U.S. are expected to reduce demand for imported spring and durum wheat from Canada.

- Rising incomes, particularly for emerging economies, support growth in global demand for wheat and a corresponding increase in global wheat trade. U.S. export growth is tempered by sustained price competition from Russia, Ukraine, and the European Union.

- When competing exporters have reduced supplies, the U.S. is positioned to increase wheat exports. Alternatively, large foreign wheat crops, such as those experienced in the Black Sea region in recent years, are typically associated with lower U.S. wheat exports.

U.S. soybeans: Domestic use and exports



After dropping sharply in 2019/20 due to weather-related planting issues and trade tensions with China, U.S. soybean plantings are projected to rebound and remain relatively steady over the course of the decade. Plantings are projected to remain in the mid-80-million-acre range, supported by slowly rising prices and net returns.

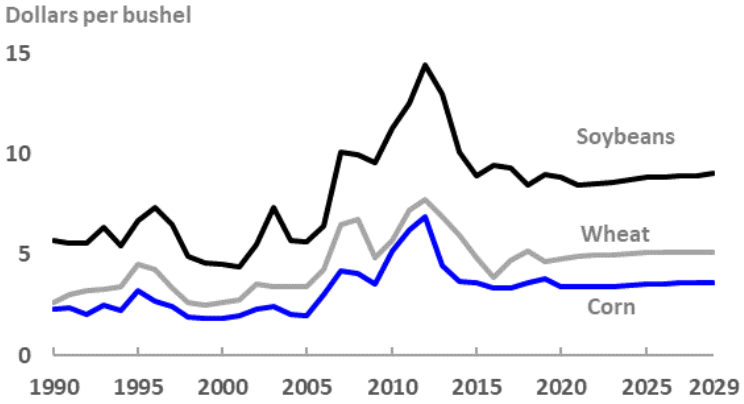
- Growth in domestic demand continues for soybean meal and oil, and thus the crush is projected to continue to increase over the next decade. These gains reflect low expected feed prices, increasing livestock production, stable but historically high soyoil use for biodiesel, and gradually increasing demand by importers as incomes continue to rise globally.

- U.S. soybean exports were subdued in 2019/20 after climbing rapidly between 2012/13 and 2017/18 but recover to recent highs by the middle of the projection period as producers and exporters adjust to the new trade environment. Brazil continues to capture market share, and the U.S. share of trade drops from 34.0 to 32.5 percent between 2020/21 and 2029/30.

- U.S. exports of soybean oil and meal will continue to face strong competition from South America. With a comparative advantage that continues to favor soybean products over soybeans, Argentina's share of world soybean meal exports continues to grow to 45.9 percent of the global market by the end of the projection period. Brazil is the second-leading exporter of soybean meal and is expected to raise its share of global exports from 22.6 percent to 24.6 percent. Despite an increasing level of meal exports, the U.S. loses global share, dropping from 17.9 percent to 16.3 percent of the global market by the end of the decade.

- Soybean oil to produce biodiesel in the United States is projected to remain flat at 8.5 billion pounds throughout the projection, supporting an annual production of over 1.1 billion gallons of soyoil based biodiesel. Some additional demand for biodiesel and renewable diesel is also assumed to meet a portion of the Renewable Fuel Standard's advanced biofuel requirement. Other feedstocks used to produce biomass-based diesel include corn oil from distillers' grains, other first-use and recycled (used) cooking oil, and animal fats.

U.S. farm-level prices: Corn, soybeans, and wheat



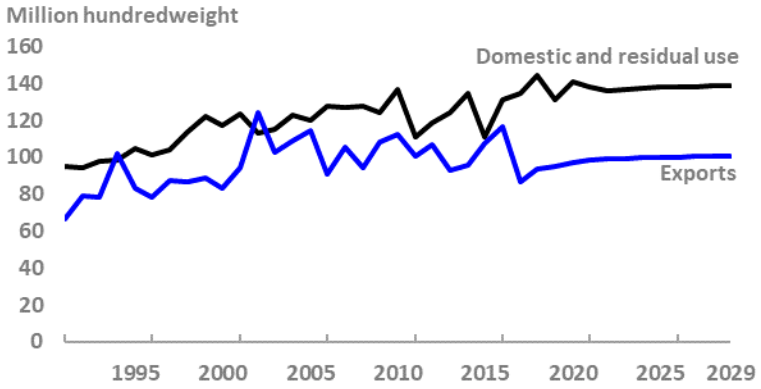
Trade tensions with China and weather-related planting difficulties had somewhat offsetting price impacts during 2019/20. China continued to emphasize soybean purchases from Brazil over U.S. purchases, but U.S. production fell 20 percent from the prior year. The net result was a modest increase in expected soybean prices for 2019/20, although prices are expected to decline early in the projection period as plantings recover and stocks increase. Prices are then projected to climb slowly in nominal terms as total use grows and ending stocks fall back to a more normal level. Continued global population and income growth—particularly in emerging economies— along with generally steady ethanol demand, are expected to support low but nominally rising prices for wheat and corn moving through the projection period. Nominal prices for corn, wheat, and soybeans are all projected to average below the 2010-19 period, but higher than the 2000-09 average.

- With the U.S. limited in China's market, soybean shipments partially expanded to alternative foreign markets and increased volumes held in storage in the 2018/19 marketing year. Nominal soybean prices dropped in the 2018/19 marketing year but are expected to rebound with lower production in 2019/20. Prices decline again into the early part of the projection period before slowly rising as exporters swap trading partners. Brazil is expected to ship most of its soybeans to meet China's demand, under the assumption that the trade tensions with China will continue throughout the decade. As a result, the U.S. is expected to supply much of the rest of the world. The demand for soybeans in the rest of the world is not expected to grow as fast as in China. Yet emerging economies will continue to expand the use of soybeans as a feedstock as per capita incomes are expected to continue to rise and food preferences to change, generating an increased demand for animal proteins.

- Modest growth in nominal corn prices is projected over the coming decade but is restrained by ending stocks significantly higher than during the past decade. Real prices are expected to drop slightly over the projection period.

- As a mature market, U.S. wheat demand is relatively constant. Food, feed, and export growth are all relatively flat. Slightly lower ending stocks lead to modest nominal price increases over the projection period.

U.S. rice: Domestic and residual use and exports



After dropping 13.8 percent in marketing year 2019/20—mainly due to adverse weather in the South—U.S. rice planted area is expected to rebound 14 percent in 2020/21 and then drop 10 percent to 2.60 million acres in 2021/22 and remain at 2.60-2.65 million acres through 2029/30. Long grain, the dominant class produced in the U.S. and grown almost exclusively in the South, is expected to account for nearly all of the area change over the decade.

- Domestic and residual use of rice is expected to remain the primary component of demand, decreasing in 2021/22 and 2022/23 with declining production and then very slowly rising after 2022/23, but is projected still below 2020/21 by the end of the decade. Demand for imported rice is expected to continue to grow at about 1.1 percent per year. Imports are mostly Asian aromatic varieties, coming almost exclusively from Thailand, India, Pakistan, and Vietnam.

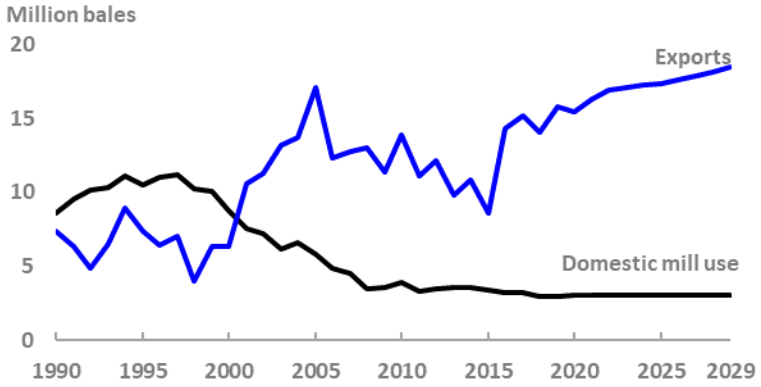
- U.S. exports are projected to expand slightly after 2020/21 before leveling off in 2027/28 for the remainder of the baseline, with a total increase of less than 4 percent. Long-grain exports are expected to increase just 2.2 percent from 2020/21 to 2024/25 before leveling off, with Latin America accounting for nearly all of the growth. Expansion of U.S. long grain exports—mostly rough rice—to these core U.S. export markets will be limited by continued strong competition from South American suppliers.

- U.S. exports of medium- and short-grain rice are projected to increase 6.9 percent from 2020/21 to 2027/28 and then level off for the remainder of the baseline. Shipments to East Asia—the largest market for U.S. medium- and short-grain rice—are projected to remain steady. North Africa and the Middle East are expected to account for nearly all of the projected expansion.

- The U.S. is expected to ship very little rice to Sub-Saharan Africa, the largest and fastest growing global import market, and to ship virtually no rice to South and Southeast Asia, a result of uncompetitive prices and abundant supplies in the top Asian exporting countries. Although total U.S. rice exports are expected to increase slightly over the next decade, global trade grows at a faster pace, with the U.S. share of global exports projected to drop to 5.8 percent by the end of the decade from 6.6 percent in 2019/20.

- After dropping between 5.0 and 11.0 percent—depending on the class and region—in 2020/21, U.S. rice prices for both classes of rice are expected to slowly rise over the baseline, ending 12.8 percent higher by the end of the projection period. Slight annual yield increases are projected to push production higher each year after 2021/22.

U.S. upland cotton: Domestic mill use and exports

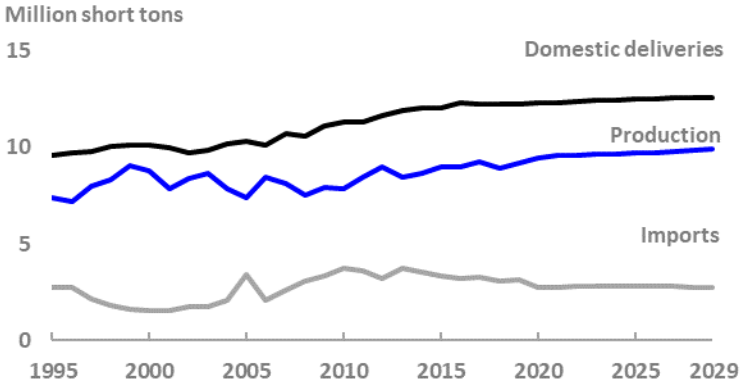


Market-year average prices for upland cotton are expected to start the projection period at $0.62 per pound and rise from there to $0.72 per pound by the end of the decade. With cotton prices higher relative to both corn and soybeans for 2020-29 compared with the previous ten years, farmers are expected to plant 11.8 million acres in 2020/21 and climb to 13.3 million acres at the end of the projection. The average plantings for the projection period are roughly 1 million acres higher than in the prior decade. Domestic mill use is expected to remain flat at 3.0 million bales over this timeframe while exports are projected to grow, rising from 15.5 million bales to nearly 18.5 million by the final year.

- U.S. mill use is projected to remain flat over the next decade. Mill use makes up less than 15 percent of total U.S. disappearance of upland cotton over the projection period. While mill use in the late 1990s was closer to 60 percent of total U.S. cotton use, increased competition from both foreign manufacturing of cotton and synthetic fibers, such as polyester, have reduced mill use in more recent years.

- U.S. upland cotton export growth is expected to remain strong and trend higher throughout the projection period. The United States remains the largest exporter of cotton, and is expected to export between 15.5 and 18.5 million bales per year over the next decade. With growing international demand and strong export growth expected in Brazil and to a lesser extent in Australia, the U.S. trade share (for all cotton, upland plus ELS) is nevertheless expected to decline moderately from 35.0 percent in 2020/21 to 33.0 percent in 2029/30.

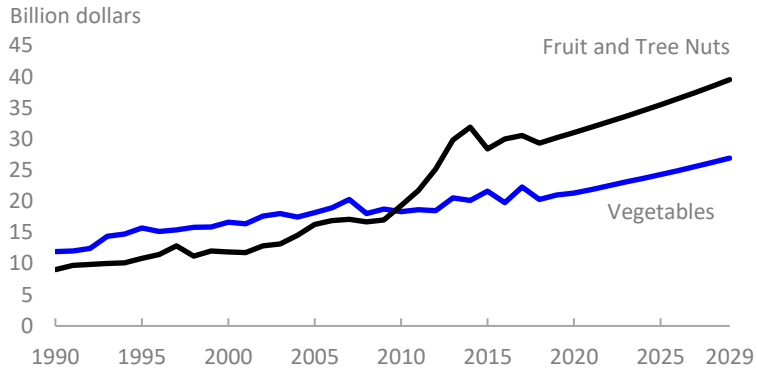
U.S. sugar: Domestic deliveries, production, and imports



Domestic demand for sugar is expected to increase modestly over the decade, as a growing population is offset by lower per capita consumption of refined sugar and total caloric sweeteners. U.S. sugar production is projected to increase at a rate higher than domestic deliveries. Imports are projected to be lower by 2029/30, as domestic production accounts for a larger share of supply.

- Sugar deliveries for domestic use increase modestly from 12.3 million short tons in 2020/21 to 12.6 million in 2029/30, an increase of 0.3 percent per year. Deliveries for food and beverages constitute the bulk of total use and account for the growth throughout the decade.
- Domestic sugar production is projected to increase from 9.4 million short tons, raw value (STRV) in 2020/21 to 9.9 million by 2029/30. Increases are expected to come from both the beet sector (0.1 million STRV) and the cane sector (0.3 million STRV). Sugarbeet harvested area is projected to peak in 2021/22, before steadily declining due to higher input costs. Sugarcane harvested area also peaks in 2021/22 but doesn't fall as sharply as the sugarbeet sector, due to the sector's relatively lower sensitivity to input costs. Higher yields and recovery rates account for the continued growth in both sectors' production projections.
- Total sugar imports are projected to trend upwards during the beginning of the projection period, peak in 2024/25, and then steadily decline through 2029/30. Imports under quota programs are projected to increase slightly from just below 1.6 million STRV in 2020/21 to just above 1.6 million STRV by 2029/30, consistent with WTO obligations and free-trade agreement schedules.
- Imports from Mexico are governed by the Suspension Agreements between the United States and Mexico, signed in December 2014, and amended in June 2017. Imports from Mexico initially increase and then steadily decline, consistent with the calculations for U.S. Needs—as defined by the agreements. Mexico is projected to have enough available supplies for export to fully meet U.S. Needs in each of the years projected.
- Other imports are projected to decline slightly but remain around 0.4 million STRV through the projection period, as imports from the re-export program remain flat and imports under high-tier tariffs gradually fall as the gap between World futures prices and U.S. futures prices narrows. World futures price projections are based on projected oil prices and the Brazilian exchange rate.
- Crop prices for both sugarcane growers and sugarbeet growers are projected to trend upward, as projected ending stock levels support raw and refined sugar price levels throughout the projection period. There are no expected forfeitures to the CCC, nor public expenditures, under the U.S. sugar program in the projection.

U.S. fruit, nut, and vegetable: Value of production



The total farm value of fruit, nuts, and vegetable production is projected to grow by roughly 2.6 percent annually over the next decade, reaching just over $66.4 billion by the calendar year 2029, up from $52.4 billion in 2020. Fruits contribute nearly 40 percent of the total value, tree nuts approximately 20 percent, and vegetables roughly 41 percent.

- U.S. production of fruit and tree nuts, and production of vegetables, measured by farm weight (pounds), are projected to rise at an annual growth rate of 0.48 and 0.41 percent, respectively. Overall, fruit and tree nut production is expected to reach roughly 61 billion pounds in 2029. U.S. citrus production is expected to be down slightly in 2020, after swiftly rebounding in 2019 following reduced crops in nearly all major citrus-producing States the previous year. Anticipated reduced orange, lemon, and tangerine and mandarin crops in California and lower grapefruit production in Texas are behind the near-term (2020) decline in the U.S. citrus production.

- The value of farm production of fruit and tree nuts is projected to grow 27.3 over the production period, with tree nuts expected to grow 30.5 percent, citrus at 30.0 percent, and non-citrus at 24.9 percent.

- Despite the expected growth in the value of farm production due to higher prices and modestly higher production, citrus production is projected to continue to decline slowly over the projection period. The expected decline in citrus fruit stems from the loss of bearing acreage in Florida and the continued spread of citrus greening, a citrus disease for which no cure currently exists. Declines in citrus production are projected to be offset by increases in non-citrus production. With more acres coming into production, the upward trend in tree nut output will continue over the decade in response to increasing demand.

- The vegetable category is split into five main categories: fresh, processing, potatoes, pulses, and other. The shares of vegetable production for fresh use and processing are expected to remain at current levels. Fresh use is expected to account for roughly 32 percent of total vegetable production, while processed vegetables are projected to make up just over 25 percent of total production. Over the same period, potatoes are expected to account for 34 percent of total vegetable production. Following a decline to a 90-year low in 2019, potato planted acreage is expected to rebound to recent historical levels in 2020 due to current stronger prices, placing potato output on an upward trajectory. For 2020/21 pulse crops, dry pea and lentil sowings are expected to decline sharply due to very low prices and then recover through the projection period. Dry bean and chickpea sowings are forecast slightly up in the out-year and beyond on improving prices. “Other” vegetable production, which primarily consists of mushrooms and sweet potatoes, is expected to expand slightly.

Table 4. Acreage for major field crops and Conservation Reserve Program (CRP) assumptions, long-term projections

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
						Million acres						
Planted acreage, eight major crops												
Corn	89.1	89.9	94.5	89.0	89.0	89.0	89.0	89.0	89.0	88.5	88.5	88.5
Sorghum	5.7	5.3	5.7	5.3	5.3	5.3	5.3	5.4	5.4	5.4	5.4	5.4
Barley	2.5	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Oats	2.7	2.8	2.9	2.8	2.8	2.7	2.6	2.6	2.5	2.5	2.5	2.5
Wheat	47.8	45.2	45.0	45.5	46.5	46.5	46.5	46.5	46.0	46.0	45.5	45.5
Rice	2.9	2.5	2.9	2.6	2.7	2.7	2.7	2.7	2.6	2.6	2.6	2.6
Upland cotton	13.9	13.5	11.8	12.5	12.6	12.7	12.8	12.9	13.0	13.1	13.2	13.3
Soybeans	89.2	76.5	84.0	86.0	85.0	85.0	85.0	85.5	86.0	86.0	86.5	86.0
Total	253.9	238.4	249.4	246.3	246.5	246.5	246.5	247.2	247.1	246.7	246.8	246.4
CRP acreage assumptions												
Total CRP	22.6	22.6	22.0	24.7	25.4	26.1	26.6	26.8	26.8	26.5	26.8	26.8
Total planted plus CRP	276.6	261.0	271.4	271.0	271.8	272.5	273.1	274.0	273.9	273.2	273.6	273.2
Harvested acreage, eight major crops												
Corn	81.7	81.8	87.1	81.6	81.6	81.6	81.6	81.6	81.6	81.1	81.1	81.1
Sorghum	5.1	4.7	5.1	4.7	4.7	4.7	4.7	4.8	4.8	4.8	4.8	4.8
Barley	2.0	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Oats	0.9	0.8	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9
Wheat	39.6	38.1	38.1	38.5	39.3	39.3	39.3	39.3	38.9	38.9	38.5	38.5
Rice	2.9	2.5	2.9	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Upland cotton	10.0	12.3	10.3	10.9	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.6
Soybeans	87.6	75.6	83.2	85.2	84.2	84.2	84.2	84.7	85.2	85.2	85.7	85.2
Total	229.7	218.0	229.9	226.7	226.6	226.7	226.7	227.4	227.5	227.1	227.3	226.9

The projections were completed in October 2019.

Table 5. U.S. corn long-term projections

Item	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Area (million acres):												
Planted acres	89.1	89.9	94.5	89.0	89.0	89.0	89.0	89.0	89.0	88.5	88.5	88.5
Harvested acres	81.7	81.8	87.1	81.6	81.6	81.6	81.6	81.6	81.6	81.1	81.1	81.1
Yield:												
Bushels per harvested acre	176.4	168.4	178.5	180.5	182.5	184.5	186.5	188.5	190.5	192.5	194.5	196.5
Supply and use (million bushels):												
Beginning stocks	2,140	2,114	1,929	2,754	2,764	2,789	2,809	2,819	2,844	2,859	2,869	2,844
Production	14,420	13,779	15,545	14,730	14,890	15,055	15,220	15,380	15,545	15,610	15,775	15,935
Imports	28	50	25	25	25	25	25	25	25	25	25	25
Supply	16,588	15,944	17,499	17,509	17,679	17,869	18,054	18,224	18,414	18,494	18,669	18,804
Feed & residual	5,618	5,300	5,775	5,675	5,750	5,875	5,975	6,025	6,125	6,125	6,250	6,325
Food, seed, & industrial	6,791	6,815	6,870	6,920	6,940	6,935	6,960	7,005	7,030	7,050	7,075	7,120
Ethanol and by-products	5,376	5,400	5,450	5,500	5,525	5,525	5,550	5,600	5,625	5,650	5,675	5,725
Domestic use	12,409	12,115	12,645	12,595	12,690	12,810	12,935	13,030	13,155	13,175	13,325	13,445
Exports	2,065	1,900	2,100	2,150	2,200	2,250	2,300	2,350	2,400	2,450	2,500	2,550
Total use	14,474	14,015	14,745	14,745	14,890	15,060	15,235	15,380	15,555	15,625	15,825	15,995
Ending stocks	2,114	1,929	2,754	2,764	2,789	2,809	2,819	2,844	2,859	2,869	2,844	2,809
Stocks/use ratio, percent	14.6	13.8	18.7	18.7	18.7	18.7	18.5	18.5	18.4	18.4	18.0	17.6
Price (dollars per bushel):												
Farm price	3.61	3.80	3.40	3.40	3.45	3.45	3.50	3.55	3.55	3.60	3.60	3.60
Variable costs of production (dollars):												
Per acre	332	324	323	324	322	325	328	332	333	334	334	334
Returns over variable costs (dollars per acre):												
Net returns	305	316	284	290	307	312	325	337	344	359	366	373

Note: Marketing year beginning September 1 for corn.
The projections were completed in October 2019.

Table 6. U.S. sorghum long-term projections

Item	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Area (million acres):												
Planted acres	5.7	5.3	5.7	5.3	5.3	5.3	5.3	5.4	5.4	5.4	5.4	5.4
Harvested acres	5.1	4.7	5.1	4.7	4.7	4.7	4.7	4.8	4.8	4.8	4.8	4.8
Yield:												
Bushels per harvested acre	72.1	73.9	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5
Supply and use (million bushels):												
Beginning stocks	35	64	52	56	38	35	32	29	28	27	26	25
Production	365	349	344	317	317	317	317	324	324	324	324	324
Imports	0	0	0	0	0	0	0	0	0	0	0	0
Supply	400	412	396	373	355	352	349	353	352	351	350	349
Feed & residual	138	160	140	135	120	120	120	125	125	125	125	125
Food, seed, & industrial	106	100	100	100	100	100	100	100	100	100	100	100
Domestic use	244	260	240	235	220	220	220	225	225	225	225	225
Exports	93	100	100	100	100	100	100	100	100	100	100	100
Total use	336	360	340	335	320	320	320	325	325	325	325	325
Ending stocks	64	52	56	38	35	32	29	28	27	26	25	24
Stocks/use ratio, percent	18.9	14.5	16.5	11.3	10.9	10.0	9.1	8.6	8.3	8.0	7.7	7.4
Price (dollars per bushel):												
Farm price	3.26	3.40	3.00	3.00	3.05	3.05	3.10	3.15	3.15	3.20	3.20	3.20
Variable costs of production (dollars):												
Per acre	126	124	124	124	125	126	128	130	131	132	132	133
Returns over variable costs (dollars per acre):												
Net returns	109	128	78	78	81	80	82	83	82	84	84	83

Note: Marketing year beginning September 1 for sorghum.

The projections were completed in October 2019.

Table 7. U.S. barley long-term projections

Item	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Area (million acres):												
Planted acres	2.5	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Harvested acres	2.0	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Yield:												
Bushels per harvested acre	77.5	77.4	75.8	76.5	77.2	78.0	78.7	79.4	80.1	80.9	81.6	82.3
Supply and use (million bushels):												
Beginning stocks	94	87	97	97	98	101	101	102	100	99	95	93
Production	154	171	167	168	170	172	173	175	176	178	180	181
Imports	6	10	15	15	15	15	15	15	15	15	15	15
Supply	254	268	279	280	283	288	289	292	291	292	290	289
Feed & residual	8	15	25	25	25	30	30	35	35	40	40	40
Food, seed, & industrial	155	153	152	152	152	152	152	152	152	152	152	152
Domestic use	162	168	177	177	177	182	182	187	187	192	192	192
Exports	5	3	5	5	5	5	5	5	5	5	5	5
Total use	167	171	182	182	182	187	187	192	192	197	197	197
Ending stocks	87	97	97	98	101	101	102	100	99	95	93	92
Stocks/use ratio, percent	51.7	56.6	53.3	53.8	55.5	54.0	54.5	52.1	51.6	48.2	47.2	46.7
Price (dollars per bushel):												
Farm price	4.62	4.65	4.30	4.30	4.30	4.30	4.35	4.40	4.40	4.45	4.45	4.45
Variable costs of production (dollars):												
Per acre	173	171	172	173	173	175	177	180	182	183	185	186
Returns over variable costs (dollars per acre):												
Net returns	185	189	154	156	159	160	165	169	171	177	179	180

Note: Marketing year beginning June 1 for barley.

The projections were completed in October 2019.

Table 8. U.S. oats long-term projections

Item	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Area (million acres):												
Planted acres	2.7	2.8	2.9	2.8	2.8	2.7	2.6	2.6	2.5	2.5	2.5	2.5
Harvested acres	0.9	0.8	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9
Yield:												
Bushels per harvested acre	64.9	64.4	66.5	66.8	67.1	67.4	67.7	68.0	68.4	68.7	69.0	69.3
Supply and use (million bushels):												
Beginning stocks	41	38	37	43	43	42	41	38	35	32	34	35
Production	56	54	67	67	67	67	61	61	62	62	62	62
Imports	87	95	95	95	95	95	95	95	95	95	95	95
Supply	184	187	199	205	205	204	197	194	192	189	191	192
Feed & residual	66	70	75	80	80	80	75	75	75	70	70	70
Food, seed, & industrial	78	78	79	80	81	81	82	82	83	83	84	84
Domestic use	144	148	154	160	161	161	157	157	158	153	154	154
Exports	2	2	2	2	2	2	2	2	2	2	2	2
Total use	146	150	156	162	163	163	159	159	160	155	156	156
Ending stocks	38	37	43	43	42	41	38	35	32	34	35	36
Stocks/use ratio, percent	25.9	24.7	27.6	26.5	25.8	25.2	23.9	22.0	20.0	21.9	22.4	23.1
Price (dollars per bushel):												
Farm price	2.66	2.95	2.50	2.50	2.55	2.55	2.65	2.70	2.75	2.75	2.75	2.75
Variable costs of production (dollars):												
Per acre	124	121	122	123	123	124	126	128	129	130	131	132
Returns over variable costs (dollars per acre):												
Net returns	49	69	44	44	48	48	53	55	59	59	59	59

Note: Marketing year beginning June 1 for oats.

The projections were completed in October 2019.

Table 9. U.S. wheat long-term projections

Item	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Area (million acres):												
Planted acres	47.8	45.2	45.0	45.5	46.5	46.5	46.5	46.5	46.0	46.0	45.5	45.5
Harvested acres	39.6	38.1	38.1	38.5	39.3	39.3	39.3	39.3	38.9	38.9	38.5	38.5
Yield:												
Bushels per harvested acre	47.6	51.6	48.2	48.6	49.0	49.4	49.8	50.2	50.6	51.0	51.4	51.8
Supply and use (million bushels):												
Beginning stocks	1,099	1,080	1,043	950	897	896	907	906	919	909	913	909
Production	1,885	1,962	1,836	1,871	1,926	1,941	1,957	1,973	1,968	1,984	1,979	1,994
Imports	135	120	140	140	140	140	140	140	140	140	140	140
Supply	3,119	3,161	3,019	2,961	2,963	2,977	3,004	3,019	3,027	3,033	3,032	3,043
Food	955	960	963	966	969	972	975	978	981	984	987	990
Seed	59	68	61	63	63	63	63	62	62	61	61	61
Feed & residual	90	140	120	110	110	110	110	110	100	100	100	100
Domestic use	1,103	1,168	1,144	1,139	1,142	1,145	1,148	1,150	1,143	1,145	1,148	1,151
Exports	936	950	925	925	925	925	950	950	975	975	975	975
Total use	2,039	2,118	2,069	2,064	2,067	2,070	2,098	2,100	2,118	2,120	2,123	2,126
Ending stocks	1,080	1,043	950	897	896	907	906	919	909	913	909	917
Stocks/use ratio, percent	52.9	49.3	45.9	43.5	43.4	43.8	43.2	43.8	42.9	43.1	42.8	43.2
Price (dollars per bushel):												
Farm price	5.16	4.70	4.80	4.90	5.00	5.00	5.05	5.10	5.10	5.15	5.15	5.15
Variable costs of production (dollars):												
Per acre	128	126	125	126	126	127	129	131	132	133	134	134
Returns over variable costs (dollars per acre):												
Net returns	117	116	106	113	119	120	123	125	126	130	131	132

Note: Marketing year beginning June 1 for wheat.
The projections were completed in October 2019.

Table 10. U.S. soybeans and products long-term projections

Item	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Soybeans												
Area (million acres):												
Planted	89.2	76.5	84.0	86.0	85.0	85.0	85.0	85.5	86.0	86.0	86.5	86.0
Harvested	87.6	75.6	83.2	85.2	84.2	84.2	84.2	84.7	85.2	85.2	85.7	85.2
Yield: bushels per harvested acre	50.6	46.9	50.5	51.1	51.6	52.2	52.7	53.3	53.8	54.4	54.9	55.5
Supply (million bushels)												
Beginning stocks, September 1	438	913	460	518	616	604	561	498	448	423	392	396
Production	4,428	3,550	4,200	4,350	4,345	4,390	4,435	4,510	4,585	4,630	4,705	4,725
Imports	14	20	20	20	20	20	20	20	20	20	20	20
Total supply	4,880	4,483	4,680	4,888	4,981	5,014	5,016	5,028	5,053	5,073	5,117	5,141
Use (million bushels)												
Crush	2,092	2,120	2,135	2,170	2,200	2,225	2,255	2,280	2,305	2,335	2,355	2,380
Seed and residual	128	128	132	132	132	132	133	135	135	136	136	136
Exports	1,748	1,775	1,895	1,970	2,045	2,095	2,130	2,165	2,190	2,210	2,230	2,240
Total use	3,967	4,023	4,162	4,272	4,377	4,452	4,518	4,580	4,630	4,681	4,721	4,756
Ending stocks, August 31												
Total ending stocks	913	460	518	616	604	561	498	448	423	392	396	385
Stocks/use ratio, percent	23.0	11.4	12.4	14.4	13.8	12.6	11.0	9.8	9.1	8.4	8.4	8.1
Price (dollars per bushel)												
Soybean price, farm	8.48	9.00	8.85	8.45	8.55	8.60	8.70	8.85	8.85	8.95	8.95	9.05
Variable costs of production (dollars):												
Per acre	160	158	159	159	159	160	161	162	163	163	164	164
Returns over variable costs (dollars per acre):												
Net returns	268	264	288	273	282	289	298	309	314	323	328	338
Soybean oil (million pounds)												
Beginning stocks, October 1	1,995	1,710	1,525	1,520	1,690	1,830	1,910	1,935	1,925	1,930	2,030	2,090
Production	24,290	24,590	24,745	25,170	25,540	25,855	26,225	26,540	26,855	27,225	27,485	27,800
Imports	400	450	450	450	450	450	400	400	400	400	400	400
Total supply	26,685	26,750	26,720	27,140	27,680	28,135	28,535	28,875	29,180	29,555	29,915	30,290
Domestic disappearance	22,950	23,500	23,650	23,850	24,050	24,250	24,450	24,650	24,850	25,050	25,250	25,450
Biodiesel[1]	8,000	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500
Food, feed, and other industrial	14,950	15,000	15,150	15,350	15,550	15,750	15,950	16,150	16,350	16,550	16,750	16,950
Exports	2,025	1,725	1,550	1,600	1,800	1,975	2,150	2,300	2,400	2,475	2,575	2,675
Total use	24,975	25,225	25,200	25,450	25,850	26,225	26,600	26,950	27,250	27,525	27,825	28,125
Ending stocks, September 30	1,710	1,525	1,520	1,690	1,830	1,910	1,935	1,925	1,930	2,030	2,090	2,165
Soybean oil price (dollars per lb)	0.283	0.300	0.305	0.305	0.308	0.310	0.313	0.315	0.318	0.323	0.325	0.328
Soybean meal (thousand short tons)												
Beginning stocks, October 1	555	450	400	400	400	400	400	400	400	400	400	400
Production	48,995	49,800	50,400	51,250	51,900	52,550	53,200	53,850	54,450	55,050	55,600	56,150
Imports	700	500	400	400	400	400	400	400	400	400	400	400
Total supply	50,250	50,750	51,200	52,050	52,700	53,350	54,000	54,650	55,250	55,850	56,400	56,950
Domestic disappearance	36,200	36,650	37,200	37,750	38,300	38,850	39,400	39,950	40,500	41,050	41,600	42,150
Exports	13,600	13,700	13,600	13,900	14,000	14,100	14,200	14,300	14,350	14,400	14,400	14,400
Total use	49,800	50,350	50,800	51,650	52,300	52,950	53,600	54,250	54,850	55,450	56,000	56,550
Ending stocks, September 30	450	400	400	400	400	400	400	400	400	400	400	400
Soybean meal price (dollars per ton)	308	325	326	311	315	318	322	329	329	333	333	338
Crushing yields (pounds per bushel)												
Soybean oil	11.61	11.60	11.59	11.60	11.61	11.62	11.63	11.64	11.65	11.66	11.67	11.68
Soybean meal	46.84	47.00	47.20	47.20	47.20	47.20	47.20	47.20	47.20	47.20	47.20	47.20
Crush margin (dollars per bushel)	2.02	2.12	2.38	2.42	2.45	2.50	2.53	2.57	2.61	2.66	2.70	2.74

Note: Totals may not add due to rounding. Marketing year beginning September 1 for soybeans; October 1 for soybean oil and soybean meal. [1]Reflects biodiesel made from methyl ester as reported by the U.S. Department of Energy, Energy Information Administration.
The projections were completed in October 2019.

Table 11. U.S. rice long-term projections, total rice, rough basis

Item	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Area (thousand acres):												
Planted	2,946	2,540	2,900	2,600	2,650	2,650	2,650	2,650	2,600	2,600	2,600	2,600
Harvested	2,915	2,477	2,861	2,565	2,614	2,614	2,614	2,614	2,565	2,565	2,565	2,565
Yield:												
Pounds per harvested acre	7,692	7,616	7,735	7,797	7,831	7,873	7,911	7,946	7,992	8,031	8,070	8,113
Supply and use (million hundredweight):												
Beginning stocks	29.4	44.9	37.1	50.0	42.9	42.9	43.4	43.7	44.7	43.4	42.5	42.4
Production	224.2	188.6	221.3	200.0	204.7	205.8	206.8	207.7	205.0	206.0	207.0	208.1
Imports	29.0	29.6	29.6	30.0	30.3	30.7	31.0	31.4	31.7	32.1	32.4	32.8
Total supply	282.6	263.1	288.0	279.9	277.9	279.4	281.2	282.7	281.4	281.5	281.9	283.2
Domestic use and residual	144.1	131.0	141.0	138.5	136.0	137.0	137.5	138.0	138.0	138.5	139.0	139.0
Exports	93.6	95.0	97.0	98.5	99.0	99.0	100.0	100.0	100.0	100.5	100.5	100.5
Total use	237.7	226.0	238.0	237.0	235.0	236.0	237.5	238.0	238.0	239.0	239.5	239.5
Ending stocks	44.9	37.1	50.0	42.9	42.9	43.4	43.7	44.7	43.4	42.5	42.4	43.7
Stocks/use ratio, percent	18.9	16.4	21.0	18.1	18.3	18.4	18.4	18.8	18.3	17.8	17.7	18.3
Price (dollars per hundredweight):												
Average farm price	12.00	13.00	11.70	12.20	12.40	12.50	12.60	12.70	12.90	13.00	13.10	13.20
Variable costs of production (dollars):												
Per acre	560	553	557	557	558	563	569	576	580	584	587	590
Returns over variable costs (dollars per acre):												
Net returns	363	437	348	394	413	421	428	434	451	460	470	481

Note: Marketing year beginning August 1 for rice.
The projections were completed in October 2019.

Table 12. U.S. rice long-term projections, long-grain rice, rough basis

Item	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Area (thousand acres):												
Planted	2,198	1,779	2,200	1,900	1,950	1,950	1,950	1,950	1,900	1,900	1,900	1,900
Harvested	2,181	1,736	2,171	1,875	1,924	1,924	1,924	1,924	1,875	1,875	1,875	1,875
Yield:												
Pounds per harvested acre	7,517	7,347	7,545	7,583	7,621	7,659	7,697	7,736	7,774	7,813	7,852	7,891
Supply and use (million hundredweight):												
Beginning stocks	20.3	32.6	20.1	31.9	24.9	24.6	24.9	25.2	26.5	25.1	24.7	24.8
Production	164.0	127.5	163.8	142.2	146.6	147.4	148.1	148.8	145.8	146.5	147.2	148.0
Imports	23.4	24.0	24.0	24.3	24.6	24.9	25.2	25.5	25.8	26.1	26.4	26.7
Total supply	207.7	184.1	207.9	198.4	196.1	196.9	198.2	199.5	198.1	197.7	198.3	199.5
Domestic use & residual	109.4	98.0	108.0	105.0	102.5	103.0	103.5	103.5	103.5	103.5	104.0	104.0
Exports	65.7	66.0	68.0	68.5	69.0	69.0	69.5	69.5	69.5	69.5	69.5	69.5
Total use	175.1	164.0	176.0	173.5	171.5	172.0	173.0	173.0	173.0	173.0	173.5	173.5
Ending stocks	32.6	20.1	31.9	24.9	24.6	24.9	25.2	26.5	25.1	24.7	24.8	26.0
Stocks/use ratio, percent	18.6	12.3	18.1	14.4	14.4	14.5	14.6	15.3	14.5	14.3	14.3	15.0
Price (dollars per hundredweight):												
Average farm price	10.80	11.80	10.50	11.00	11.20	11.30	11.40	11.50	11.60	11.70	11.80	11.90

Note: Marketing year beginning August 1 for rice.
The projections were completed in October 2019.

Table 13. U.S. rice long-term projections, medium- and short-grain rice, rough basis

Item	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Area (thousand acres):												
Planted	748	761	700	700	700	700	700	700	700	700	700	700
Harvested	734	741	690	690	690	690	690	690	690	690	690	690
Yield:												
Pounds per harvested acre	8,209	8,246	8,333	8,375	8,417	8,459	8,501	8,543	8,586	8,629	8,672	8,716
Supply and use (million hundredweight):												
Beginning stocks	7.6	10.2	14.9	16.0	15.9	16.2	16.4	16.4	16.1	16.2	15.7	15.5
Production	60.3	61.1	57.5	57.8	58.1	58.4	58.7	58.9	59.2	59.5	59.8	60.1
Imports	5.6	5.6	5.6	5.7	5.7	5.8	5.8	5.9	5.9	6.0	6.0	6.1
Total supply	72.8	76.9	78.0	79.4	79.7	80.4	80.9	81.1	81.2	81.7	81.5	81.6
Domestic use & residual	34.8	33.0	33.0	33.5	33.5	34.0	34.0	34.5	34.5	35.0	35.0	35.0
Exports	27.8	29.0	29.0	30.0	30.0	30.0	30.5	30.5	30.5	31.0	31.0	31.0
Total use	62.6	62.0	62.0	63.5	63.5	64.0	64.5	65.0	65.0	66.0	66.0	66.0
Ending stocks	10.2	14.9	16.0	15.9	16.2	16.4	16.4	16.1	16.2	15.7	15.5	15.6
Stocks/use ratio, percent	16.3	24.0	25.8	25.1	25.6	25.6	25.4	24.8	25.0	23.8	23.5	23.7
Price (dollars per hundredweight):												
Average farm price	16.30	16.50	15.40	15.70	15.90	16.10	16.20	16.40	16.60	16.70	16.90	17.10
California	18.00	18.50	17.50	17.70	17.90	18.10	18.30	18.50	18.70	18.90	19.10	19.30
Other States	12.30	12.30	11.00	11.40	11.60	11.70	11.80	11.90	12.00	12.10	12.20	12.30

Note: Marketing year beginning August 1 for rice; California marketing year beginning October 1.
The projections were completed in October 2019.

Table 14. U.S. upland cotton long-term projections

Item	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Area (million acres):												
Planted acres	13.9	13.5	11.8	12.5	12.6	12.7	12.8	12.9	13.0	13.1	13.2	13.3
Harvested acres	10.0	12.3	10.3	10.9	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.6
Yield:												
Pounds per harvested acre	847	820	845	850	855	860	865	870	875	880	885	890
Supply and use (thousand bales):												
Beginning stocks	4,097	4,636	6,762	6,450	6,450	6,050	5,800	5,700	5,750	5,800	5,900	6,000
Production	17,566	20,981	18,200	19,400	19,600	19,900	20,200	20,500	20,700	21,000	21,300	21,600
Imports	0	5	5	5	5	5	5	5	5	5	5	5
Supply	21,663	25,622	24,967	25,855	26,055	25,955	26,005	26,205	26,455	26,805	27,205	27,605
Domestic use	2,953	2,975	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Exports	14,092	15,825	15,450	16,350	16,950	17,100	17,250	17,400	17,600	17,850	18,150	18,475
Total use	17,045	18,800	18,450	19,350	19,950	20,100	20,250	20,400	20,600	20,850	21,150	21,475
Ending stocks	4,636	6,762	6,450	6,450	6,050	5,800	5,700	5,750	5,800	5,900	6,000	6,075
Stocks/use ratio, percent	27.2	36.0	35.0	33.3	30.3	28.9	28.2	28.2	28.2	28.3	28.4	28.3
Price (dollars per pound):												
Farm price	0.705	0.580	0.620	0.640	0.650	0.660	0.670	0.680	0.690	0.700	0.710	0.720
Variable costs of production (dollars):												
Per acre	411	431	437	438	441	446	451	457	461	466	470	474
Returns over variable costs (dollars per acre):												
Net returns[1]	270	135	179	195	205	212	220	228	236	244	252	262

Note: Marketing year beginning August 1 for upland cotton.

[1]Includes revenue from cottonseed beginning with USDA Agricultural Projections to 2026 (February 2017). In previous years, net returns were calculated using an assumed cottonseed to lint ratio. The current values use projections of cottonseed prices and yields, so are not directly comparable to prior years' values. The projections were completed in October 2019.

Table 15. U.S. sugar long-term projections

Item	Units	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Sugarbeets													
Planted area	1,000 acres	1,113	1,131	1,146	1,159	1,133	1,122	1,107	1,096	1,084	1,074	1,062	1,051
Harvested area	1,000 acres	1,095	1,117	1,125	1,138	1,113	1,102	1,087	1,077	1,065	1,055	1,043	1,032
Yield	Tons/acre	30.3	30.1	31.8	32.2	32.5	32.9	33.2	33.6	33.9	34.2	34.5	34.8
Production	Mil. short tons	33.1	33.6	35.8	36.6	36.2	36.2	36.1	36.1	36.1	36.1	36.0	35.9
Sugarcane													
Harvested area	1,000 acres	860	883	879	879	877	876	875	875	875	874	875	875
Yield	Tons/acre	38.3	37.7	36.4	36.6	36.8	37.0	37.2	37.4	37.6	37.8	38.0	38.2
Production	Mil. s. tons	32.9	33.2	32.0	32.1	32.3	32.4	32.5	32.7	32.9	33.0	33.2	33.4
Supply:													
Beginning stocks	1,000 short tons	2,008	1,725	1,784	1,666	1,672	1,678	1,683	1,688	1,693	1,697	1,701	1,705
Production	1,000 short tons	8,935	9,184	9,444	9,611	9,593	9,639	9,666	9,716	9,761	9,811	9,855	9,904
Beet sugar	1,000 short tons	4,907	5,055	5,312	5,444	5,392	5,405	5,398	5,412	5,419	5,431	5,435	5,444
Cane sugar	1,000 short tons	4,028	4,129	4,131	4,168	4,200	4,234	4,268	4,304	4,341	4,380	4,420	4,460
Total imports	1,000 short tons	3,067	3,165	2,776	2,779	2,841	2,835	2,845	2,829	2,816	2,795	2,777	2,749
TRQ imports	1,000 short tons	1,540	1,627	1,583	1,587	1,591	1,594	1,598	1,602	1,606	1,609	1,613	1,617
Imports from Mexico	1,000 short tons	997	1,118	790	795	855	847	855	836	820	796	774	744
Other imports	1,000 short tons	530	420	403	397	395	394	393	392	391	390	389	388
Total supply	1,000 short tons	14,010	14,074	14,004	14,056	14,105	14,151	14,194	14,234	14,270	14,303	14,333	14,359
Use:													
Exports	1,000 short tons	35	35	35	35	35	35	35	35	35	35	35	35
Domestic deliveries	1,000 short tons	12,250	12,255	12,303	12,349	12,393	12,433	12,471	12,506	12,538	12,567	12,593	12,616
Total use	1,000 short tons	12,285	12,290	12,338	12,384	12,428	12,468	12,506	12,541	12,573	12,602	12,628	12,651
Ending stocks	1,000 short tons	1,725	1,784	1,666	1,672	1,678	1,683	1,688	1,693	1,697	1,701	1,705	1,708
Raw sugar price:													
New York (No. 16)[1]	Cents/lb.	25.70	25.36	26.76	27.28	27.54	27.75	27.91	28.05	28.22	28.35	28.50	28.65
Raw sugar loan rate	Cents/lb.	18.75	19.75	19.75	19.75	19.75	19.75	19.75	19.75	19.75	19.75	19.75	19.75
Beet sugar loan rate	Cents/lb.	24.09	25.83	25.83	25.83	25.83	25.83	25.83	25.83	25.83	25.83	25.83	25.83
Grower prices:													
Sugarbeets	Dollars/short ton	35.50	50.66	50.86	49.63	52.31	51.84	52.61	52.61	52.90	52.81	53.06	52.96
Sugarcane	Dollars/short ton	33.40	32.58	36.38	36.95	37.39	37.80	38.20	38.58	38.98	39.36	39.76	40.15

Note: Data shown are for an October-September year.

[1]Price for July-September quarter.

The projections were completed in October 2019.

Table 16. Fruit, nuts, and vegetables long-term projections

Item	Unit	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Production, farm weight													
Fruit and nuts	Mil. lbs.	53,787	57,828	58,006	58,275	58,552	58,835	59,125	59,422	59,726	60,038	60,356	60,682
Citrus	Mil. lbs.	12,152	15,888	15,486	15,331	15,178	15,026	14,876	14,727	14,580	14,434	14,290	14,147
Noncitrus	Mil. lbs.	35,236	36,050	36,500	36,792	37,086	37,383	37,682	37,984	38,287	38,594	38,902	39,214
Tree nuts	Mil. lbs.	6,399	5,890	6,020	6,152	6,287	6,426	6,567	6,712	6,859	7,010	7,164	7,322
Vegetables[1]	Mil. lbs.	132,158	130,504	129,989	130,686	131,395	132,113	132,739	133,372	134,012	134,658	135,312	135,972
Fresh market	Mil. lbs.	41,681	43,978	42,914	42,956	42,999	43,042	43,085	43,129	43,172	43,215	43,258	43,301
Processing	Mil. lbs.	35,708	33,955	32,549	32,810	33,072	33,337	33,603	33,872	34,143	34,416	34,692	34,969
Potatoes	Mil. lbs.	45,002	42,245	44,868	45,002	45,137	45,273	45,409	45,545	45,681	45,819	45,956	46,094
Pulses	Mil. lbs.	6,183	5,983	5,607	5,758	5,914	6,073	6,134	6,196	6,257	6,320	6,383	6,447
Other	Mil. lbs.	3,584	4,342	4,051	4,160	4,272	4,388	4,507	4,630	4,758	4,888	5,022	5,160
Total fruit, nuts, vegetables	Mil. lbs.	185,945	188,332	187,994	188,962	189,946	190,948	191,864	192,794	193,738	194,696	195,668	196,654
Farm value													
Fruit and nuts	$ Mil.	29,318	30,230	31,051	31,894	32,761	33,652	34,567	35,507	36,472	37,464	38,484	39,531
Citrus	$ Mil.	3,330	3,354	3,453	3,555	3,661	3,769	3,880	3,995	4,114	4,235	4,361	4,490
Noncitrus	$ Mil.	16,466	16,878	17,300	17,732	18,175	18,630	19,096	19,573	20,062	20,564	21,078	21,605
Tree nuts	$ Mil.	9,522	9,998	10,298	10,607	10,925	11,253	11,591	11,938	12,296	12,665	13,045	13,437
Vegetables	$ Mil.	20,320	20,992	21,319	21,896	22,488	23,096	23,696	24,312	24,943	25,591	26,257	26,941
Fresh market	$ Mil.	11,481	12,269	12,319	12,665	13,021	13,385	13,759	14,143	14,537	14,942	15,358	15,786
Processing	$ Mil.	1,734	1,777	1,735	1,784	1,834	1,886	1,939	1,994	2,050	2,108	2,167	2,229
Potatoes	$ Mil.	4,005	3,929	4,128	4,244	4,363	4,486	4,612	4,741	4,875	5,012	5,152	5,297
Pulses	$ Mil.	1,313	1,181	1,302	1,338	1,374	1,411	1,425	1,440	1,454	1,469	1,483	1,498
Other	$ Mil.	1,786	1,837	1,834	1,865	1,896	1,928	1,960	1,993	2,027	2,061	2,096	2,132
Total fruit, nuts, vegetables	$ Mil.	49,638	51,222	52,370	53,790	55,249	56,748	58,263	59,818	61,415	63,056	64,741	66,472

Note: Totals may not add due to rounding.

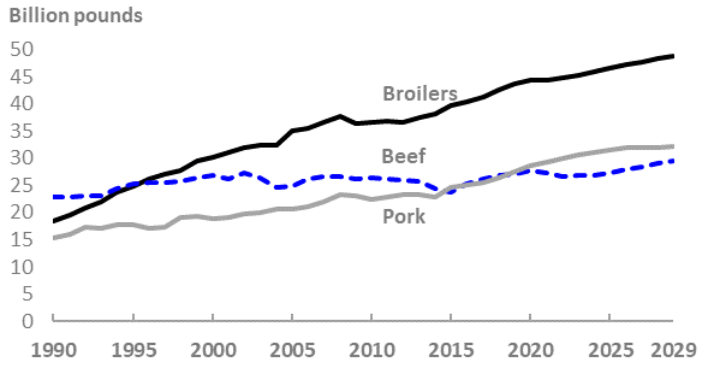
[1]Includes melons, sweet potatoes, and mushrooms. Utilized production is used for potatoes. Pulses include edible dry beans and peas, lentils, and other peas.

The projections were completed in October 2019.

U.S. Livestock

Robust demand provides incentives for the continued growth of the U.S. livestock sector over the next ten years. In the beef cattle industry, the feed price ratio (cattle price/feed price) is expected to decline over the projection period, reflecting both modestly lower cattle prices and slowly rising feed prices, suggesting lower returns to production. In the hog industry, the feed price ratio is expected to start strong and then decline before recovering some of its value by the end of the decade. The broiler industry's feed price ratio is also expected to start strong but declines throughout the remainder of the decade. Meanwhile, combined domestic and global demand for total meats and dairy products are expected to remain strong. Despite expected declining revenues over the next ten years, U.S. red meat and poultry production is expected to increase over the projection period due to efficiency gains and structural change. Milk production is also anticipated to rise with growth to the dairy herd along with continued gains in milk per cow. Dairy farm prices are forecast to decline in the early part of the period but to increase in the middle and later years of the projection horizon.

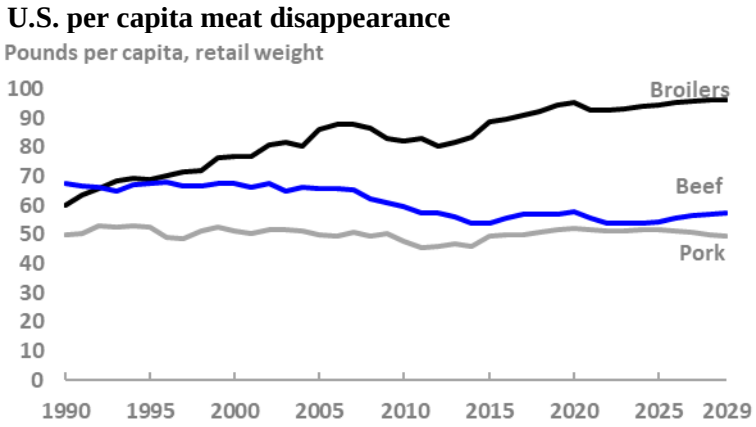
U.S. red meat and poultry production



- The cattle herd is expected to decline cyclically in the early part of the projection as producers respond to lower returns. A decline in cattle numbers early in the period will likely contribute to higher cattle prices, although a modest herd expansion the rest of the period pressures cattle prices lower. Rising slaughter weights due to efficiencies from nutrition and genetics will further support gains in beef production. Overall, beef production levels are expected to rise to 29.5 billion pounds by 2029.

- Slowly increasing corn prices and mostly flat hog prices during the projection period lowers the hog feed price ratio (hog price/corn price), causing the initial growth in farrowings to reverse in the second half of the projections period. However, continued gains in pigs per litter and growth in hog carcass weights continue the upward trend in pork production. While pork and beef production has been roughly equivalent in recent years, pork production is expected to exceed beef production for most of the projection period, peaking at just over 32.1 billion pounds in 2029, compared to 29.5 billion pounds for beef.

- Pressured by weaker prices, broiler production growth is expected to slow in the latter part of the projection period. However, production growth will largely reflect a continuation of the shift toward the production of heavier-weight birds. Turkey producers are expected to see initial price declines as the sector recovers from the contraction of 2018-19 but then slowly rises in the latter part of the decade, with relatively stable production.



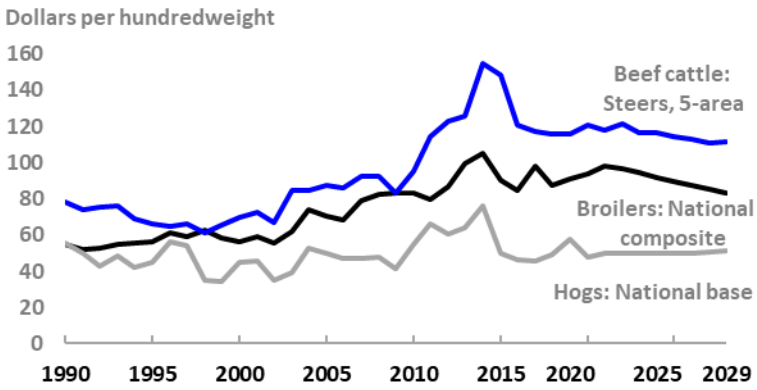
U.S. per capita disappearance of red meat (beef, veal, pork, lamb, and mutton) and poultry (broilers and turkey) is projected to range from 216.2 to 221.3 pounds during 2021-29.

- Per capita beef disappearance is expected to decrease in the first years of the projection period, dropping from 55.5 pounds in 2021 to 53.8 in 2022 before climbing back up to 57.6 by 2029. U.S. per capita beef consumption is expected to decline early in the projection period due to lower production and higher export demand. However, as beef production increases during the projection period, increased beef supplies are expected to translate into higher per capita consumption.

- Pork production is expected to continue to grow but at a slowing pace, and exports are expected to represent about one-third of production by 2029, contributing to a decline in per capita consumption in the U.S. during the latter half of the projection period. The overall decline is 2.2 pounds per capita between 2021 and 2029, ending at 49.4 pounds.

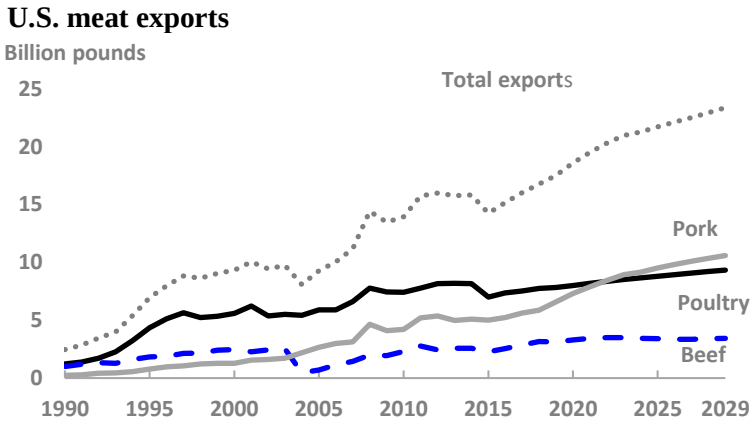
- Similar to pork, broiler production expands at a slowing pace, and exports climb through the projection period, but not as rapidly as for pork. Broiler per capita disappearance is expected to remain relatively stable, growing from 93.0 pounds in 2021 to 96.4 pounds by 2029. Per capita turkey disappearance is expected to decline slowly over the decade, dropping to 15.0 pounds per person in 2029 from 15.6 in 2021.

U.S. Livestock prices, nominal



- With supplies of beef and poultry projected to keep pace with or exceed demand over the next decade, nominal beef cattle and broiler prices initially rise and then trend downwards over the remaining years of the projections.

- Large supplies of pork reflecting the rapid increase in pork production in 2019 and 2020 are expected to pressure prices down in 2021, with prices falling to about $48 per hundredweight (cwt) before a combination of slowing production growth and gains in exports lifts them. Prices are expected to hold steady at close to $50 per cwt most of the projection period.



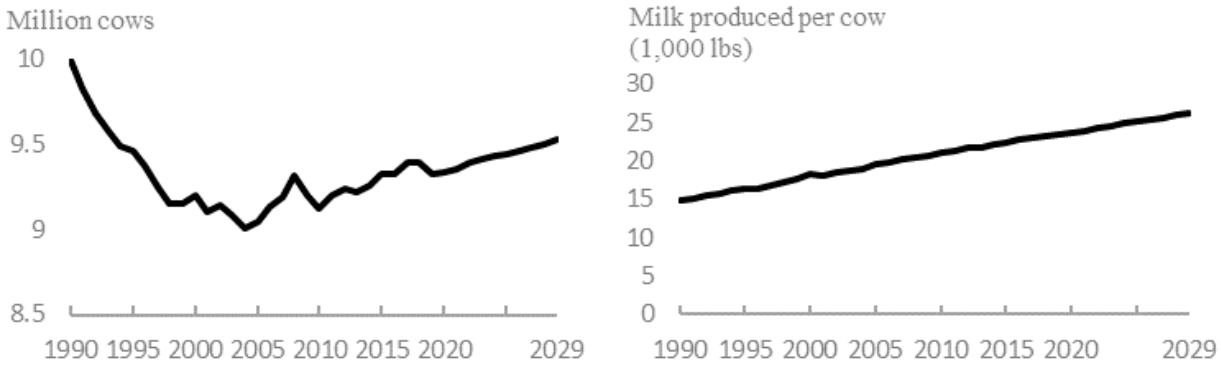
While the U.S. dollar is generally expected to weaken over the next ten years, it remains comparatively strong relative to its value in the previous decade (especially in 2010-12). Despite the strong dollar, total U.S. red meat and poultry exports are projected to rise over the next ten years as steady global economic growth, particularly in emerging and developing economies, supports foreign demand from the U.S. market.

- Through the forecast period, the United States is expected to export more beef than it imports, but by a diminishing margin. Global beef production is expected to rise, increasing competition for U.S. export growth while U.S. demand for processing-grade beef is expected to support growth in imports. The United States, primarily a grain-finished beef exporter, is projected as the third-largest beef exporter behind Brazil and India during the early part of the projection period and is expected to be essentially tied for third with Australia from 2026 to 2029. Among the top 12 major beef exporting countries/regions of the world, the U.S. share of exports declines, particularly due to projected strong export growth by Brazil, which ships lower-priced grass-fed beef to a number of more price-sensitive markets. The United States was surpassed by China as the largest importer of beef in the world for the first time in 2018, and Chinese imports are projected to continue to grow rapidly through the projection period, while import growth remains moderate in the United States.

- U.S. pork exports grow significantly faster than poultry exports (more than twice as fast), while beef exports fluctuate, being essentially flat during the projection period. Production efficiency gains in the hog sector continue to enhance the sector's international competitiveness, and the presence of African Swine Fever (ASF) in China and other markets is expected to fuel increased global import demand for U.S. pork. The United States is expected to maintain its position as the second-largest exporter of pork behind the European Union (EU) between 2020 and 2025, and then become the leading exporter during the remainder of the projection period.

- U.S poultry (including broilers and turkey) exports are expected to grow over the next ten years, primarily driven by broiler exports, as turkey exports are expected to remain relatively flat throughout the period. Much like in previous decades, broiler export growth is expected to continue, benefitting from production efficiency gains and increasing demand from developing countries. The United States is expected to maintain its position as the second-largest exporter of poultry behind Brazil while the EU and Thailand remain a distant third and fourth, respectively. Among major poultry exporters, nearly 84 percent of all exports come from these four countries.

U.S. dairy herd and milk production per cow



Milk production is expected to rise at a compound annual growth rate of 1.4 percent per year over the next ten years. Continued growth in domestic and global demand for dairy products provides incentives for producers to slowly expand milk cow numbers through the upcoming decade. Efficiency gains continue as the amount of milk produced per cow is expected to climb.

- Milk production is projected to grow throughout the projection period due to upward trending milk prices and slowly rising, but relatively low, feed prices. Milk cow numbers are expected to reach 9.5 million head by 2029. Milk per cow is expected to grow at a compound annual growth rate of 1.2 percent.

- Trends in farm consolidation are expected to continue, leading to economies of scale. Due to technological and genetic developments, yields should continue to increase, and farms are expected to become more efficient over time.

- Commercial use of dairy products is expected to rise faster than the growth in the U.S. population over the next decade. Demand for cheese is expected to rise due to continued greater consumption of prepared foods and increased away-from-home eating. Butter demand is also expected to grow, in part due to changing consumer perceptions about the health implications of consuming milk fat. The decline in per capita consumption of fluid milk products is expected to continue.

- Global demand for U.S. dairy products is expected to continue to grow over the next ten years, with the largest increases being in exports of cheese, nonfat dry milk, and whey. By 2029, U.S. dairy exports are expected to be 4.5 percent of milk production on a milk-fat milk-equivalent basis and 20.5 percent on a skim-solids milk-equivalent basis.

- Nominal farm-level milk prices are expected to increase over the projection period largely due to increases in both domestic and global demand.

Table 17. U.S. Per capita meat consumption, retail weight

Item	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
						Pounds						
Beef	57.2	57.2	57.7	55.5	53.8	53.8	53.9	54.6	55.5	56.4	57.2	57.6
Veal	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Pork	50.9	51.7	52.1	51.6	51.3	51.5	51.7	51.7	51.4	50.8	50.0	49.4
Lamb and mutton	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total red meat	109.5	110.1	111.1	108.4	106.3	106.5	106.8	107.5	108.1	108.4	108.4	108.2
Broilers	92.4	94.3	95.4	93.0	93.0	93.2	94.0	94.6	95.2	95.7	96.3	96.4
Other chicken	1.4	1.3	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5
Turkeys	16.2	16.0	15.8	15.6	15.6	15.5	15.5	15.4	15.3	15.2	15.2	15.0
Total poultry	110.0	111.6	112.7	110.0	110.0	110.2	110.9	111.4	112.0	112.4	112.9	112.9
Red meat & poultry	219.5	221.7	223.8	218.4	216.2	216.7	217.7	218.9	220.0	220.8	221.3	221.0

The projections were completed in October, 2019.

Table 18. U.S. Beef long-term projections

Item	Units	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Beginning stocks	Mil. lbs.	649	662	675	675	625	625	625	625	625	625	625	625
Commercial production	Mil. lbs.	26,872	26,948	27,670	27,333	26,721	26,810	26,935	27,349	27,884	28,440	29,030	29,428
Change from previous year	Percent	2.6	0.3	2.7	-1.2	-2.2	0.3	0.5	1.5	2.0	2.0	2.1	1.4
Farm production	Mil. lbs.	66	66	66	63	63	63	63	63	63	63	63	63
Total production	Mil. lbs.	26,938	27,014	27,736	27,396	26,784	26,873	26,998	27,412	27,947	28,503	29,093	29,491
Imports	Mil. lbs.	2,998	3,030	2,870	2,800	2,800	2,900	2,950	3,000	3,050	3,100	3,150	3,200
Total supply	Mil. lbs.	30,585	30,706	31,281	30,871	30,209	30,398	30,573	31,037	31,622	32,228	32,868	33,316
Exports	Mil. lbs.	3,161	3,126	3,305	3,450	3,500	3,500	3,450	3,400	3,350	3,350	3,400	3,450
Ending stocks	Mil. lbs.	662	675	675	625	625	625	625	625	625	625	625	625
Total disappearance	Mil. lbs.	26,762	26,905	27,301	26,796	26,084	26,273	26,498	27,012	27,647	28,253	28,843	29,241
Per capita, retail weight	Pounds	57.2	57.2	57.7	55.5	53.8	53.8	53.9	54.6	55.5	56.4	57.2	57.6
Change from previous year	Percent	0.4	0.0	0.9	-3.8	-3.1	0.0	0.2	1.3	1.7	1.6	1.5	0.8
Prices:													
Beef cattle, farm	$/cwt	115.75	114.50	114.00	121.64	118.55	122.11	117.06	117.52	115.37	113.54	111.23	111.87
Calves, farm	$/cwt	167.75	159.50	160.00	180.69	174.74	180.88	172.87	178.58	170.04	170.24	165.17	166.40
Steers, 5-area	$/cwt	117.12	115.50	116.00	120.93	117.85	121.39	116.37	116.83	114.70	112.88	110.58	111.22
Feeder steers, Oklahoma City	$/cwt	146.93	140.50	141.00	151.11	146.14	151.27	144.56	149.34	142.20	142.37	138.13	139.16
Feed price ratio:													
Beef cattle-corn	Ratio	34.4	31.7	30.0	35.8	34.9	35.4	33.9	33.6	32.5	32.0	30.9	31.1
Cattle inventory	1,000 head	94,298	94,760	94,950	94,800	93,451	94,033	94,050	94,964	95,084	96,014	96,618	96,294
Beef cow inventory	1,000 head	31,466	31,766	31,641	31,359	31,273	31,654	31,723	32,210	32,310	32,804	33,039	33,421
Total cow inventory	1,000 head	40,898	41,119	41,000	40,725	40,646	41,032	41,104	41,599	41,706	42,206	42,447	42,764

Note: Totals may not add due to rounding. Cwt = hundredweight. The projections were completed in October, 2019.

Table 19. U.S. Pork long-term projections

Item	Units	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Beginning stocks	Mil. lbs.	554	559	590	630	595	600	610	620	630	640	650	660
Commercial production	Mil. lbs.	26,315	27,578	28,680	29,379	29,899	30,631	31,097	31,575	31,860	32,002	32,021	32,089
Change from previous year	Percent	2.9	4.8	4.0	2.4	1.8	2.5	1.5	1.5	0.9	0.4	0.1	0.2
Farm production	Mil. lbs.	15	14	14	14	14	14	14	14	14	14	14	14
Total production	Mil. lbs.	26,330	27,592	28,694	29,393	29,913	30,645	31,111	31,589	31,874	32,016	32,035	32,103
Imports	Mil. lbs.	1,042	956	915	940	979	997	1,018	1,038	1,055	1,069	1,084	1,102
Total supply	Mil. lbs.	27,926	29,107	30,199	30,963	31,487	32,242	32,739	33,247	33,559	33,725	33,769	33,865
Exports	Mil. lbs.	5,876	6,580	7,300	7,884	8,436	8,942	9,169	9,522	9,842	10,096	10,348	10,600
Ending stocks	Mil. lbs.	559	590	630	595	600	610	620	630	640	650	660	670
Total disappearance	Mil. lbs.	21,491	21,937	22,269	22,484	22,451	22,690	22,950	23,095	23,077	22,979	22,761	22,595
Per capita, retail weight	Pounds	50.9	51.7	52.1	51.6	51.3	51.5	51.7	51.7	51.4	50.8	50.0	49.4
Change from previous year	Percent	1.5	1.6	0.8	-0.9	-0.7	0.4	0.5	0.0	-0.7	-1.0	-1.5	-1.3
Prices:													
Hogs, farm	$/cwt	49.92	53.00	62.00	50.27	52.76	52.61	52.72	52.46	52.53	52.36	53.09	53.87
National base, live equivalent	$/cwt	45.93	49.00	58.00	47.88	50.25	50.10	50.21	49.96	50.03	49.87	50.56	51.30
Feed price ratio:													
Hog-corn	Ratio	14.9	14.7	16.3	14.8	15.5	15.2	15.3	15.0	14.8	14.7	14.7	15.0
Hog inventory, December 1, previous year	1,000 head	73,145	74,915	77,050	79,050	79,859	81,000	81,724	82,468	82,912	83,133	83,162	83,268

Note: Totals may not add due to rounding. Cwt = hundredweight. The projections were completed in October, 2019.

Table 20. U.S. Young chicken long-term projections

Item	Units	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Beginning stocks	Mil. lbs.	856	845	895	870	870	870	870	870	870	870	870	870
Federally inspected slaughter	Mil. lbs.	42,601	43,667	44,385	44,276	44,705	45,225	45,914	46,547	47,161	47,753	48,337	48,751
Change from previous year	Percent	2.2	2.6	1.6	-0.2	1.0	1.2	1.5	1.4	1.3	1.3	1.2	0.9
Production	Mil. lbs.	42,145	43,200	43,910	43,802	44,227	44,741	45,423	46,049	46,656	47,242	47,820	48,230
Total supply	Mil. lbs.	43,140	44,174	44,937	44,807	45,239	45,761	46,449	47,083	47,697	48,289	48,874	49,290
Change from previous year	Percent	2.4	2.4	1.7	-0.3	1.0	1.2	1.5	1.4	1.3	1.2	1.2	0.9
Exports	Mil. lbs.	7,069	7,111	7,250	7,433	7,613	7,772	7,918	8,056	8,189	8,318	8,446	8,572
Ending stocks	Mil. lbs.	845	895	870	870	870	870	870	870	870	870	870	870
Disappearance	Mil. lbs.	35,227	36,169	36,817	36,504	36,756	37,119	37,661	38,157	38,638	39,101	39,558	39,848
Per capita, retail weight	Pounds	92.4	94.3	95.4	93.0	93.0	93.2	94.0	94.6	95.2	95.7	96.3	96.4
Change from previous year	Percent	1.5	2.1	1.2	-2.6	0.0	0.3	0.8	0.7	0.6	0.6	0.6	0.1
Prices:													
Broilers, farm	Cents/lb.	56.7	49.5	51.0	56.4	58.7	58.0	56.8	55.2	53.8	52.5	51.4	49.7
Broilers, National composite	Cents/lb.	97.8	87.5	91.0	94.0	97.9	96.7	94.6	92.0	89.6	87.5	85.6	82.9
Feed price ratio:													
Broiler-feed[1]	Ratio	6.0	4.9	5.0	6.0	6.2	6.0	5.9	5.6	5.4	5.3	5.1	4.9

Note: Totals may not add due to rounding. The projections were completed in October, 2019.

[1]Broiler feed price based on 58 percent corn price and 42 percent soybean price, as used by USDA, National Agricultural Statistics Service.

Table 21. U.S. Turkey long-term projections

Item	Units	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Beginning stocks	Mil. lbs.	310	303	265	285	310	310	310	310	310	310	310	310
Production	Mil. lbs.	5,878	5,846	5,910	5,945	5,957	5,965	5,974	5,982	5,990	5,999	6,001	5,974
Total supply	Mil. lbs.	6,206	6,162	6,191	6,273	6,289	6,299	6,309	6,319	6,328	6,339	6,342	6,316
Change from previous year	Percent	-1.3	-0.7	0.5	1.3	0.2	0.2	0.2	0.2	0.1	0.2	0.1	-0.4
Exports	Mil. lbs.	611	637	660	685	684	680	679	678	677	680	682	687
Ending stocks	Mil. lbs.	303	265	285	310	310	310	310	310	310	310	310	310
Disappearance	Mil. lbs.	5,293	5,259	5,246	5,278	5,295	5,309	5,320	5,332	5,341	5,349	5,351	5,319
Per capita	Pounds	16.2	16.0	15.8	15.6	15.6	15.5	15.5	15.4	15.3	15.2	15.2	15.0
Change from previous year	Percent	-1.5	-1.2	-1.3	-1.0	-0.4	-0.4	-0.4	-0.4	-0.5	-0.5	-0.6	-1.2
Prices:													
Turkey, farm	Cents/lb.	51.0	56.5	58.0	52.2	51.1	51.8	51.8	52.0	53.2	53.8	54.1	54.5
Hen turkeys, National	Cents/lb.	80.2	88.5	90.0	88.5	86.6	87.7	87.7	88.0	90.1	91.2	91.6	92.3
Feed price ratio:													
Turkey-feed[1]	Ratio	5.9	6.1	6.3	6.0	5.8	5.8	5.8	5.7	5.8	5.9	5.9	5.9

Note: Totals may not add due to rounding. The projections were completed in October, 2019.

[1]Turkey feed price based on 51 percent corn price, 28 percent soybean price, and 21 percent wheat price, as used by USDA, National Agricultural Statistics Service.

Table 22. U.S. Egg long-term projections

Item	Units	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Beginning stocks	Mil. doz.	88	79	104	108	105	100	95	95	95	95	95	95
Production	Mil. doz.	9,115	9,344	9,420	9,542	9,657	9,773	9,890	9,999	10,109	10,220	10,333	10,446
Change from previous year	Percent	1.9	2.5	0.8	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1
Imports	Mil. doz.	18	16	16	16	16	16	16	16	16	16	16	16
Total supply	Mil. doz.	9,220	9,438	9,540	9,666	9,778	9,889	10,001	10,110	10,220	10,331	10,444	10,557
Change from previous year	Percent	1.1	2.4	1.1	1.3	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Hatching use	Mil. doz.	1,058	1,073	1,090	1,093	1,097	1,106	1,117	1,129	1,140	1,150	1,160	1,168
Exports	Mil. doz.	333	314	300	303	306	309	312	315	318	321	324	327
Ending stocks	Mil. doz.	79	104	108	105	100	95	95	95	95	95	95	95
Disappearance	Mil. doz.	7,751	7,947	8,042	8,166	8,275	8,379	8,477	8,571	8,667	8,765	8,864	8,967
Per capita	Number	284.1	289.5	291.2	290.5	292.3	294.0	295.5	296.9	298.3	299.8	301.3	303.0
Change from previous year	Percent	0.9	1.9	0.6	-0.3	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.6
Prices:													
Eggs, farm	Cents/doz.	115.1	77.5	85.0	86.9	86.9	87.7	89.4	90.3	91.2	92.0	92.9	93.7
New York, Grade A large	Cents/doz.	137.6	89.5	99.0	101.0	101.0	102.0	104.0	105.0	106.0	107.0	108.0	109.0
Feed price ratio:													
Egg-feed[1]	Ratio	14.3	9.0	9.7	10.8	10.7	10.7	10.8	10.8	10.8	10.8	10.9	10.9

Note: Totals may not add due to rounding. The projections were completed in October, 2019.

1/ Egg feed price based on 75 percent corn price and 25 percent soybean price, as used by USDA, National Agricultural Statistics Service.

Table 23. U.S. Dairy long-term projections

Item	Units	2018	2019	2020 1/	2021	2022	2023	2024 1/	2025	2026	2027	2028 1/	2029
Milk production and marketings:													
Number of cows	Thousand	9,399	9,330	9,340	9,360	9,390	9,410	9,430	9,445	9,465	9,485	9,505	9,530
Milk per cow	Pounds	23,149	23,390	23,725	23,960	24,255	24,540	24,895	25,110	25,405	25,690	26,055	26,270
Milk production	Bil. lbs.	217.6	218.2	221.6	224.3	227.8	230.9	234.8	237.2	240.5	243.7	247.7	250.4
Farm use	Bil. lbs.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Marketings	Bil. lbs.	216.6	217.1	220.5	223.2	226.7	229.9	233.7	236.1	239.4	242.7	246.6	249.3
Supply and use, milkfat basis:													
Beginning commercial stocks	Bil. lbs.	13.4	13.8	13.0	12.8	13.6	14.2	14.7	15.1	15.3	15.7	16.0	16.7
Marketings	Bil. lbs.	216.6	217.1	220.5	223.2	226.7	229.9	233.7	236.1	239.4	242.7	246.6	249.3
Imports	Bil. lbs.	6.3	7.0	6.5	6.8	6.7	6.5	6.4	6.4	6.3	6.2	6.1	6.1
Commercial supply	Bil. lbs.	236.3	237.9	240.0	242.8	247.0	250.6	254.8	257.6	261.0	264.6	268.7	272.1
Domestic commercial use	Bil. lbs.	212.1	215.7	217.8	219.6	222.8	225.7	229.2	231.8	234.6	237.7	240.8	244.0
Commercial exports	Bil. lbs.	10.4	9.0	9.3	9.6	10.0	10.2	10.5	10.5	10.7	10.9	11.2	11.2
CCC donations[2]	Bil. lbs.	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ending commercial stocks	Bil. lbs.	13.8	13.0	12.8	13.6	14.2	14.7	15.1	15.3	15.7	16.0	16.7	16.9
Supply and use, skim solids basis:													
Beginning commercial stocks	Bil. lbs.	11.8	10.7	10.4	9.5	9.9	10.3	10.5	10.8	10.9	11.1	11.3	11.6
Marketings	Bil. lbs.	216.6	217.1	220.5	223.2	226.7	229.9	233.7	236.1	239.4	242.7	246.6	249.3
Imports	Bil. lbs.	5.5	5.9	5.5	5.8	5.9	6.0	6.1	6.1	6.1	6.1	6.1	6.1
Commercial supply	Bil. lbs.	233.8	233.7	236.4	238.5	242.5	246.2	250.3	253.0	256.4	259.9	264.0	267.0
Domestic commercial use	Bil. lbs.	178.5	183.1	183.8	184.7	186.8	189.4	192.2	194.1	196.5	198.9	201.8	203.9
Commercial exports	Bil. lbs.	44.7	40.0	43.0	43.9	45.4	46.3	47.3	48.0	48.8	49.7	50.6	51.3
CCC donations[2]	Bil. lbs.	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ending commercial stocks	Bil. lbs.	10.7	10.4	9.5	9.9	10.3	10.5	10.8	10.9	11.1	11.3	11.6	11.8
Prices:													
All milk	$/hundredweigh	16.26	18.40	18.85	18.20	18.00	18.10	18.25	18.65	18.90	19.20	19.25	19.75
Cheese	$/lb.	1.54	1.71	1.79	1.73	1.69	1.68	1.69	1.73	1.75	1.77	1.78	1.81
Butter	$/lb.	2.26	2.26	2.20	2.10	2.10	2.12	2.13	2.23	2.27	2.35	2.32	2.43
Nonfat dry milk	$/lb.	0.79	1.02	1.04	1.03	1.02	1.01	1.03	1.06	1.07	1.09	1.12	1.14
Dry whey	$/lb.	0.34	0.39	0.38	0.37	0.39	0.42	0.42	0.42	0.42	0.41	0.40	0.41

Note: Totals may not add due to rounding.

[1] Leap year.

[2] Expected purchases under the Food Purchase and Distribution Program. The program is funded by the Commodity Credit Corporation (CCC), a wholly-owned Government corporation administered by USDA. The projections were completed in October 2019.

U.S. Farm Income

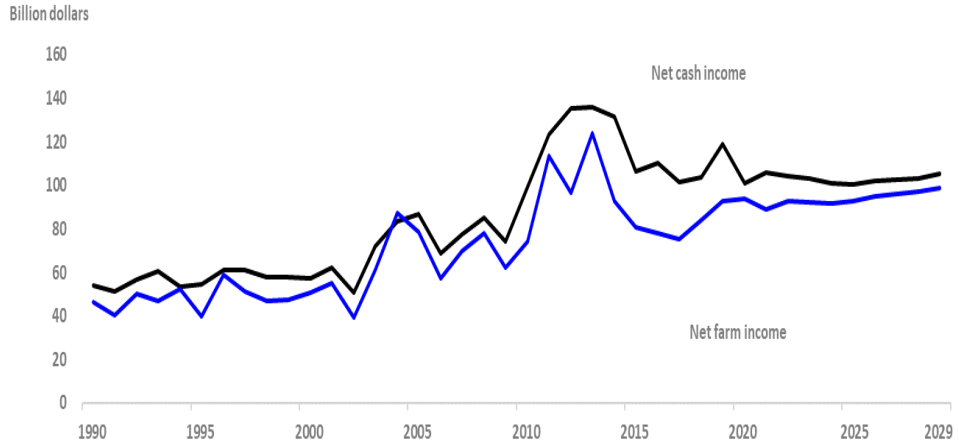
Net farm income is expected to have reached $92.5 billion in 2019, after increasing in both 2017 and 2018. Net cash farm income is expected to have increased to $119.0 billion in 2019. The expected growth in net farm income for 2019 is largely due to higher government payments, which includes the Market Facilitation Program payments.

- Farm cash receipts are projected to increase throughout the period to 2029, with increases in both crop and livestock cash receipts as steady domestic and international economic growth support longer-term demand for U.S. agricultural products.

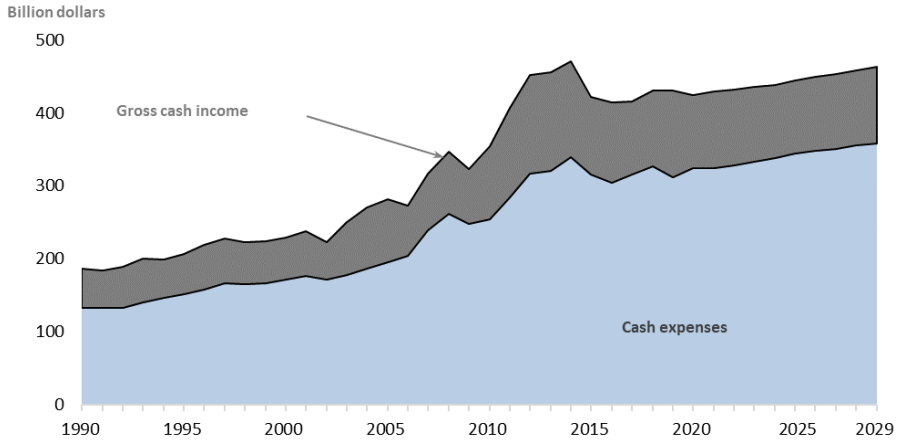
- Total direct Government payments are projected to decline by $7.5 billion to $14.9 billion in 2020, followed by an increase to $15.4 billion in 2021. Government payments are projected to increase again in 2022 and fall a bit over the remainder of the projection period. Agriculture Risk Coverage (ARC) payments decline from $641 million in 2019 to $35.4 million over the ten-year period, but this decline is offset by an increase in Price Loss Coverage (PLC) payments from $2.6 billion in 2019 to almost $5.9 billion in 2029.

- Total farm production expenses are projected to increase to $357.2 billion in 2020. The increase is due to higher expenditures on labor, rent, and other operating expenses. Overall, nominal farm production expenses are projected to further increase after 2020, and each year through the remainder of the projection period as crude oil prices, interest rates, and inflation all are expected to rise.

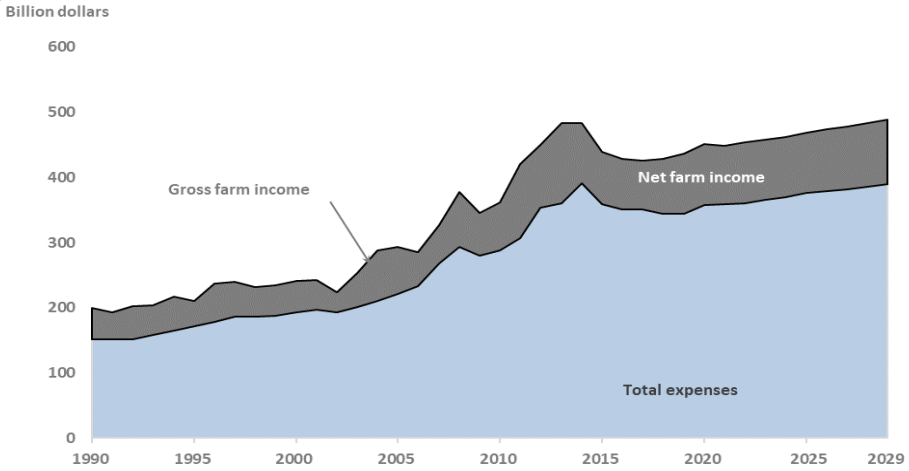
U.S. farm income indicators



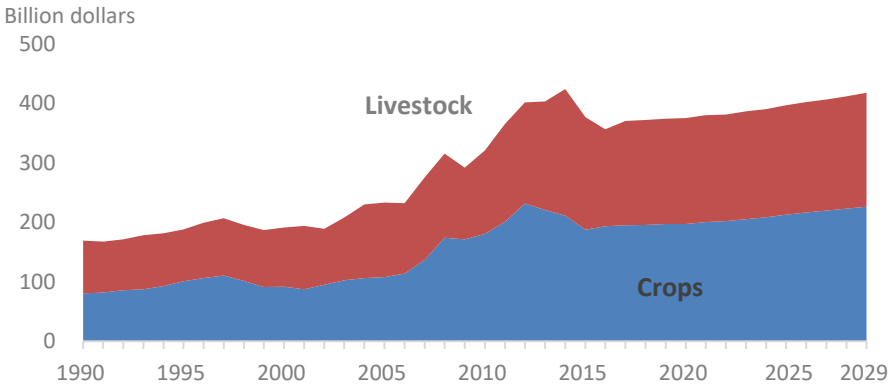
U.S. gross cash income



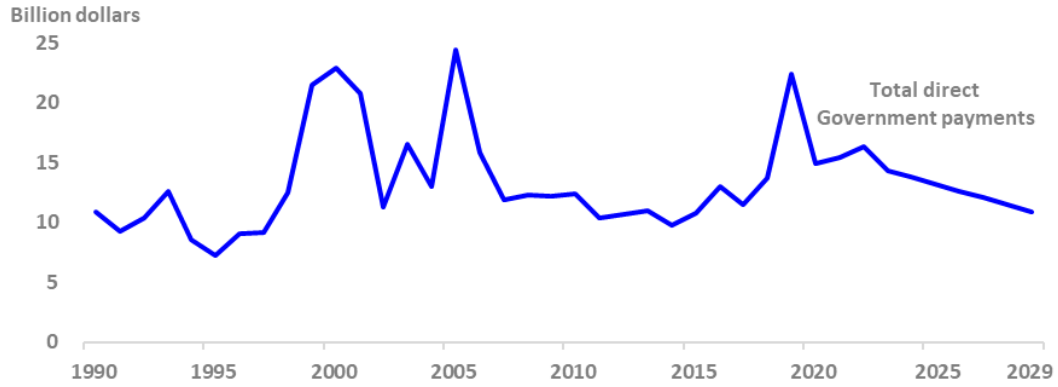
U.S. total gross income



U.S. cash receipts



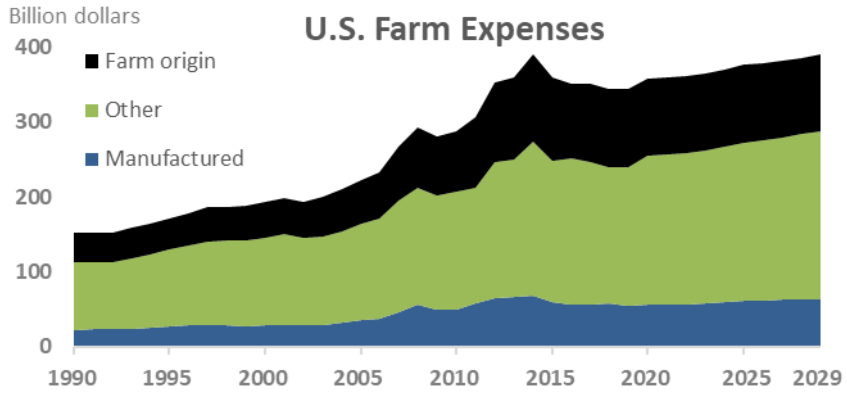
Direct Government payments



After falling to $14.9 billion in 2020, direct Government payments rise in 2021 as producers are expected to shift their enrollment from the ARC program to the PLC program. Government payments are subsequently expected to decrease by over $5 billion between 2022 and 2029. The CRP, ARC, and PLC payments provide the largest direct Government payments to the agricultural sector over the projection period. This projection includes estimates of Market Facilitation Program payments that were announced in 2018 and 2019.

- Acreage enrolled in the CRP during the projection period is assumed to rise to slightly less than its legislative maximum of 27 million acres under the 2018 Farm Act. As crop prices begin to rise again, average rental rates for land in the CRP will also increase. CRP payments are therefore projected to gradually increase from $1.9 billion in 2019 to $2.4 billion in 2029.

- Payments under the ARC and PLC programs further increase after 2019 from about $2.6 billion to $3.4 billion in 2020 due to projected crop price declines from 2019. ARC and PLC jump up to nearly $7.8 billion in 2021 as producers are assumed to shift base acreage from the ARC program to the PLC program. Producers may change their base acre election between the ARC and PLC programs one time for the 2019 and 2020 crop years, and thereafter annually for the 2021-29 projection period. ARC payments continue to fall, but PLC payments continue to increase over the remainder of the projection period to $5.9 billion while overall direct Government payments continue to fall, ending the decade at just under $11 billion total.



- Total farm production expenses are expected to increase in 2020 due to increasing hired labor, rent, and other operating expenses. The rise in production expenses after 2020 is less rapid than the overall rate of inflation through 2029. While expenses for farm-origin inputs, other manufactured inputs, and aggregate expenses for other nonfarm-origin inputs grow slower than the general inflation rate, interest expenses and fuel and oil costs rise faster than the general inflation rate during these years.

- Interest costs rise faster than the general inflation rate over the projection period, reflecting rising farm debt levels as well as increasing interest rates due to tightening monetary policy.

- Production expenses for fuel and oil also rise steadily throughout the period to 2029 due to moderate increases in crude oil prices. Projected declines in planted acreage, anticipated higher domestic nitrogen fertilizer production capacity, and relatively low natural gas prices serve to lower fertilizer expenses in the near term. These costs rise slower than the general rate of inflation in the later years.

Table 24. U.S. Farm receipts, expenses, and income, long-term projections

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
						Billion dollars						
Cash income statement												
Cash receipts:	372.0	374.2	375.6	380.1	381.2	386.9	390.2	396.7	402.3	406.7	411.8	417.6
Crops	195.5	197.4	197.1	200.4	202.0	205.1	208.5	212.7	216.4	219.9	223.3	226.6
Livestock	176.5	176.8	178.4	179.7	179.2	181.8	181.6	184.0	185.9	186.8	188.5	191.0
Direct government payments	13.7	22.4	14.9	15.4	16.3	14.3	13.8	13.2	12.6	12.0	11.5	10.9
Farm-related income	29.1	34.4	34.2	34.2	34.4	34.5	34.6	34.7	34.8	34.9	35.0	35.1
Gross cash income	414.8	431.0	424.6	429.8	431.8	435.6	438.6	444.7	449.7	453.6	458.2	463.6
Cash expenses	311.3	312.0	323.6	324.0	327.6	332.6	337.5	344.0	347.6	350.9	354.9	358.5
Net cash income	103.5	119.0	101.0	105.8	104.3	103.0	101.0	100.6	102.1	102.7	103.3	105.1
Farm income statement												
Gross cash income	414.8	431.0	424.6	429.8	431.8	435.6	438.6	444.7	449.7	453.6	458.2	463.6
Non-money income	19.1	20.0	20.0	20.4	20.9	21.3	21.6	22.0	22.4	22.8	23.2	23.4
Value of inventory change	-6.1	-13.9	6.5	-2.3	0.7	0.6	1.3	1.5	1.4	1.1	1.4	1.2
Gross farm income	427.8	437.1	451.1	448.0	453.4	457.5	461.4	468.1	473.5	477.5	482.9	488.1
Total expenses	343.8	344.6	357.2	359.2	360.6	365.1	369.8	375.7	378.6	381.6	385.8	389.5
Net farm income	84.0	92.5	93.9	88.8	92.7	92.4	91.6	92.4	95.0	95.9	97.0	98.6

The projections were completed in January 2020. History for 2018 and short-term forecasts for 2019 are from USDA-Economic Research Service,November 2019. This projection included estimates of Market Facilitation Program payments that were announced in 2018 and 2019.

Agricultural Trade

Global demand and trade for agricultural products are projected to continue rising through 2029/30. The increase in global agricultural imports stems mostly from emerging economies and low- to middle-income countries. Over the coming decade, increasing food and feed demand in developing economies are projected to account for the bulk of the growth in world consumption and imports of basic agricultural commodities over the coming decade. Developing countries account for more than four-fifths of the projected increase in global demand for meat, grains, and oilseeds and most of the growth in cotton consumption. Income growth and urbanization are projected to remain strong, especially in many emerging and developing economies, giving strong impetus for sustained growth in demand and trade for agricultural products. Population growth is strongest in emerging economies, contributing to growth in agricultural trade. The impact of African Swine Fever in a number of countries, especially China, has a large impact on production, consumption, and trade projections for meat and feedstuffs in the initial years and as countries recover from this epidemic over the latter half of the projections.

Macroeconomic and population growth

Increasing per capita income and population growth are among the major factors driving increasing global trade in agricultural commodities and products. World economic growth is projected at 2.7 percent from 2020/21 through 2029/30, which is the market exchange rate-weighted average annual growth of worldwide gross domestic product (GDP). Real GDP in developed economies is projected to grow at 1.5 percent annually through 2029/30, while the faster-developing emerging economies are projected to grow at about 4.3 percent annually.

In terms of real per capita GDP, the economies projected to grow the fastest are in Asia. Burma, India, Vietnam, and Cambodia, with expected annual growth rates of 5.72 percent, 5.24 percent, 5.16 percent, and 4.08 percent, respectively. Per capita GDP in South Asia and Southeast Asia will rise at average annual rates of 5.0 percent and 3.8 percent, respectively. China's projected per capita economic growth rate averages 5.32 percent. The Middle East and Africa are both expected to have per capita GDP growth of 1.66 percent and 1.3 percent, respectively.

The world's population was 7.5 billion in 2019. A projected annual growth rate of 0.9 percent means that roughly 703 million people will be added to the world's population over the next decade. Population growth is fastest in Sub-Saharan Africa, with a projected annual growth rate of 2.4 percent. North Africa is expected to grow at 1.5 percent annually. Africa is expected to add 307 million people to the world's population by 2029/30. The third-fastest growing region is the Middle East at 1.3 percent per year. Ukraine, Japan, Russia, and Cuba all have projected negative annual population growth rates at -0.5, -0.4, -0.2, and -0.2 percent, respectively. Meanwhile, the Other Former Soviet Union and Europe are expected to grow at 0.6 percent and 0.1 percent annually, respectively. The populations of the largest countries—China and India—will grow at 0.1 percent and 1.0 percent, respectively. Population growth has a larger impact on India, which adds 149.1 million people from 2018/19 to 2029/30, while China adds 14.3 million people. The projected five largest countries in 2029/30 are India (1,460 million), China (1,400 million), United States (355 million), Indonesia (285 million), and Nigeria (274 million). Together, these five countries will account for about 46.0 percent of the world's population (8.3 billion) by 2029/30.

General International Assumptions

Trade projections to 2029 are based on economic relationships and assumptions concerning trends in area, yields, and consumption. The development and use of technology and changes in consumer preferences are assumed to continue evolving based on their past performance and the consensus judgment of USDA analysts regarding future developments. The projections also reflect the effects of trade agreements, sanitary and phytosanitary restrictions, and domestic policies in place or fully authorized by October 2019. International macroeconomic assumptions used in the projections were completed in late August 2019. Recent trade deals or discussions such as the Phase One deal with China, the USMCA agreement, and a Japan-U.S. free trade agreement were not considered for these projections. These three policies were not in place or expected to be implemented before the end of October 2019.

Growing global consumption drives trade

Many developing countries are not well-suited for increasing production of specific commodities. In those countries, consumption may increases faster than domestic production, leading to growing imports of agricultural commodities and products. The developed economies typically maintain relatively stable demand for international agricultural products, even during periods of slower economic growth. Food consumption patterns in the developed economies are more established and exhibit gradual change. These large economies provide a solid base for sustained international trade demand for many agricultural products.

Growing global demand for agricultural commodities, especially by low-income countries and emerging markets, leads to increasing world imports over the projection period. Expanding trade is expected for all of the projected agricultural commodities. Food grains—wheat and rice—exhibit relatively strong demand in low- to middle-income countries. Wheat, which is among the world's most traded commodities, is projected to show an increase in trade of almost 16 percent over the 10-year projection period, reaching nearly 216 million tons by 2029/30. The countries and regions with the greatest increase in wheat imports are those with strong growth in income, population, and urbanization. Many of these regions are unable to produce wheat or expand production. These regions combined account for over 83.0 percent of the projected increase in world wheat import demand. They include Sub-Saharan Africa (25.2 percent, especially West Africa at 11.0 percent), North Africa (11.6 percent), the Middle East (16.2 percent), and Southeast Asia (18.9 percent).

Rice trade is projected to increase by almost 15 percent, increasing to nearly 55 million tons by 2029/30. Projected rice imports grow the fastest in West Africa, the rest of Sub-Saharan Africa, and the Middle East; these three regions account for 95 percent of the increase in world rice imports through 2029/30. The Philippines is the world's largest rice importer through most of the projections, with imports increasing at a rate of 2 percent per year throughout the projection period. In 2026/27, Nigeria surpasses the Philippines to become the world's largest rice importer at 3.65 million tons. Over the past six years, India was the largest rice-exporting country, followed by Thailand, Vietnam, and Pakistan. India, Thailand, and Vietnam together will increase exports by 3.2 million tons over the projection period by 2029/30 and are expected to account for 45 percent of the global increase in exports. Burma and Cambodia are both expanding rice exports, accounting for almost 11 percent of the global growth over the projection period.

Wheat and rice consumption

Wheat is a staple food in numerous countries and has been used to produce bread for thousands of years and to produce noodles for hundreds if not thousands of years. That being said, certain types of wheat products—such as cookies, bread, packaged meals, and various desserts—are relatively new to consumers in many countries. Four countries and the European Union account for over half (57 percent) of the world's wheat consumption: China, the European Union, India, Russia, and the United States. The next five largest wheat-consuming countries together account for an additional 12 percent of world consumption: Pakistan, Egypt, Turkey, Iran, and Brazil. Over the projection period, global annual wheat consumption increases by more than 10.7 percent above 2019/20 levels, increasing by about 81 million tons. The largest wheat-consuming countries are not the major contributors to expanding consumption over the projection period. The regions with the greatest increase in consumption over the projection period are West Africa (34.0 percent rise), Rest of Sub-Saharan Africa (28.0 percent), Southeast Asia (26.0 percent), North Africa (14.0 percent), Central America and the Caribbean (10.0 percent), and the Middle East (10.0 percent). Increasing income, urbanization, diet diversification, and rising populations drive wheat consumption, for both a staple food product and as an ingredient in many non-staple foods.

The world's annual rice consumption increases by 4.1 percent over the projection period. Five countries account for over 71.0 percent of this increase: India (43.6 percent), Nigeria (9.2 percent), Vietnam (6.4 percent), the Philippines (6.3 percent), and Bangladesh (6 percent). Increased rice consumption in India is mostly driven by population growth. The regions with the fastest growth in rice consumption during the projection period are: West Africa (28.6 percent), Other Sub-Saharan Africa (27.6 percent), Middle East (15.3 percent), Europe (13.4 percent), and North Africa (11.4 percent). Africa and the Middle East combined are expected to contribute almost 58 percent to the increase in world rice consumption over the projection period and about 95 percent of the world's increase in rice imports. Over the projection period, the Economic Community of West African States (ECOWAS, 15 countries in West Africa) accounts for the greatest increase (53.1 percent) in world rice imports, but Nigeria accounts for the largest increase for any single country in the world, at 19.9 percent.

Global soybeans, corn, and cotton trade

The world's annual soybean trade is projected to increase by 35.7 million tons (23.5 percent) during the projection period, reaching 187 million tons by 2029/30. China's soybean imports account for 74 percent of this projected increase. Soybean meal trade increases by almost 16.5 percent over the projection period reaching 80.4 million tons by 2029/30. The European Union is the largest soybean meal importer, reaching 19.6 million tons by 2029/30. Southeast Asia imports almost 28 percent of global soybean meal trade and accounts for 42 percent of the increase in imports over the projection period. Vietnam's imports increase by 44 percent over the projection period, accounting for 18 percent of the increase in global imports. Soybean oil trade increases by 22.6 percent over the projection period, adding 2.75 million tons to trade, reaching 14.9 million tons by 2029/30. India is the largest soybean oil importer and accounting for 34 percent of the projected increase in world imports.

Global corn trade increases by almost 17.4 percent over the projection period, adding over 30.4 million tons to trade, boosting export volume to 205 million tons by 2029/30. Five countries—Mexico, Egypt, Vietnam, Iran, and Saudi Arabia—account for a little over 57 percent of this

increased import demand. The next five countries, Malaysia, the European Union, South Korea, Thailand, and Indonesia, account for an additional 9 percent increase in corn import demand. Together these ten countries account for two-thirds of the global increase in corn import demand. Projected global sorghum trade increases 6.5 percent over the projection period to 3.9 million tons by 2029/30. China's sorghum imports are projected to increase from 700,000 tons in 2020/21 to 1 million tons by 2029/30.

Global barley trade expands over the projection period by about 20 percent, increasing to 35.9 million tons by 2029/30, which surpasses the record of 30.8 million tons established in 2015/16. Barley trade is driven mostly by increasing feed demand in the Middle East and North Africa, accounting for almost 60 percent of the increase in global imports. China increases imports by 1.8 million tons, 24.9 percent, over the projection period for both feed and beverage barley. The largest importers are Saudi Arabia and China at 10.1 and 9.0 million tons by 2029/30, respectively, together accounting for almost 53.0 percent of global imports.

Cotton trade increases throughout the projection period, and by 2029/30 reaches 58.4 million bales. The projected 27 percent increase over the projection period to 2029/30 is driven in part by a recovery of China's imports after completing its disposal of surplus stocks. China's cotton imports are projected to reach 16.6 million bales by the end of the projection period. Vietnam and Bangladesh are the next two-largest cotton-importing countries. Both are projected to increase imports, adding a combined 6.8 million bales over the projection period.

Global meat consumption and trade

Growing global meat consumption is the major driver for increasing production and expanding trade for numerous commodities, including coarse grains, oilseeds, and livestock and meat products. Combined global consumption of beef, pork, and poultry meat increases 1.7 percent per year or 16.7 percent over the projection period. Pork consumption is projected to increase 20 percent by 2029 as production and consumption levels bottom out in 2021 following a severe epidemic of African Swine Fever. China, which accounts for about half of the world's pork production and consumption, is the country most impacted by the African Swine Fever decline and recovery. A number of Southeast Asian countries are also impacted by African Swine Fever, including Vietnam and the Philippines, which recover in 2022-29. Global poultry consumption increases at 1.8 percent annually over the projection period. Global beef consumption increases at an annual rate of 1.1 percent.

Poultry trade expands the most among livestock products as it is a lower-cost source of meat protein. Poultry exports by the major supplying countries increase by 29.2 percent, reaching almost 17.2 million tons by 2029, adding 3.9 million tons over the projection period. Major pork exporters expand trade by over 28.8 percent, reaching more than 13.1 million tons by 2029, adding 2.9 million tons to exports. Beef exports by the major beef-exporting countries expand by 21.3 percent, reaching almost 14.0 million tons and adding 2.5 million tons to trade by 2029.

Increasing feed demand and trade

International trade in basic agricultural commodities such as corn, soybeans, and soybean meal is driven by increasing feed demand for poultry and pork production, a consequence of growing meat demand and consumption, particularly of poultry and pork. Global meat consumption continues to rise throughout the projection period. Corn and soybean meal are the major agricultural commodities

used to feed livestock. Many countries are not well-suited to growing corn and soybeans or are unable to expand production to meet increasing domestic demand for feed.

As a result, numerous regions exhibit strong annual growth rates in corn imports over the projection period, including Southeast Asia (3.2 percent), Sub-Saharan Africa (2 percent), South America (2.7 percent excluding Brazil and Argentina), the Middle East (1.9 percent), Central America and the Caribbean (2.3 percent), and North Africa (2.92 percent). The increase in corn imports for these regions is a combined 25.6 million tons over the projection period. These six regions account for 84.2 percent of the growth in world corn imports by 2029/30. One of the regions with stronger growth in feed demand is Southeast Asia. Southeast Asia's corn imports are increasing due to its fast growing meat sectors, mostly poultry, and until recently pork. Southeast Asia meat production (mostly poultry and pork) is projected to increase annually by 2.6 percent, a 25.8 percent increase over the projection period to 2029/30. In the early projected years, pork production decreases in the Philippines and Vietnam because of African Swine Fever, but poultry exhibits faster growth because of increasing demand. In the latter half of the projection years, pork production recovers. Even as Southeast Asia increases corn production by 1.8 percent per year over the projection period, domestic production is less than the growing demand. Southeast Asia's annual corn imports are projected to increase to 22.5 million tons by 2029/30, an increase of 5.5 million tons over the projection period, which accounts for 18.1 percent of increased world trade by 2029/30.

In addition to strong global corn import demand for feed, many countries continue to expand imports of soybeans and soybean meal due to increasing feed demand for livestock. Southeast Asia's projected imports of soybeans and soybean meal for feed use are increasing at annual rates of 2.1 percent and 2.7 percent, respectively. Southeast Asia accounts for 42.0 percent of the increase in global imports of soybean meal over the projection period, reaching 22.4 million tons by 2029/30. By 2029/30, Southeast Asia's global share of soybean meal imports is almost 28 percent, followed by the European Union at 24.4 percent. Even though poultry production is expanding in the Middle East and Africa, by 2029/30, these combined regions only account for about 15 percent of global soybean meal imports.

Global crop production continues to expand through 2029/30

Global agricultural production is expected to outpace the growth in demand, leading to a continuation of commodity prices at relatively low levels throughout the projection period. Agricultural production can increase from either an expansion of area or higher productivity through increasing crop yields. Brazil is an example where both factors of production are expanding, as new technologies allow the production area and yield to grow.

World corn production reached a record level in 2016/17, at almost 1.12 billion tons. World production decreased by about 4.0 percent in 2017/18 due to lower yields and area. Global corn production is projected to increase by almost 12 percent over the projection period. About 72 percent of the increased production is attributable to increasing yields. Ten countries produce about 85 percent of the world's corn. Together, the top five countries—the United States, China, Brazil, Argentina, and the European Union—accounted for 76.0 percent of the global corn production over the past decade. The United States and China together account for close to 56.0 percent of the world's corn production.

Global production of wheat and rice have consistently established new record levels, reaching 762 million tons and 499 million tons in 2018/19, respectively. Global wheat production is projected to increase almost 9 percent from 2020/21 to 2029/30. Together, seven countries account for almost 75 percent of the world's wheat production. The European Union, China, and India accounted for a little over 50 percent of the world's wheat production in 2018/19. Russia, the United States, Canada, and Ukraine accounted for almost 25 percent of the world's share in wheat production.

Global rice production is projected to increase almost 4.7 percent from 2020/21 to 2029/30, driven mostly by increasing yields. Eight countries accounted for a little over 82.0 percent of the global rice production in 2018/19. Over 53.0 percent of global rice production is from China and India. The next six-largest rice-producing countries—Indonesia, Bangladesh, Vietnam, Thailand, Burma, and the Philippines—are expected to contribute roughly 29 percent to world rice production.

Oilseed and palm oil production have exhibited strong growth over the past 6 years, and that growth is projected to continue through the projection. Indonesia and Malaysia are expected expand palm oil production, mostly through area, by 37.3 percent and 20 percent, respectively, over the next ten years. Global soybean production increased from 264.7 million tons in 2010/11 to 358.27 million tons by 2018/19—a 35.0 percent increase. The United States, Brazil, and Argentina accounted for almost 82 percent of the world's soybean production in 2018/19. Increased production by Brazil, the United States, and Argentina accounted for 45 percent, 32 percent, and 7 percent, respectively, of the increase in global soybean production between 2010/11 and 2018/19. Global soybean production is projected to increase by 19.0 percent from 2020/21 to 2029/30. Both soybean area and yields increase over the projection period at 9.2 percent and 8.9 percent, respectively.

International Biofuels

Global biofuel production is projected to increase over the next decade but at a slower pace compared with the past five years, resulting in slower demand growth for biofuel feedstocks. Future growth in the sector will rely increasingly on fuel pool growth rather than new policy incentives. Brazil has the largest projected increase in global ethanol production, followed by China and the United States, while Brazil and Indonesia account for much of the projected increase in global biomass-based biodiesel production. Several factors explain the slowing growth of the world's biofuel sector. On the supply side, a retreat in oil prices from pre-2014 highs reduces the incentive to produce biofuels, either as a substitute or a complement to petroleum-based fuels. Import restrictions limit opportunities for biofuel exports. At the same time, domestically produced feedstocks remain expensive in some countries. On the demand side, improved fuel efficiency, greater use of natural gas and electricity, and new mobility choices slow the growth of the conventional fuel pool.

The United States remains the world's largest producer and consumer of biofuels by a wide margin, with the largest ethanol market and second-largest biomass-based biodiesel market. Corn-based ethanol production rises somewhat, as increased exports offset declining domestic use. Brazil and Canada remain top markets for U.S. ethanol, and sales to secondary markets continue. Low Carbon Fuel Standard programs and exports to Canada allow for a limited expansion of the production of biodiesel and sustainable aviation fuels using mostly waste-based feedstock.

Brazil remains the world's second-largest producer and consumer of biofuels, with the second-largest ethanol market and fourth-largest biodiesel market. Domestic policies that foster feedstock production and high blending mandates support further expansion in biofuel production, including

both sugarcane- and corn-based ethanol and soyoil-based biodiesel. Current blending mandates are among the world's highest: E27 for ethanol in gasoline and B15 for biodiesel in diesel fuel. The projections assume that imports of U.S. ethanol will continue and that Brazil's biodiesel market will remain closed to imports.

The European Union remains the world's third-largest biofuel producer, with the largest biomass-based biodiesel market but a much smaller ethanol market. Biofuel policies in the European Union are assumed to lead to greater renewable energy use in transportation through 2030, but other factors are expected to limit the growth potential for transport biofuels, including: a shrinking gasoline fuel pool, little if any growth in the diesel fuel pool, limitations on the use of food crops as biofuel feedstocks, the phasing out of palm oil as a feedstock, consumer incentives to purchase electric vehicles, more efficient energy grids, and an expanded set of mobility choices.

Mid-sized producers of biofuels are led by Indonesia and China, followed by Argentina, Thailand, Canada, India, and Malaysia. Most of these countries have insular biofuel markets protected from imports, some are major biodiesel exporters, and all are projected to see some increase in biofuel production and consumption in the coming decade. China remains mainly an ethanol producer with only modest biodiesel production given the absence of a biodiesel mandate. China makes limited progress on its ethanol blend rate but does not come close to its nationwide goal of E10. With no mandate, China's used cooking oil-based biodiesel production remains flat, and its market spikes when imports of Indonesian biodiesel jump. Indonesia's production of biodiesel from palm oil is driven by domestic policy incentives, and its exports of this biofuel are projected to increase. Argentina and Thailand, both with ethanol and biodiesel programs, see little change in their relatively high biofuel blend rates and remain shut to imports. Argentina's biodiesel expansion is limited. Malaysia remains limited to biodiesel production with some domestic use and exports.

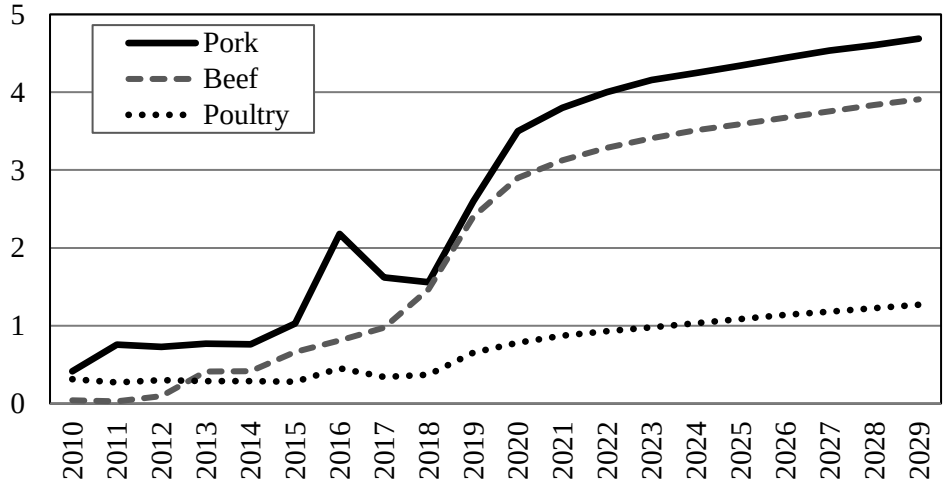
China Retaliatory Tariffs, African Swine Fever, and Commodity Stockpiles Influence Projections

China's retaliatory tariffs on U.S. agricultural commodities were in place when USDA's projections to 2029 were prepared in October 2019. The Phase One Agreement between the United States and China was signed in January 2020—after the projections were completed. The agreement included commitments by China to increase purchases of U.S. agricultural commodities. Chinese also lifted a ban on U.S. poultry imports, and granted long-delayed approvals of a few genetically modified crop varieties. These events came too late to incorporate possible impacts into the projections.

This year's projections incorporate impacts of an African Swine Fever (ASF) epidemic in China that began in 2018 and severely curtailed pork supplies in 2019. The virus spread to Vietnam and other neighboring countries in Asia where it also had important impacts, but impacts on China—which had about half the world's swine herd prior to the outbreak—were the most important repercussions on the global market. Chinese pork prices more than doubled, imports of pork and other meats surged, and it has been estimated that overall animal protein consumption fell during 2019. The smaller number of swine—the largest consumers of animal feed in China—also reduced the demand for soybean meal and corn used as feed.

Chinese authorities took aggressive measures to restore swine production, but projections show a slow recovery that continues through most of the projection period due to biological lags, continuing disease pressures, scarcity of land, capital and technical expertise, and rising production costs. China's imports of pork soared to a record high in 2019 and are projected to grow throughout the projection period as China becomes the world's top pork importer. China's imports of beef and poultry meat are also projected to rise.

Figure 1. Projected pork, beef, and poultry imports by China
(million metric tons)



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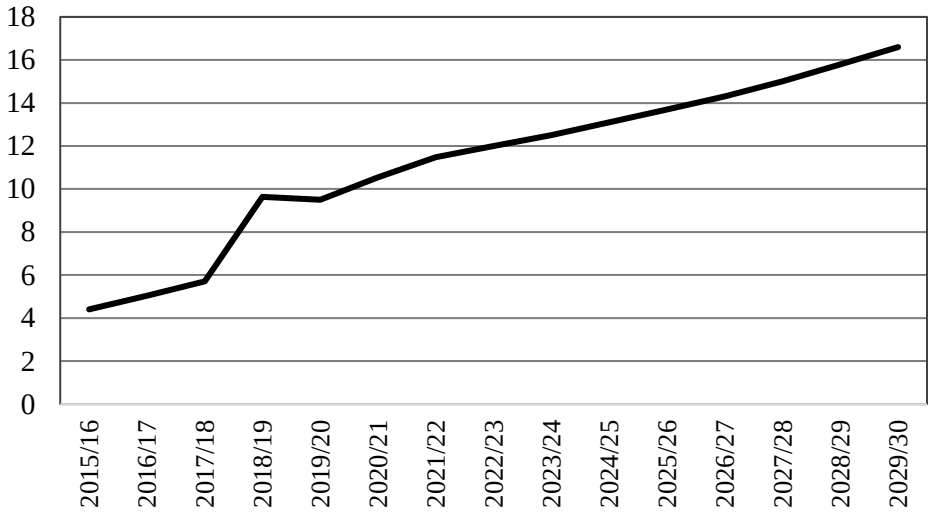
China Retaliatory Tariffs, African Swine Fever, and Commodity Stockpiles Influence Projections -- Continued

Imports of cotton and corn are projected to rise as Chinese authorities complete years-long efforts to dispose of cotton and corn stockpiles that had masked supply-demand deficits for these commodities. USDA estimates that China's ending cotton stocks for 2018/19 were down over 30 million bales from the peak level reached in 2014/15. Cotton imports are projected to rise to 16.6 million bales in 2029/30, up from just 4.4 million bales in 2015/16. Disposals of stockpiles are prominent in China's markets for corn, rice, and wheat. During 2019 authorities reported auctioning 21.9 million metric tons (mmt) of corn, 12.5 mmt of rice, and 3.4 mmt of wheat from government reserves. A January 2020 announcement that China would suspend a national mandate for ethanol use may reflect concerns about shrinking corn stockpiles. Authorities have indicated that de-stocking of rice and wheat may receive greater priority in coming years.

Figure 2. Projected imports of cotton by China
(cotton in million bales)



China's commodity stockpiles are the result of past government purchases to support the prices of grain and cotton. Chinese authorities are encouraging nongovernment entities to play a bigger role in buying grain and cotton from farmers to "marketize" procurement, thus preventing the recurrence of excessive stockpiles. The Chinese authorities, however, added to its reserves from the 2019 crops by purchasing wheat and rice when prices fell to the price floors set by "minimum price procurement" programs. Formal price supports are no longer in place for cotton, corn, or soybeans, but the government's reserve corporation nevertheless stepped in to buy these commodities during periods of low demand and weakening prices after the 2019 harvest. Thus, stockpiling may continue to cloud China's supply and demand situation over the next decade.

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Argentina's Growth Potential in Agriculture and Its Export Tax Policies

Agricultural development in Argentina over the past two decades has not been commensurate with the country's vast agricultural potential and its position as a leading world producer of grains and oilseeds. Policies designed to stimulate industrial development, to keep domestic food prices low, and to counter recurring domestic financial and macroeconomic crises have inhibited both capital investment in agriculture and the application of technological advances to farming.

Historically, such policies have affected both the production and export of Argentina's principal grains and oilseeds. These policies have included trade restrictions on agricultural inputs (resulting in high production costs for farmers), limitations on prices for farm products, and taxes on agricultural exports. Inadequate credit, a farm tenancy system that discourages improvements to farm operations, a lack of financing to adopt modern technology, and inadequate and costly storage and transportation infrastructure also have contributed to restricting agricultural output.

The inauguration on December 10, 2019, of new Argentine President Alberto Fernández, along with former President Cristina Fernández de Kirchner as vice-president, was followed by the announcement of new and revised export taxes for agricultural commodities and foreign exchange controls. While these policy changes occurred after the projections in this report were made, they directly affect agricultural production in the country, as well as global markets, through Argentina's significant role in agricultural trade.

Background

Although export tax changes may directly affect farmer's incomes, Argentine producers are extremely competitive in the global market in terms of production costs. Relative returns across competing field crops, crop rotation systems, and high soil fertility (which allows for low expenditures on fertilizers) have positively influenced the growth of agricultural exports.

Historically, Argentina has been a major exporter of agricultural commodities and is currently the world's leading exporter of soybean oil and soybean meal. Also, Argentina ranks third behind the United States and Brazil as a producer and exporter of soybeans and as an exporter of corn, and it is the world's sixth-largest wheat exporter.

Argentina's economic history includes multiple periods of economic instability featuring both currency devaluation and hyperinflation. In 1991, the Argentine Government introduced significant changes to the country's exchange-rate policy—named the convertibility program—that fixed a 1-to-1 nominal relationship between the Argentine peso and the U.S. dollar. Other economic policy measures taken included the elimination of certain taxes on exports, fuel, and financial transactions and lower import tariffs on fertilizers, herbicides, pesticides, and irrigation equipment. These other policy measures helped the agricultural sector to overcome the reduction in economic incentives associated with the real appreciation of the peso that occurred because of convertibility and provided a significant boost for agricultural growth. Expansion of the country's crop frontier, mainly in the northeast and northwest regions where soybeans are the main crop, was accompanied by increased productivity for major field crops.

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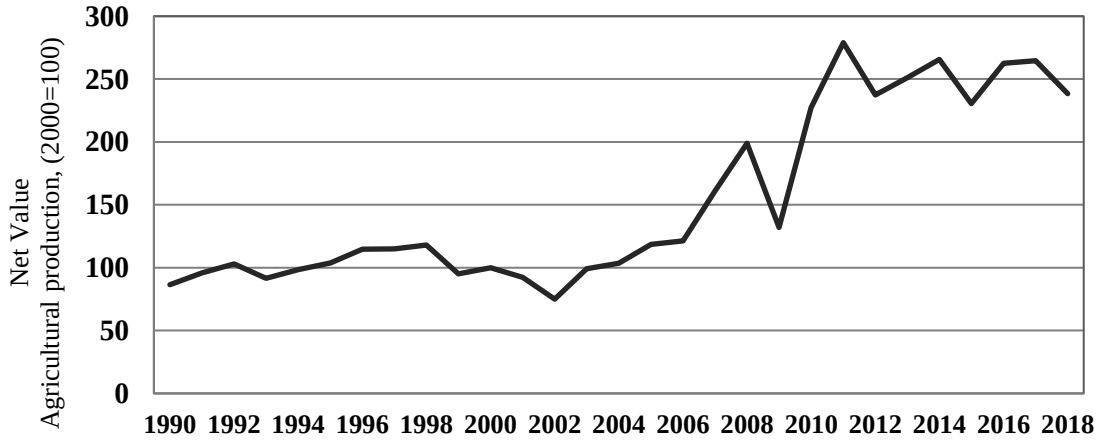
Argentina Growth Potential in Agriculture and Export Tax Policies -- *Continued*

In the wake of a currency devaluation and debt crisis in 2002, the Argentine Government reinstituted export taxes on a wide range of products—including soybeans, corn, and wheat—with the goal of increasing fiscal revenues and limiting the devaluation's impact on inflation. By 2007, export taxes on soybeans and soybean oil were at their highest levels: 35 percent and 32 percent, respectively. Taxes on soybean exports have been particularly high relative to other agricultural products given their importance to the overall economy and foreign exchange earnings. Despite the reappearance of export taxation, improvements in international agricultural prices resulted in rapid agricultural growth (albeit with some volatility in production) between 2002 and 2011 (fig. 1). Multiple changes in agricultural export policies have impacted the sector, but with growing production, Argentina was able to boost its presence in international markets.

The government elected in 2015 implemented policies that decreased or eliminated export taxes on principal agricultural commodities such as soybeans, corn, wheat, beef, and dairy (Sandoval, 2016). In the case of soybeans, beginning in 2016, there was an immediate export tax reduction of 5 percent on soybean products, but because of fiscal concerns, it was later determined that further reductions would be delayed until 2018. The initial plan was to reduce soybean export taxes by 0.5 percent per month from January 2018 until December 2019 (Sandoval, 2016).

However, because of a worsening economy, the government suspended the export tax reductions and announced in September 2018 that soybeans and soybean products would be subject to an export tax featuring both fixed and variable rates until December 2020. As of October 2019, the fixed export tax rate for all soybean products was 18 percent, and the variable rate was 4 Argentine pesos per U.S. dollar of export value. This variable rate changes in percentage terms depending on the exchange rate (Sandoval, 2018). The current projections include the re-introduction of the export taxes that had been eliminated in December 2015, but do not include any subsequent increases in those taxes following the October 2019 presidential election.

Figure 1. Net Value of Argentina's Agricultural Production (Index 2000 = 100)



Source: USDA, Economic Research Service using data from WDI, World Bank.

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Argentina Growth Potential in Agriculture and Export Tax Policies -- *Continued*

Table 1. Argentina: evolution of export tax policy on selected commodities

	2007	2012	2016	2018	2019*
Soybeans	35	35	30	26	28
Soybean meal	32	32	27	23	28
Soybean oil	32	32	27	23	28
Corn	25	20	0	0	10
Wheat	28	23	0	0	10

Sources: Numbers are percent values. Rosario Board of Trade, 2020. * The 2019 values are reflective of the rates as of October 2019, before changes were made by the Alberto Fernández and Cristina Fernández de Kirchner administration.

Argentina's tax rate reductions during 2015-18 raised the competitiveness of the country's agricultural sector by reducing production costs, improving profitability, and lowering export prices. Tax reform boosted area harvested and production for most commodities modeled. Higher net returns increased the area cultivated by nearly 2.5 million hectares over the period 2015-19, and production of grains and oilseeds rose 31.7 million metric tons (average over 2015-19). Revenue to corn producers rose 1.5 percent annually, despite a 2.6-percent increase in expected costs. As a result, 540,000 additional hectares of corn per year (average over 2015-19) were harvested. Over the same period, corn production increased 5 million metric tons per year (12.3 percent, average over 2015-19). Annual production of wheat increased by 5.6 million metric tons in response to the tax elimination and higher revenue. In the case of soybeans, the lower tax rate helped to narrow the gap between interior and F.O.B. (free on board) port prices (fig. 2).

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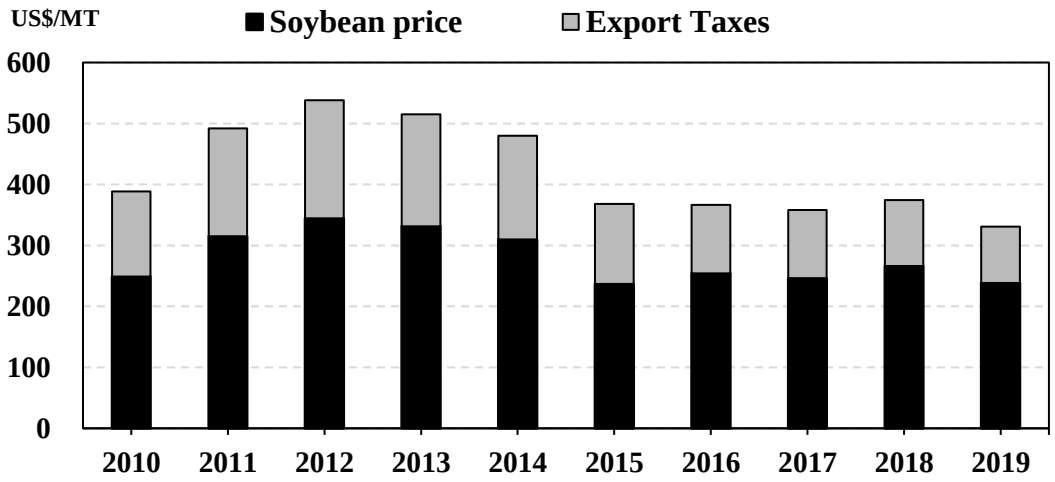
Argentina Growth Potential in Agriculture and Export Tax Policies -- Continued

Figure 2. Argentina's policy reform has reduced soybean export taxes, 2010-2019



Source: SAGPyA. Free alongside ship (f.a.s.) Rosario terminal price and export taxes.

Sources

Bolsa de Comercio de Rosario. 2020. *Mercado de Granos*. https://bcr.com.ar/es/mercados.

Sandoval, L. 2016. *Argentina Oilseed and Products Update*. U.S. Department of Agriculture, Foreign Agricultural Service.

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World Bank. 2019. *World Development Indicators*. https://data.worldbank.org/products/wdi

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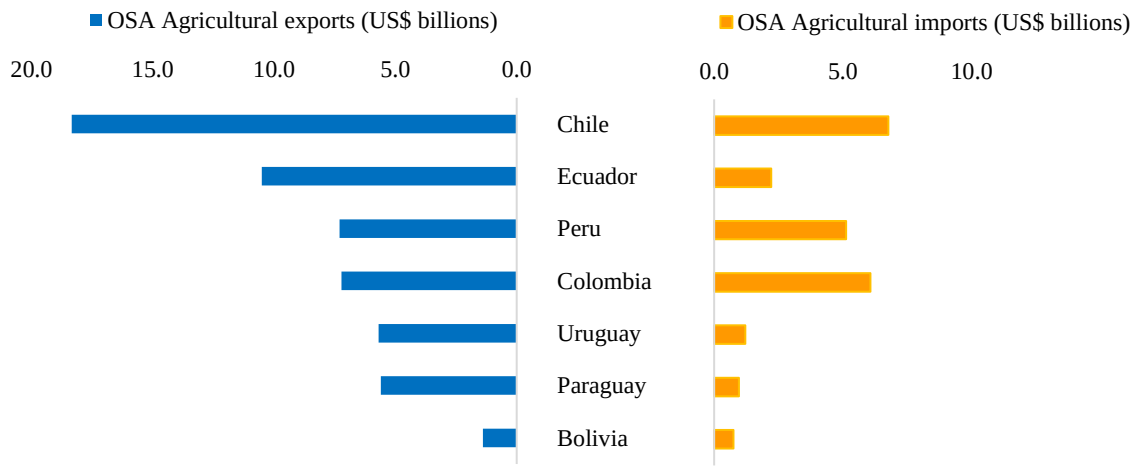
South America's Economic Slowdown and Implications

The "Other South America" (OSA) aggregation in the baseline projections include Bolivia, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela. These countries have long been associated with the production and export of a diverse range of agricultural commodities, including coffee from Colombia, bananas from Ecuador, and fruit from Chile, and more recently with oilseeds and oilseed products, food and feed grains, and livestock products from Paraguay and Uruguay.

Some OSA countries —along with Brazil and Argentina—compete with the United States in some international markets. At the same time, these countries substitute Northern Hemisphere suppliers in trade due to the contrasting timing of production in the Southern Hemisphere. This is particularly true in the case of Paraguay and Uruguay, important producers and exporters of oilseeds and oilseed products.

Agriculture accounts for a significant share of the total exports of the OSA countries. Trade data for the OSA countries show that the region is an important net exporter of agricultural commodities to the world, accounting for 5 percent of global food and agricultural exports ($56.1 billion) in 2016-18. The OSA region accounted for nearly 3 percent of global food and agricultural imports ($23 billion) over the same period, representing a high-potential market for U.S. agricultural exporters (TDM, 2020).

Figure 1. OSA Agricultural Exports and Imports, average 2016-2018 (US$ billions)



Source: Trade Data Monitor.

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South America's Economic Slowdown and Implications -- *Continued*

The United States is the largest destination market for agricultural exports from Colombia (representing 38 percent of the country's total exports), Peru (30 percent), Chile (26 percent), and Ecuador (21 percent). For Uruguay, China is the primary destination market, accounting for 21 percent of total exports, followed by Mercosur (14 percent), and the United States (6 percent). For Paraguay, 31 percent of agricultural exports are destined to Mercosur partners, compared with just 2 percent that is bound for the United States. For Bolivia, the major trading partner is Colombia (34 percent), while other neighboring countries of Peru, Ecuador, and Chile account for 30 percent of agricultural exports, and the United States accounts for 7 percent.

OSA countries are significant importers of agricultural products from the United States—especially Peru and Colombia, which implemented Trade Promotion Agreements with the United States in 2009 and 2012, respectively. The OSA region's annual agricultural imports from the United States reached $5.5 billion in 2016-18. For Colombia and Peru, the United States is also the leading foreign supplier of agricultural products, accounting for 42 percent and 26 percent, respectively, of the total. For Ecuador, the United States is also the leading source of agricultural imports (16 percent of the total), followed by Mercosur partners. For Paraguay, Uruguay, and Bolivia, Mercosur is the largest source of agricultural imports.

Prospects for OSA agricultural trade are influenced by macroeconomic factors underlying agricultural supply and demand in the OSA region. These macroeconomic factors have important implications for the United States because of the potential impact on their export competitiveness, production potential, and agricultural imports.

Recent economic slowdown in Other South America region

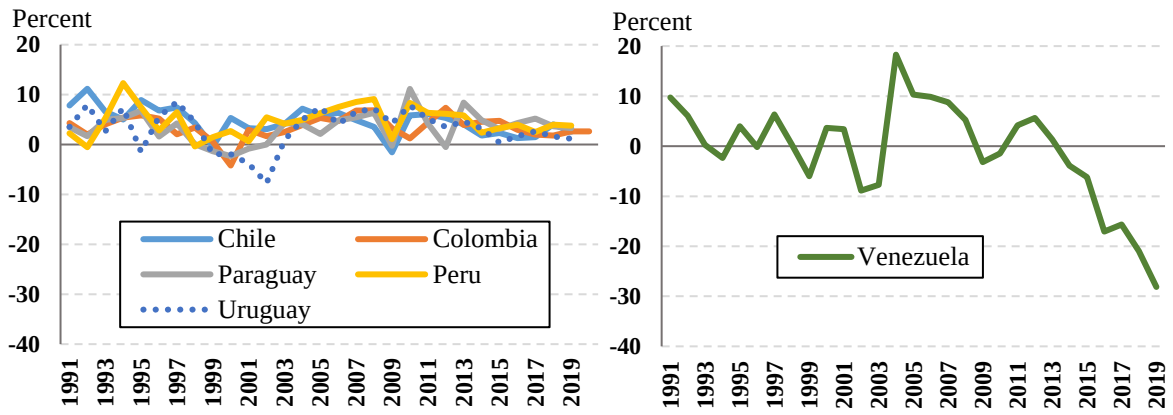
The recent economic slowdown in the OSA region—as was the case for most developing regions—is mainly explained by the slump in commodity prices after the long boom initiated in 2003. While the resulting GDP growth looks similar across countries, the exception is Venezuela (fig. 2). Two macroeconomic factors are behind these similar patterns: fiscal deficits and exchange rate regimes.

The fiscal deficit among the more similar countries (Chile, Colombia, Paraguay, Peru, and Uruguay) averaged 4 percent of GDP during the 2015-19 period, whereas Venezuela's fiscal deficit averaged 25 percent (ERS, Macro Data Set). Venezuela attempted to keep nominal exchange rates constant but eventually implemented a sharp devaluation. This combination of large fiscal deficits and marked depreciations generated strong inflationary pressures that ultimately worsened into the current hyperinflation situation (ERS, Macro Data Set).

During the commodity boom, the currencies of Chile and Peru appreciated less than the currencies of Colombia, Paraguay, and Uruguay, as the former set of countries had both fiscal surpluses and higher accumulation of reserves. As a consequence, there were sharper compensatory nominal devaluations in Colombia, Paraguay, and Uruguay. Low commodity prices have hampered economic growth and weighed on public finances, but the external position of the OSA countries is expected to remain strong (with the exception of Venezuela) due to flexible exchange rates regimes. While the OSA countries are important suppliers of soybean and soybean products (mostly from Paraguay and Uruguay), they also are important importers of agricultural products. -- *Continued*

South America's Economic Slowdown and Implication -- *Continued*

Figure 2. GDP Growth Rate in Percent



Source: USDA, Economic Research Service, International Macroeconomic Data. https://www.ers.usda.gov/data-products/international-macroeconomic-data-set

Other South America agricultural trade projections

Agriculture accounts for an important share of the total exports of the OSA countries. Paraguay and Uruguay lead the region in terms of agricultural exports and net agricultural exports, thanks to their regional importance as exporters of grains, oilseeds, and animal protein. Because many farmers in the region lack competitiveness due to high production and logistical costs, the OSA countries, principally Colombia, are expected to increase corn imports over the projection period. Nearly all corn imports in Colombia are destined to feed poultry, whose meat is the preferred animal protein in Colombian diets.

In response to feed grain demand from livestock producers, annual corn imports by the OSA countries are expected to rise by 3.4 million tons (2.5 percent annually), and reach 17.4 million tons in 2029/30. Sorghum imports by the OSA countries are projected to remain steady—around 292,000 per year—from 2020/21 through 2029/30. This steadiness follows the period of several years (2015-18) when the region's sorghum imports decreased significantly, as feed importers shifted to corn. Annual wheat imports by the OSA countries are projected to increase to 9.5 million tons by 2029/30, adding about 1.0 million tons to these imports, due to rising incomes and growing populations. Soybean exports from the OSA countries, principally Paraguay and Uruguay, are projected to grow by nearly 1 million tons (11.5 percent) during the projection period.

Sources

Trade Data Monitor (TDM). 2020. Trade Data Monitor, Inc. Subscription service.

USDA, Economic Research Service, International Macroeconomic Data. https://www.ers.usda.gov/data-products/international-macroeconomic-data-set.

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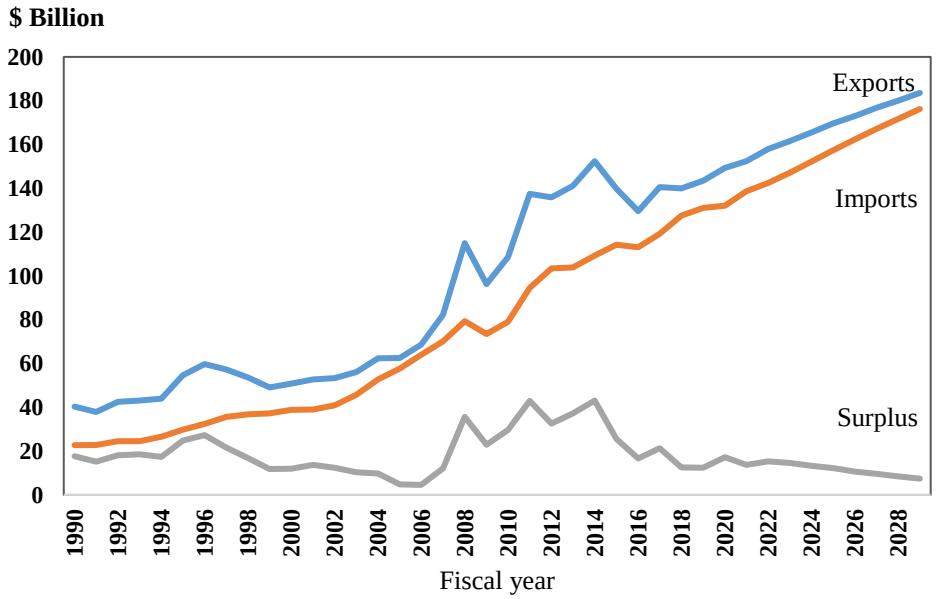
U.S. Agricultural Trade Projections

The value of U.S. agricultural exports is expected to increase in the fiscal year 2020 and continue growing over the rest of the decade at 2.6 percent per year. Sustained growth in agricultural exports reflects strengthening agricultural demand from steady global economic growth. At the same time, domestic economic growth and steadily growing demand for a diverse set of agricultural goods drive increases in the value of imports.

- Crop prices are expected to rise slowly but steadily throughout the projection period. Animal product and livestock prices are expected to remain mostly steady or slightly down over the next ten years, while volumes are expected to increase steadily. The result is a gradual increase in the value of U.S. agricultural exports. Economies around the world continue to grow, with developing countries maintaining a higher growth rate than the developed countries. This growth helps drive an increase in exports. The U.S. dollar maintained value with little volatility in 2019, and is expected to remain relatively strong throughout the remainder of the projection period, though weakening somewhat. While a strong dollar serves to reduce export demand, U.S. export values are expected to surpass the 2014 record level in the second half of the decade.

- Top U.S. export commodities to the world include bulk items such as soybeans, corn, and wheat. However, exports of high-value products, including horticultural and animal products, comprise the majority of exports and will continue to account for roughly two-thirds of export value throughout the projection period.

U.S. agricultural trade value, by fiscal year



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U.S. Agricultural Trade Projections -- *Continued*

- Growing consumer incomes, coupled with a demand for a wide variety of food, drives increases in U.S. agricultural imports over the projection period. Throughout the next ten years, the value of imports rises, surpassing $176 billion by fiscal year 2029, up from $131 billion in 2019. The highest growth commodity sector is expected to be horticultural products, at more than 6 percent per year, and largely driven by fresh fruit and vegetable sales. The U.S. largely imports products that are not widely grown domestically or are out of season, as well as high-value products for which demand tends to respond less to changes in the value of the dollar.

- The 2019 fiscal year ended with an agricultural trade surplus of nearly $12.5 billion. In the short term, the trade balance is expected to increase, but trend downward as the value of agricultural imports starts to grow slightly faster than the value of agricultural exports in the longer term. By the end of the projection period, the trade surplus is expected to be less than $8 billion.

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U.S. Agricultural Trade Projections -- *Continued*

Table 25. U.S. agricultural trade long-term projections, fiscal years

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
						Billion dollars						
Agricultural exports (value):												
Livestock, poultry, and dairy	29.5	31.4	34.0	35.1	36.7	37.8	38.3	39.0	39.7	40.4	41.4	42.3
Livestock products	19.1	20.7	22.5	23.1	24.4	25.3	25.5	26.0	26.4	26.8	27.5	28.1
Dairy products	5.6	5.7	6.4	6.5	6.6	6.7	6.9	7.1	7.4	7.6	7.8	8.0
Poultry products	5.0	5.0	5.2	5.5	5.7	5.8	5.9	5.9	6.0	6.0	6.1	6.1
Grains and feeds	29.4	28.4	28.1	28.9	29.8	30.3	31.4	32.2	33.0	33.8	34.4	35.0
Coarse grains	9.4	9.2	9.0	9.2	9.6	9.8	10.1	10.5	10.7	11.1	11.3	11.5
Feeds and fodder	7.5	7.3	7.1	7.3	7.5	7.6	7.9	8.1	8.3	8.5	8.6	8.7
Oilseeds and products	33.1	35.4	36.6	36.3	37.9	39.1	40.2	41.5	42.0	42.9	43.2	44.0
Soybeans and products	28.9	31.0	32.2	31.9	33.4	34.4	35.4	36.6	37.0	37.8	38.1	38.7
Horticultural products	34.6	35.0	36.7	37.6	38.4	39.0	39.7	40.4	41.3	42.1	43.0	43.8
Fruits and vegetables, fresh	7.3	7.1	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.4	7.4
Fruits and vegetables, processed	7.0	6.9	7.2	7.2	7.1	7.1	7.0	7.0	7.0	6.9	7.0	6.9
Tree nuts, whole and processed	8.8	9.0	9.6	10.1	10.4	10.7	11.0	11.4	11.8	12.2	12.6	13.0
Cotton	4.8	4.4	4.6	5.1	5.3	5.5	5.6	5.7	5.9	6.0	6.2	6.4
Sugar and tropical products	5.8	5.9	6.2	6.4	6.6	6.8	7.0	7.3	7.5	7.7	8.0	8.2
Other exports [1]	2.8	2.9	3.0	3.1	3.1	3.2	3.3	3.4	3.6	3.7	3.8	3.9
Total agricultural exports	140.0	143.4	149.2	152.4	157.9	161.6	165.5	169.6	172.9	176.7	180.0	183.6
Major bulk products [2]	47.5	48.4	49.6	50.2	52.4	53.6	55.2	56.8	57.7	59.0	59.7	60.6
High-value product exports [3]	92.5	95.0	99.6	102.1	105.5	108.0	110.3	112.8	115.2	117.7	120.3	122.9
High-value product share	66.1	66.2	66.8	67.0	66.8	66.8	66.7	66.5	66.6	66.6	66.8	67.0
						Million metric tons						
Agricultural exports (volume):												
Bulk commodity exports	135.3	132.8	140.5	144.1	147.5	150.2	153.2	155.4	158.1	160.0	161.9	163.5
						Billion dollars						
Agricultural imports (value):												
Livestock and dairy products	17.1	17.8	17.7	17.0	16.8	17.0	17.4	17.8	18.1	18.4	18.7	19.1
Livestock and meats	12.9	13.3	13.3	12.4	12.0	12.2	12.6	12.8	13.0	13.2	13.4	13.6
Dairy products	3.4	3.7	3.7	3.9	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6
Grains and feeds	12.8	13.4	14.0	14.5	15.0	15.4	16.0	16.6	17.3	17.9	18.4	19.0
Grain products	8.6	9.4	9.7	10.2	10.7	11.3	11.8	12.4	12.9	13.5	14.0	14.5
Oilseeds and products	9.7	8.8	9.4	9.7	10.0	10.3	10.6	10.9	11.2	11.5	11.6	11.8
Vegetable oils	6.3	5.5	6.3	6.6	6.9	7.1	7.3	7.6	7.8	8.1	8.2	8.3
Horticultural products	63.2	66.2	66.0	72.9	76.6	80.2	84.0	87.9	91.7	95.4	99.0	102.7
Fruits and vegetables, fresh	21.5	22.9	23.4	25.4	26.7	28.1	29.4	30.7	32.0	33.3	34.6	35.9
Fruits and vegetables, processed	11.1	11.2	11.5	12.0	12.5	12.9	13.3	13.7	14.2	14.6	15.0	15.4
Sugar and tropical products	23.0	23.1	23.2	22.6	22.2	22.2	22.1	22.0	21.9	21.6	21.5	21.3
Sugar and related products	4.7	4.5	4.6	4.5	4.5	4.4	4.4	4.4	4.3	4.3	4.2	4.2
Cocoa, coffee, and products	10.6	11.0	11.0	10.9	10.8	11.0	11.0	10.9	10.9	10.9	10.9	10.9
Other imports [4]	1.7	1.8	1.8	1.9	2.0	2.0	2.1	2.1	2.2	2.3	2.3	2.4
Total agricultural imports	127.5	131.0	132.0	138.7	142.5	147.1	152.2	157.3	162.4	167.1	171.6	176.2
Net agricultural trade balance	12.5	12.5	17.2	13.7	15.4	14.5	13.3	12.3	10.6	9.6	8.4	7.4

Sources: U.S. Department of Agriculture and U.S. Department of Commerce, Census Bureau.

U.S. trade value projections were completed in December 2019. For updates of the nearby year forecasts, see USDA's *Outlook for U.S. Agricultural Trade* report, published in February, May, August,

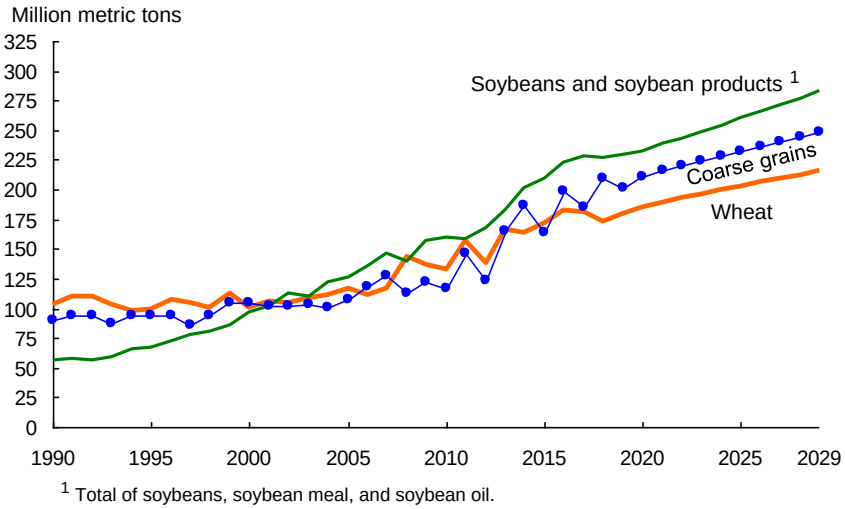
[1] Includes planting seeds, unmanufactured tobacco, and cotton linters.

[2] Includes bulk grains, soybeans, cotton, and tobacco.

[3] The category "high-value product exports" is calculated as total exports less bulk commodities. The category includes semiprocessed and processed grains and oilseeds, animals and animal products, horticultural products, and sugar and tropical products.

[4] Includes planting seeds, unmanufactured tobacco, and cotton.

Global trade: Wheat, coarse grains, and soybeans and soybean products



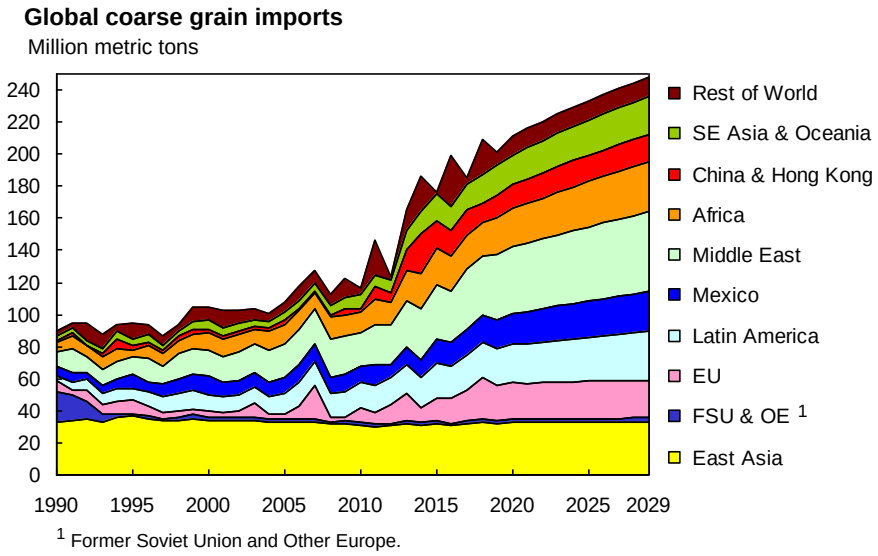
[1] Total of soybeans, soybean meal, and soybean oil.

Global trade in soybeans and soybean products has risen rapidly since the early 1990s and surpassed global trade in wheat and in total coarse grains (corn, barley, sorghum, rye, oats, millet, and mixed grains). Continued strong growth in global demand for vegetable oil and protein meal—particularly in China, the EU, and other Asian countries—is expected to maintain soybean and soybean-products trade well above both wheat and coarse-grain trade throughout the next decade.

- Population growth and urbanization are significant factors driving demand for agricultural products, even though population growth is slowing. Global income growth outpaces population growth, further boosting agricultural demand toward higher-value food products and protein consumption. World oilseed consumption is projected to rise 17.9 percent over the next decade, compared with 16.7 percent for meat, 12.4 percent for coarse grains, 8.9 percent for wheat, and 4.0 percent for rice. On a per capita basis, world food use of rice and wheat decreases slightly over the projection period as consumers in developing countries, with rising incomes, increasingly favor meat consumption.

- Increasing demand for grains, oilseeds, and other crops provides incentives to expand global area under cultivation and intensify crop production. Globally, the total area planted to grains, oilseeds, and cotton is projected to expand by about 4.3 percent from 2020 to 2029. Global production of grains, oilseeds, and cotton is projected to grow 10.8 percent from 2020 to 2029 (1.14 percent per year to 2029/30) due to higher area and rising yields. World consumption increases by 11.4 percent over the projection period.

- Area expands more rapidly in countries with a reserve of arable land, lower production costs, and policies that allow farmers to respond to prices. The largest projected increases in planted area are in the regions of South America, Sub-Saharan Africa, and Southeast Asia. Large expansions in Brazil and smaller expansion in Argentina are projected, including bringing uncultivated land into soybean production in response to increasing world demand for protein meal and vegetable oils. In Southeast Asia, Indonesia accounts for the greatest increase in new cultivated area, as palm oil area is projected to increase. In most other countries, area expansion is slower, and in some countries, the cultivated area is contracting.

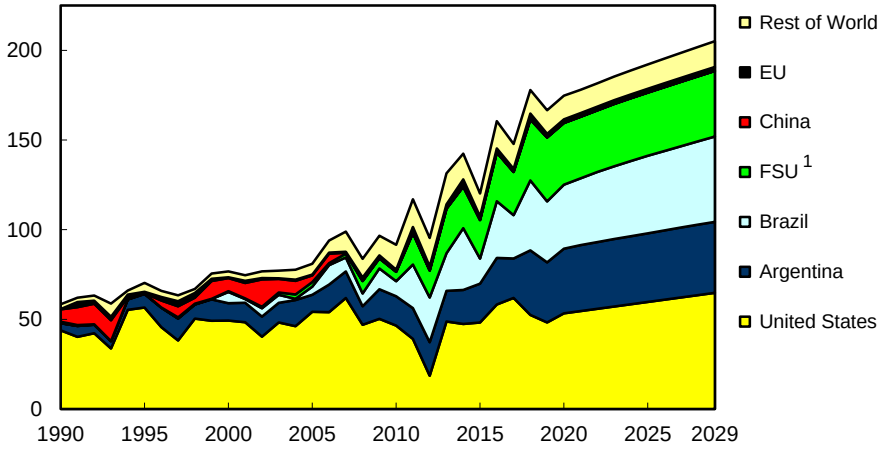


World coarse grain trade is projected to increase by 36.9 million tons (17 percent) between 2020/21 and 2029/30. Expansion of livestock production in feed-deficit countries continues to be the main driver of growth in coarse grain imports. Key growth markets are the Middle East, Africa, Southeast Asia, and Latin America (except for Argentina and Brazil). Corn trade is expected to account for about 82.5 percent of the world's coarse grain trade through 2029/30, with barley's share expected to increase slightly to 14.5 percent. By 2029/30, the world's largest coarse grain importers are Mexico, EU, Japan, China, Iran, Saudi Arabia, Egypt, Vietnam, and South Korea.

- China's coarse grain imports are projected to increase by 2.3 million tons by 2029/30, due to increased imports of mostly barley, and small increases of corn and sorghum. Corn imports are projected to be 6.9 million tons in 2020/21 and to rise slightly to 7.0 million tons by 2029/30, as China's feed and industrial processing demand grow while stockpiles diminish. China's corn output is limited by curbs on production in erodible and drought-prone regions, but imports are also limited by a quota. Imports of relatively lower priced sorghum and barley increase over the projection period.
- Together, Africa and the Middle East account for about 40 percent of the growth in world coarse grain imports through 2029/30. Population growth and rising incomes foster strong demand growth for livestock products, while limited arable land and water constrain domestic grain production. By 2029/30, these regions will together account for 32.3 percent of world coarse grains imports. Iran, Saudi Arabia, and Egypt are projected to account for 19 percent of world coarse grain imports by 2029/30.
- Imports by Mexico account for 10.8 percent of the increase in global coarse grain trade by 2029/30. Growing demand for livestock products supports higher domestic meat production, which in turn requires additional feed. Mexico's corn imports increased each of the past seven years, reaching 17.5 million tons in 2019/20, and are projected to rise from 18.4 million tons in 2020/21 to 24.7 million tons in 2029/30, which would make Mexico the world's largest corn importer. Mexico's sorghum imports are projected to remain steady at 600,000 tons over the projection period.
- Together South Asia, Southeast Asia, and Oceania coarse grain imports rise 35.5 percent to 28.2 million tons by 2029/30 in response to increased demand from livestock producers. These three regions account for 20.1 percent of the growth in world corn imports. Vietnam, Indonesia, and Thailand are among the fastest growing corn-importing countries in this region. Bangladesh has recently increased corn imports to provide feed for its expanding poultry production. Indonesia has implemented policies to limit imports of both corn and feed wheat to support domestic corn production.

Global corn exports

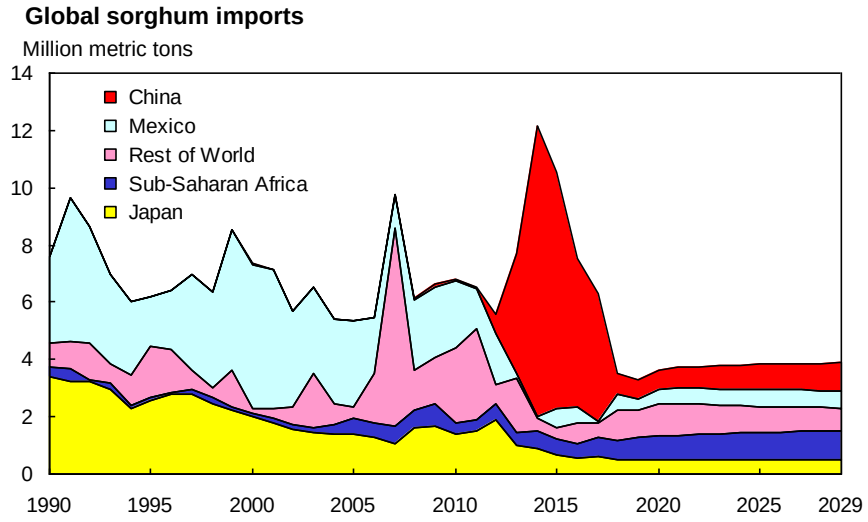
Million metric tons



[1] Former Soviet Union.

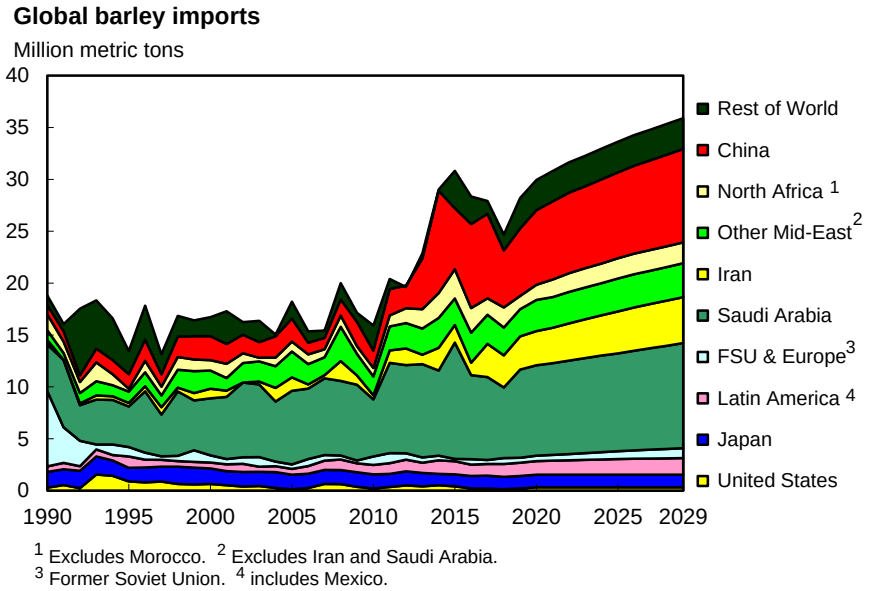
U.S. corn exports are expected to increase by 11.4 million tons over the projection period and reach 64.8 million tons in 2029/30. The U.S. slightly increases its share of world corn exports (from 30.5 to 31.6 percent) over the projection period. The U.S.'s share of exports declined from 59 percent during the 2001/02 to 2010/11 period to a more recent 35.4 percent over the prior five years.

- Annual corn exports by the countries of the FSU, mostly Ukraine, are expected to rise by 2.2 million tons (6.3 percent) and reach 36.6 million tons in 2029/30. The country's favorable resource endowments, increasing economic openness, wider use of hybrid seed, and greater investment in the agriculture sector all stimulate corn production. Although feed use of corn in the FSU countries rises in the projections, the region becomes the world's fourth-largest corn exporter after the United States, Brazil and Argentina. By itself, Ukraine is the fourth-largest exporter.
- Argentina is the world's third-largest exporter of corn. Argentine corn production is projected to increase rapidly, greater area planted and yield growth, to meet domestic feed demand and export demand. Exports increase from 36.0 million tons in 2020/21 to 39.6 million tons by 2029/30, an increase of 9.8 percent by 2029/30. Projections for Argentina are based on policies in place as of October 2019.
- Brazil's annual corn exports more than tripled over the past decade and averaged 28.5 million tons in the past five years. Production of second-crop corn following soybeans, much of which takes place in the Center-West, continues alongside soybean expansion onto new cropland. This growing agricultural region requires less fertilizer use since it follows soybeans and is better positioned for exports than for domestic use, as poultry production is concentrated in the southern part of the country. Also, the second crop is harvested when port capacity is less constrained by soybean shipments. For these reasons, much of the production of the second corn crop is exported. The export increase reflects greater corn area, rising yields, improved export infrastructure, and moderately increasing world prices. Exports rise by from 35.7 million tons in 2020/21 to 47.6 million tons by 2029/30.
- EU exports grow marginally and reach 2.2 million tons by the end of the projection period. EU corn imports are projected to increase by 0.65 million tons to 22.9 million tons by 2029/30. Corn exports from the Other Europe region, mostly from Serbia to the EU, increase by 26.6 percent over the projection period and reach 2.7 million tons by 2029/30.
- South Africa's exports increase by 366,000 tons to 2.5 million tons by2029/30. The rest of Africa's corn exports decrease from 680,000 tons in 2020/21 to 507,000 tons over the projection period.



World sorghum trade is projected to increase from 3.7 million tons in 2020/21 to 3.9 million tons by 2029/30, growing by 6.5 percent over the coming decade. The spike in China's imports, 2014/15 - 2015/16, is not expected to recur. A high tariff imposed on U.S. sorghum in 2018 is expected to restrain growth in China's sorghum imports from the United States. Most countries maintain stable imports through 2029/30. Mexico and Japan account for 29 percent of global imports through the projection period.

- The surge in U.S. sorghum exports from 2013/14 through 2016/17 was halted in 2018/19 after China imposed high import tariffs on U.S. sorghum. Australia is expected to export sorghum to China for the feed market. U.S sorghum exports are projected to be 2.5 million tons in 2020/21 and stable through 2029/30. The U.S. sorghum export trade share decreases slightly to 65 percent by 2029/30.
- China is projected to remain the leading sorghum importer, but imports are projected to remain steady at near 1 million tons from 2020/21 through 2029/30. China's sorghum demand is expected to be sustained by limits on corn imports. Australia could capture some of the China sorghum import market.
- Mexico's sorghum imports remain steady over the projection period, after decreasing significantly over the past several years when alternative feed grains, especially corn, were more affordable. Mexico's importers shifted from sorghum to corn. Mexico's annual sorghum imports are projected to be 600,000 tons from 2020/21 through 2029/30.
- Japan is the world's third-largest sorghum importer. Its sorghum imports are projected to be stable at 500,000 tons annually over the next decade.
- The United States accounts for more than 65 percent of world sorghum exports. Australia is the world's second-largest sorghum exporter through the projection period. Australia's sorghum exports, mainly to China, are projected to increase slightly to 500,000 tons by 2029/30.
- Argentina is expected to be the world's third-largest sorghum exporter during the coming decade. Sorghum exports are projected to be nearly 300,000 tons per year. The main markets for Argentina's projected sorghum exports are Japan, Chile, Saudi Arabia, and Colombia.



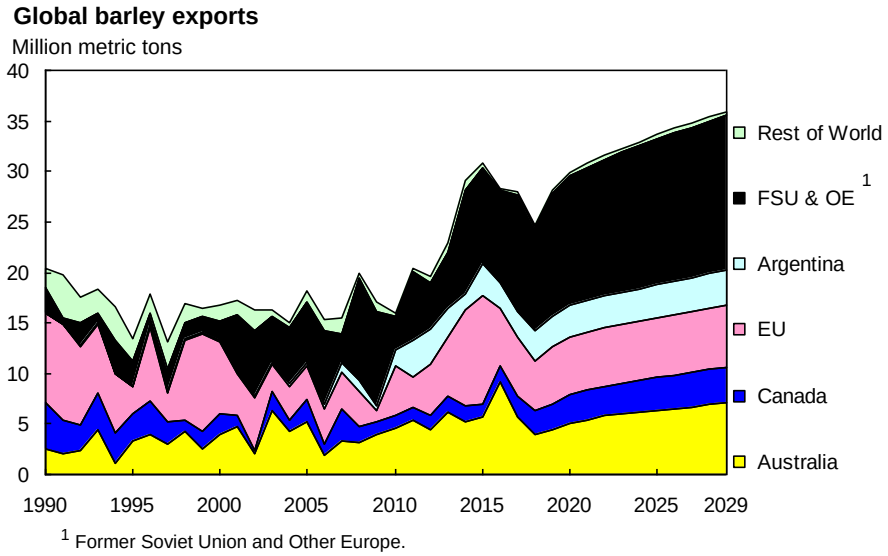
Global barley trade is projected to expand from 30.0 million tons to 35.9 million tons by 2029/30. World demand for feed barley increased sharply in 2013/14 and 2014/15 due to strong demand in China. China's demand for feed barley increases throughout the projection period with barley imports up 25.0 percent by 2029/30. Feed barley imports by the Middle East, North Africa, and Latin America are also projected to rise over the next decade. Total barley imports increase by 20.6 percent for North Africa, 31.2 percent for Latin America, and 18.8 percent for the Middle East by 2029/30.

- Saudi Arabia is the world's largest importer of barley. Its barley imports are projected to increase from 8.7 million tons in 2020/21 to 10.1 million tons by 2029/30. Despite the increase, Saudi Arabia's share of world barley imports remains stable near 28.5 percent. Saudi Arabia uses imported barley primarily as feed for sheep, goats, and camels. Iran increases barley imports by 34.4 percent over the projection period, from 3.3 million tons in 2020/21 to 4.4 million tons by 2029/30.

- Other countries in the Middle East are projected to increase barley imports from 2.6 million tons in 2020/21 to 3.0 million tons by 2029/30. Morocco, Jordan, and the United Arab Emirates, respectively, are the third, fourth, and fifth-largest barley importers in the Middle East in 2019/20. Turkey has stable imports over the projection period at 0.3 million tons.

- China is expected to maintain strong demand for feed barley imports, but the volume will be less than the peak reached in 2013/14. China's barley imports are projected to increase from 7.2 million tons in 2020/21 to 9.0 million tons by 2029/30.

- World demand for malting barley is boosted by strong growth in beer demand in some developing countries, most notably China. China's projected production of malting barley grows relatively little, so rising brewery demand is met by imports. China remains the world's largest importer of malting barley, with Australia and Canada the main suppliers.



Russia, Australia, and the EU are the three largest barley exporters during the projection period, followed by Ukraine, Argentina, and Canada. Exports, driven by strong global demand, increase for most countries over the projection period. The world export shares of Russia and Australia increase to 20.5 percent and 19.8 percent, by 2029/30, respectively. Ukraine's barley export share decreases from 16.1 percent to 14.5 percent by 2029/30. Canada's export share is stable near 9.9 percent. The EU's world share of barley exports decrease from 18.9 percent to 17.1 percent by 2029/30.

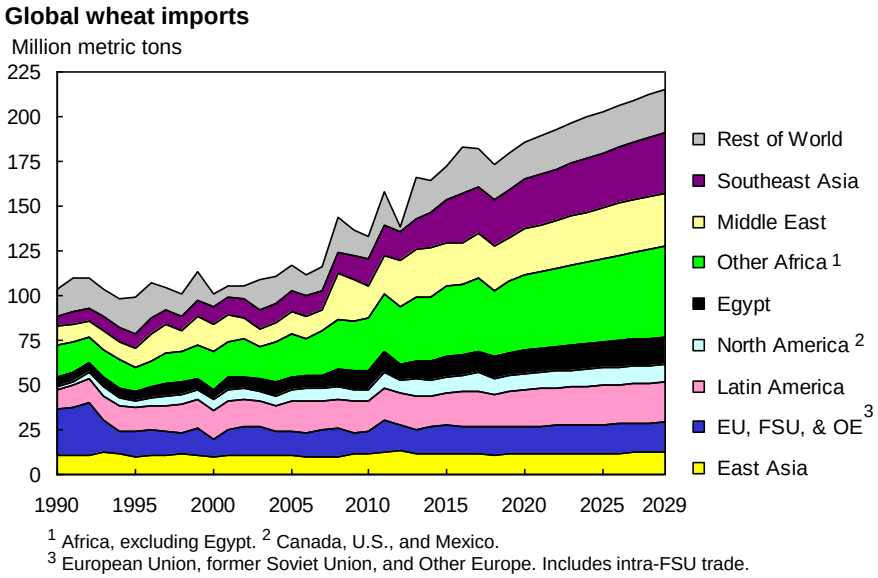
- Australia's barley exports are expected to increase during the coming decade from 5.0 million tons in 2020/21 to 7.1 million tons by 2029/30. In 2017/18, Australia became the second-largest barley exporter as Russia expanded production and surpassed Australia's exports.

- FSU countries' barley exports are projected to increase from 12.9 million tons in 2020/21 to 15.3 million tons in 2029/30. Russia, Ukraine, and Other FSU increase barley exports by 28.3 percent, 8.3 percent, and 15.9 percent, respectively, over the projection period. Russia's exports are projected at 7.3 million tons and Ukraine's at 5.2 million tons by 2029/30. Kazakhstan is expected to increase its barley production and exports, especially to Iran.

- The EU's barley exports are projected to increase from 5.7 million tons in 2020/21 to 6.1 million tons by 2029/30, in part due to the EU's logistical comparative advantage in meeting increased barley demand from the Middle East.

- Argentina's barley exports are projected to increase from 3.1 million tons in 2020/21 to 3.4 million tons by 2029/30. Major purchasers of Argentina's feed barley are Saudi Arabia, United Arab Emirates, other Middle East countries, and North African countries. Most of Argentina's malting barley exports are to Brazil and neighboring countries.

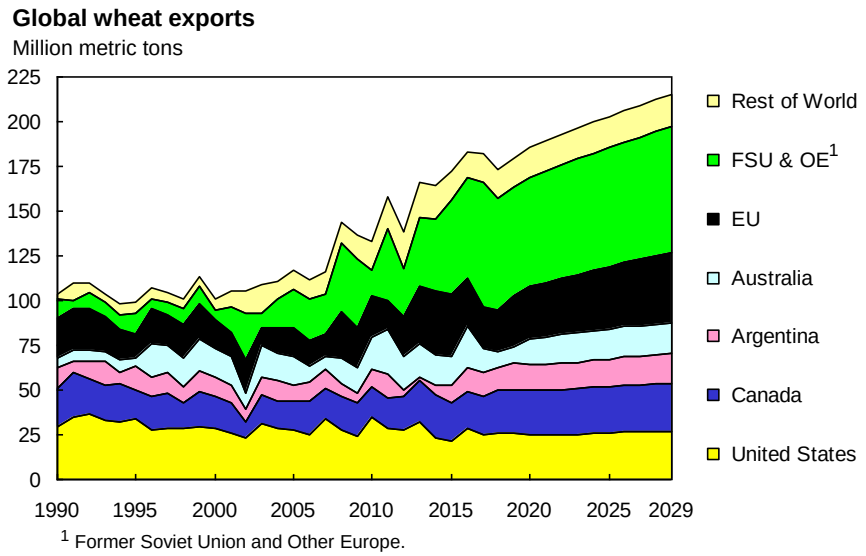
- The substantial price premium for malting barley will continue to influence planting decisions in Canada and Australia, where malting barley's share of total barley area is expected to rise over the next decade. Canada and Australia's combined total barley exports are expected to rise by 34 percent over the projection period. However, Canada's total barley area continues to decline as canola production increases in response to growing demand and higher profitability.



[1] Africa, excluding Egypt. [2] Canada, U.S., and Mexico.
[3] European Union, former Soviet Union, and Other Europe. Includes intra-FSU trade.

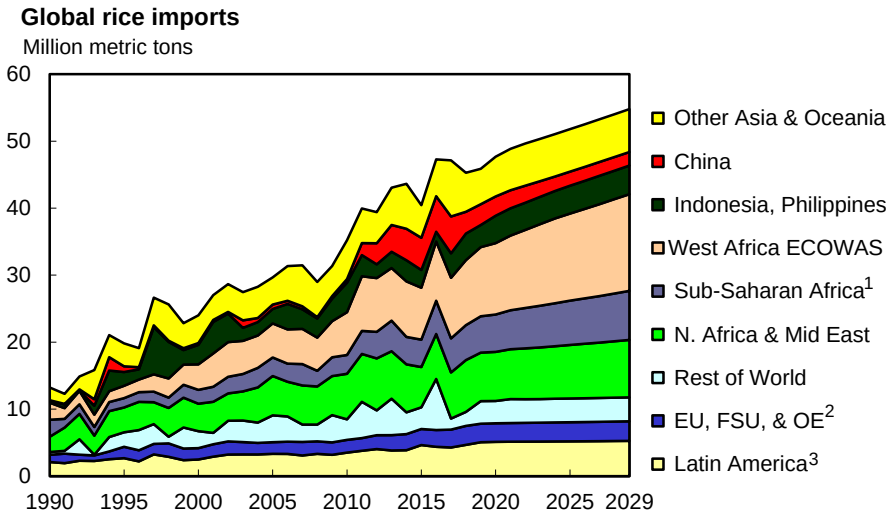
World wheat trade (including flour) is projected to expand by nearly 29.7 million tons (16 percent) between 2020/21 and 2029/30, reaching 215.6 million tons. Growth in wheat imports is concentrated in developing countries where income, urbanization, and population gains drive increases in demand. Markets, where the largest import increases, are projected, include Sub-Saharan Africa, Egypt, Indonesia, the Middle East, and Southeast Asia.

- Wheat imports are projected to rise in many developing countries due to increasing per capita wheat consumption, strong population growth, limitations to expansion of domestic wheat production, and increasing wheat feed demand. As incomes rise in Indonesia, Vietnam, and other Asian countries, demand for instant noodles and bakery products is expected to increase, supporting wheat imports.
- Egypt and Indonesia remain the world's leading wheat importers, with annual imports climbing to 15.7 million tons and 13.1 million tons, respectively, by 2029/30. Indonesian imports are growing rapidly due to population growth, increased consumption of non-traditional instant noodles, and feed demand. The Philippines, Brazil, and Bangladesh are the third-, fourth-, and fifth-largest wheat importing countries in the projections, increasing to 8.7 million, 8.1 million, and 7.6 million tons by 2029/30, respectively. Vietnam, Thailand, and Malaysia are expected to collectively add 2.5 million tons to imports by 2029/30, due to rising incomes and populations, more diversified food consumption and demand for feed wheat. These eight countries are expected to add 10 million tons to imports over the projection period, accounting for 33 percent of the increase in global imports.
- By 2029/30, countries in Africa and the Middle East are projected to increase their wheat imports by 10.9 million and 4.8 million tons, respectively, accounting for 53 percent of the total increase in world wheat trade. The Saudi Arabian Government recently reversed a policy that had created a near total ban on wheat production. However, greater domestic wheat production is not expected to fully satisfy demand, and imports for Saudi Arabia are projected to increase to 4.1 million tons by 2029/30.
- China has a surplus of wheat, but import demand remains strong due to high domestic prices and a deficit of wheat suitable for use in bakery and specialty products. China's wheat imports increase to 4.5 million tons by 2029/30. Imports by Japan are expected to decrease slightly due to a declining population, while South Korea and Taiwan wheat imports grow slightly. Imports for these latter three East Asian countries are collectively projected to increase to 12.3 million tons by 2029/30.
- Historically, India has alternated between being a wheat importer in some years and an exporter in other years, depending on government wheat supplies, trade policies, and weather expectations. India is expected to be a marginal net wheat exporter during the projection period, exporting an annual average of 485,000 tons while importing about 20,000 tons.



The eight largest wheat exporters (Russia, the EU, United States, Ukraine, Canada, Australia, Argentina, and Kazakhstan) are projected to account for 91 percent of world trade in 2029/30. Over the projection period, the EU exhibits the fastest growth in export share from 15.6 percent to 18.1 percent by 2029/30. Previously, Russia exhibited the fastest growth in world export share, rising from 4 percent in the late 1990s to 23 percent by 2017/18, but its share declines to 18 percent by 2029/30.

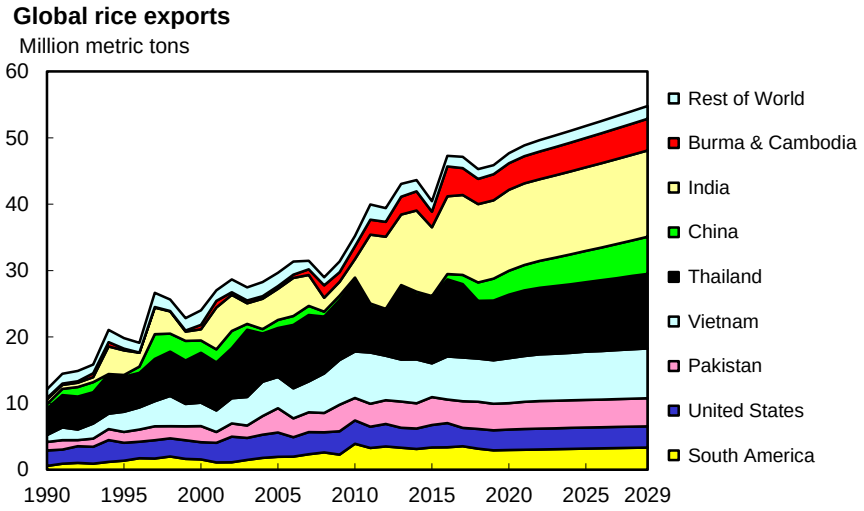
- U.S. wheat exports are projected to increase gradually from 25.2 million tons to 26.5 million tons over the coming decade. The U.S. share of world exports decreases from 13.5 percent in 2020/21 to 12.3 percent by the end of the projection period in 2029/30.
- Wheat exports by Russia and Ukraine are expected to continue the pattern of strong growth and are projected to climb from 59.9 million tons in 2020/21 to 69.3 million tons in 2029/30. This increase accounts for 31 percent of the projected increase in world wheat exports.
- EU wheat exports are projected to reach 39 million tons by 2029/30, a 3.35 percent annual growth rate. Rising EU exports are supported by increased production due to higher yields and a decline in domestic wheat feed use. Turkey is expected to expand exports from 6.6 million tons in 2020/21 to 7.2 million tons by 2029/30.
- Canada's wheat exports are projected to grow from 24.8 million tons in 2020/21 to 27.0 million tons in 2029/30. Yield growth is expected to offset a slight decline in area, lifting Canada's wheat production, while net declining domestic use helps to increase exportable supplies.
- Based on expectations of a return to more typical weather patterns and production levels, Australia's projected wheat exports increase by 17.8 percent to 17.3 million tons by 2029/30. Australia is a major exporter to Southeast Asia and the Middle East, both of which exhibit strong growth in wheat demand and imports.
- Argentina's wheat area is expected to grow despite the government's new export taxes on commodities. Exports have continued to increase from the low levels of 2012/13 and 2013/14 and are expected to rise throughout the projection period, from 14.3 million tons in 2020/21 to 16.8 million tons in 2029/30, surpassing the recent record of 14.5 million tons in 2019/20. Argentine exports are supported by demand from MERCOSUR trade partner Brazil, for which imports are projected to increase 0.5 percent annually to total 8.1 million tons by 2029/30.



[1] Exclude 15 member countries in Economic Community of West African States, ECOWAS. [2] European Union, former Soviet Union, and Other Europe. [3] Includes Mexico.

Global rice trade is projected to grow at an annual rate of 1.4 percent from 2020/21 to 2029/30, reaching 54.8 million tons by the end of the projection period. The main factors driving this expansion in trade are steady growth in demand—largely due to population, urbanization, and income growth in Sub-Saharan Africa—and the inability of importing countries in the region to raise production at the same rapid pace as consumption. Import growth in other regions is more modest and due mostly to population growth. From the early 1990s to 2017/18, world rice trade as a share of world consumption rose from 4 percent to 9.8 percent. This upward trend is expected to continue, with the share projected to reach 10.5 percent by 2029/30.

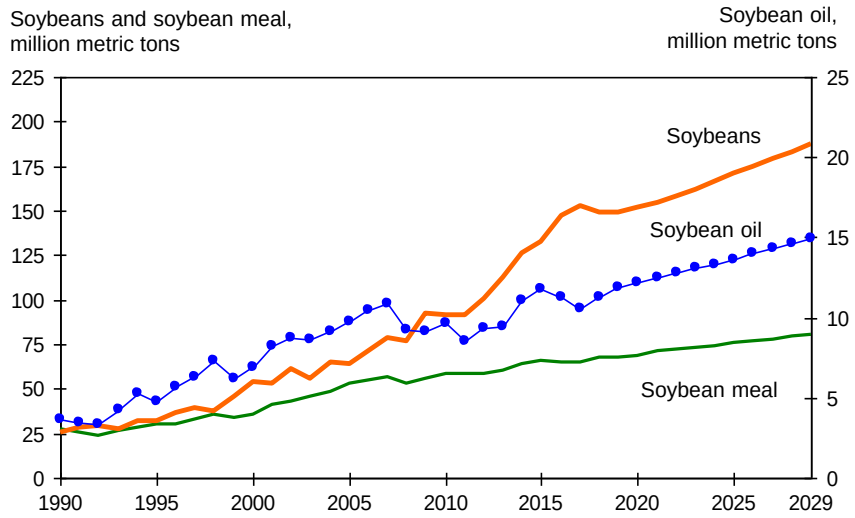
- The Philippines, Nigeria, and China are projected to remain the largest rice importers over the next decade. The Philippines are projected to be the largest rice-importing country from 2020/21 to 2025/26 and remain number two for the rest of the baseline, with imports rising 20.3 percent to 3.35 million tons from 2020/21-2029/30. Continued strong consumption growth coupled with only modest expansions in production is behind the robust import projected for the Philippines.
- Nigeria, currently the third-largest importer, is expected to become the largest rice importer in 2026/27. Nigeria's imports are expected to increase 63 percent over the next decade, reaching 3.7 million tons by 2029/30. Strong growth in consumption, driven by an increasing population, is expected to more than offset any expansion in rice production.
- China, currently the world's largest rice importer, is projected to decline to number three by 2022/23, with imports declining 30 percent to 2.0 million tons from 2020/21-2029/30. The decline is largely due to the Government of China's stated decision to lower its already high level of stocks.
- The next largest importing countries are the EU, Saudi Arabia, Iraq, and Iran, with imports ranging from 1.5 to 2.2 million tons a year by 2029/30. Two former top importers—Bangladesh and Indonesia—are projected to see little, if any, import growth over the next decade, with Bangladesh's imports peaking at 1.0 million tons in 2022/23 and Indonesia's declining 29 percent to 0.9 million tons by 2029/30. Consumption growth is expected to be very weak in both countries.
- Brazil's rice imports are projected to decline 18.5 percent to 1.0 million tons by 2029/30, a result of a modest increase in rice production and declining per capita consumption.
- Sub-Saharan Africa is projected to remain the largest and fastest growing rice-importing region, with imports rising 35.7 percent to 20.6 million tons from 2020/201-2029/30, accounting for more than 76 percent of total import growth over the baseline. Imports by the Middle East are projected to expand 14.7 percent over the next decade to 6.6 million tons, mostly due to a rising population.



Asia continues to supply most of the world's rice exports throughout the projection period. India, Thailand, and Vietnam remain the world's largest rice-exporting countries, accounting for 59 percent of world rice exports and about 45 percent of the growth in the coming decade.

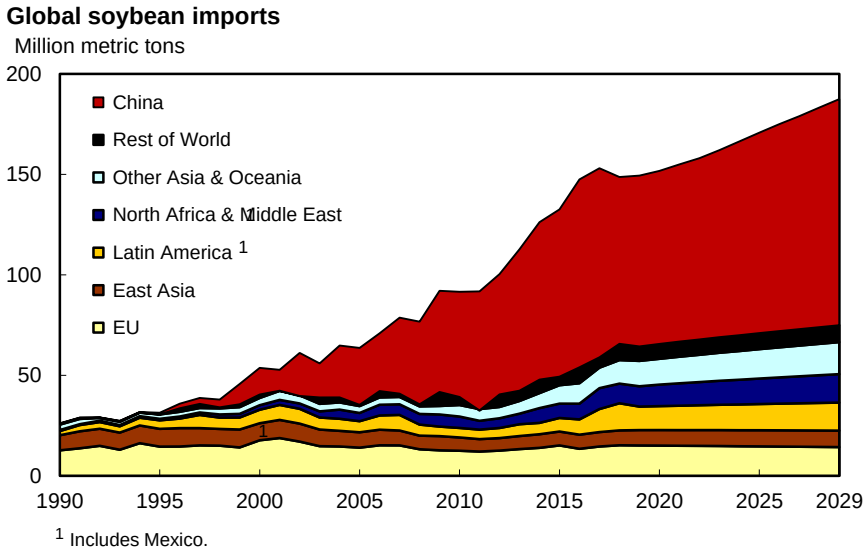
- Following the lifting of the Government of India's partial export ban on non-basmati rice in September 2011, exports increased significantly, with India becoming the largest rice exporter since 2012. India is projected to remain the largest exporter during the projection period, with exports increasing by 0.8 million tons and reaching 13.0 million tons by 2029/30.
- In Thailand, slow production growth and near-steady consumption enable exports to rise 1.7 million tons to 11.0 million by 2029/30. Vietnam's exports are expected to expand by 0.7 million tons, rising to 7.5 million tons by 2029/30. In both Vietnam and Thailand, rice per capita food consumption declines slightly over the baseline as diets diversify toward more meats and poultry.
- China returned as a major rice exporter in 2017 and is expected to overtake Pakistan to become the fourth-largest global exporter in 2023/24. China exports are projected to rise to 5.6 million tons by 2029/30, an increase of almost 56.0 percent. China's projected export growth is a major factor limiting expansion by other top Asian exporters.
- Pakistan exported 3.5 million to 4.2 million tons of rice from 2012-2019 with no significant upward trend. Pakistan's rising consumption and limited production expansion constrained export growth to 7 percent, reaching 4.2 million tons by 2029/30. Pakistan is projected to become the fifth largest exporter in 2023/24 when China moves up to number four.
- The United States is projected to be the world's sixth-largest exporter throughout the baseline, with exports expanding 3 percent through 2027/28, before leveling off. The weak expansion and stagnation of exports are the result of slow production growth and stronger domestic use. Global prices are not projected to be high enough to pull additional acreage into rice. The U.S. share of world rice exports is projected to decline from 6.6 to about 5.8 percent during the next decade.
- Burma is expected to expand exports 17.0 percent over the next decade, reaching 3.1 million tons. Burma's exports are limited by declining imports by top buyer China. Cambodia's exports are projected to expand as well, reaching 1.7 million tons by 2029/30, an increase of 24.0 percent.
- Exports from South America—primarily Argentina, Brazil, Guyana, Paraguay, and Uruguay—are projected to expand 10.5 percent over the next decade, accounting for 5.4 percent of global trade.
- Australia's rice exports are projected to show partial recovery from recent drought-reduced levels, reaching 0.3 million tons by 2029/30.

Global exports: Soybeans, soybean meal, and soybean oil



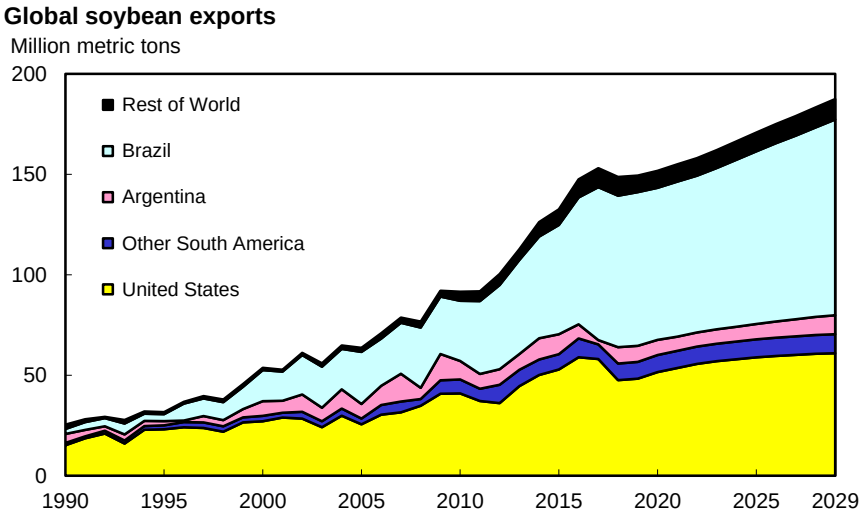
Increasing incomes and growing populations in developing countries, along with urbanization and development of modern food markets and outlets, are projected to boost demand for vegetable oils for food consumption and for protein meals used in livestock production. Global vegetable oil use for biodiesel production also is expected to increase, although at a slower pace than in recent years.

- China remains the world's predominant importer of soybeans, which are crushed domestically in order to meet robust domestic demand for both vegetable oil and oilseed meals for feed. China will also remain a significant importer of vegetable oils. India, China, and the EU are the world's leading importers of palm oil from Indonesia and Malaysia. Indonesia will expand palm area for oil to meet demand for use in food and consumer products by India, China, and the EU, and to supply its own expanding domestic biodiesel industry.
- Many countries with increasing feed demand and limited opportunities to expand oilseed production have invested in crushing capacity. This includes countries in North Africa, the Middle East, and Southeast Asia. As a result, import demand for oilseeds has grown rapidly, and this growth is projected to continue during the coming decade. Global soybean trade is projected to increase by 23.6 percent, soybean meal trade by 16.5 percent, and soybean oil trade by 22.6 percent.
- Together, Brazil, the United States, and Argentina are projected to supply over 89 percent of the world's soybean exports, 86 percent of soybean meal exports, and 71 percent of soybean oil exports during the coming decade. Brazil's share of world exports of soybeans and soybean products climbs from 39.8 percent to 42.2 percent, as production expands faster there than in any other soybean-exporting country.
- In Argentina, low production costs, reduced export taxes, and continuing exchange rate weakness is expected to encourage farmers to move land into soybean production. Argentina's share of world exports of soybeans and soybean products (mostly products) declines slightly by 0.4 percent to 19 percent. South American exporters are projected to trim the U.S. share of global exports of soybeans and soybean products from 27.7 percent to 26.6 percent by 2029/30.
- The EU is expected to continue expanding its biodiesel production, but at a slower pace than in recent years, as policy emphasizes increased use of nonfood feedstocks over edible oils. Production of rapeseed oil, the EU's primary biodiesel feedstock, increases along with rapeseed production. The EU's imports of soybeans and soybean oil are projected to change relatively little, while imports of soybean meal increase slightly.



World soybean trade is projected to rise rapidly during the next ten years, climbing 35.7 million tons (23.5 percent) to 187 million tons. China increases soybean imports by 26.4 million tons by 2029/30 despite the continuing impact of African Swine Fever and projections of slower gains in soybean meal consumption.

- China's soybean imports have risen steadily since the late 1990s through 2017/18, and are expected to account for about 60.0 percent of world soybean trade by 2029/30. China's imports are projected to increase from 86.1 million tons in 2020/21 to 112.5 million tons in 2029/30, accounting for 74.0 percent of the increase in trade. The projections assume that China will continue to meet the rising demand for edible vegetable oils and protein in feed by importing soybeans while supporting domestic production of food and feed grains.
- Imports of soybeans by other countries in East Asia (Japan, South Korea, and Taiwan) are projected to increase, from 7.7 million tons in 2020/21 to 8.2 million by 2029/30. The region is projected to see a modest increase in livestock production that would expand soymeal imports from 3.7 million tons to 4.1 million tons by 2029/30.
- Indonesian soybean imports increase by 26.0 percent to 3.7 million tons by 2029/30. In Indonesia, soybeans are used for food consumption in the form of tempeh and tofu. Indonesia has no crushing industry for soybeans and does not produce soybean meal. All the soybean meal Indonesia uses is imported. In contrast, Thailand crushers are expected to increase soybean imports by 400,000 tons by 2029/30 to 3.9 million tons for increasing feed demand. Expanding crushing capacity would also raise Vietnam soybean imports by 25.4 percent to 3.1 million tons by 2029/30, but projected imports are initially dampened by African Swine Fever. Vietnam soybean meal imports increase due to rising feed demand driven by expanding poultry and pork production.
- Since 2017/18, EU soybean imports have stabilized near 15.1 million tons with lower internal EU grain prices and increases in grain and rapeseed meal feeding. However, EU soybean imports are projected to decrease by 2029/30 to 14.3 million tons, with larger imports of soybean meal.
- Many countries in North Africa and the Middle East region have minimal soybean production, so to fulfill their growing feed and food needs, imports are expected to increase from 10.7 million tons in 2020/21 to 14.2 million tons by 2029/30, a 32 percent increase. Egypt is projected to increase soybean and soybean meal imports by 36.5 and 32.2 percent, respectively, due to expanding poultry production.
- Mexico's annual soybean imports are projected to increase 15.4 percent to 6.8 million tons by 2029/30. These imports will support the production of soybean meal for the growing poultry and pork industries and provide soybean oil for domestic food consumption.



The three leading soybean exporters—the United States, Brazil, and Argentina—are projected to account for about 89.5 percent of world soybean trade by 2020/30.

- Brazil's soybean exports are projected to rise 21.8 million tons (29 percent) to 97.4 million tons during the projection period (2020/21 to 2029/30), strengthening its position as the world's leading soybean exporter. Soybeans remain more profitable to produce than other crops in most areas of Brazil. With increasing plantings in the *Cerrado* region and production extending into the "Amazônia Legal" region, the growth rate in area planted to soybeans is projected to be in excess of 2.5 percent per year during the coming decade.

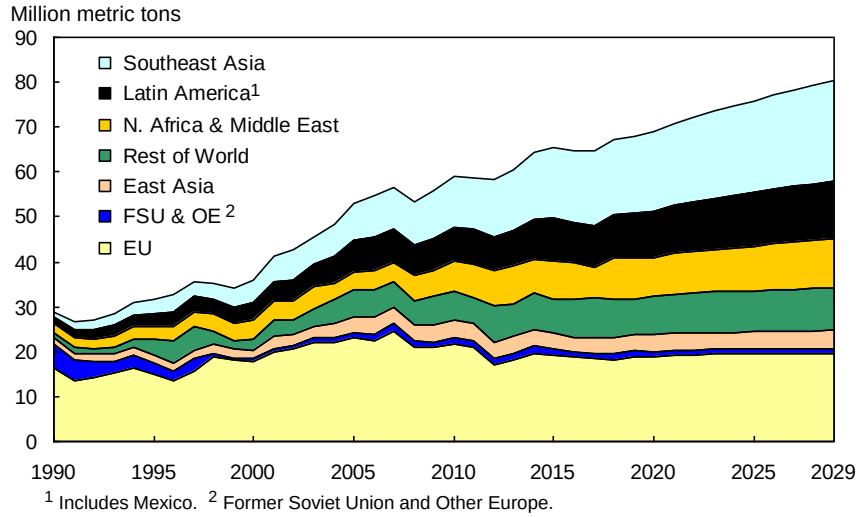
- By 2018/19, Argentina had ended its policy of a higher export tax rate for soybeans than for soybean products, which had favored domestic crushing of soybeans and exporting the resulting products. In response to a weak peso and increasing world demand for soybeans for crushing, Argentina's soybean exports are projected to grow 2.5 percent annually, rising about 25 percent to 9.4 million tons by 2029/30. Most of Argentina's soybean exports go to China. Nonetheless, Argentina remains a distant third to Brazil and the United States as a soybean exporter, as most of the country's crop is processed domestically.

- Other South American countries, principally Uruguay, Paraguay, and Bolivia, also are projected to expand their area planted to soybeans. Exports by these countries increase 11.5 percent to 9.5 million tons by 2029/30, adding 1 million tons to world soybean exports.

- The U.S. share of global soybean exports is about 34 percent in 2020/21 and projected to decrease to 32.5 percent by 2029/30. U.S. soybean exports are projected to increase from 51.6 million tons in 2020/21 to 61.0 million tons by 2029/30.

- Canada increases soybean exports from 4.5 million tons in 2020/21 to 5.8 million tons in 2029/30. Canada's soybean area has expanded beyond the traditional producing region of Southern Ontario to the prairies of Northeastern Manitoba. Improved varieties of soybeans with better yields have contributed to this expansion in area. A depressed value of Ukraine's currency has strengthened domestic prices and encourages soybean production. Ukraine's projected soybean exports modestly increase from 2.3 million tons in 2020/21 to 2.6 million tons by 2029/30.

Global soybean meal imports



[1] Includes Mexico. [2] Former Soviet Union and Other Europe.

World soybean meal trade is projected to climb by 11.4 million tons (16.5 percent) to 80.4 million tons by 2029/30. In a number of countries, soybean meal imports are boosted by continued growth in livestock production, especially poultry, and movement toward modern feed rations. Additionally, many countries have limited capacity to increase domestic oilseed production.

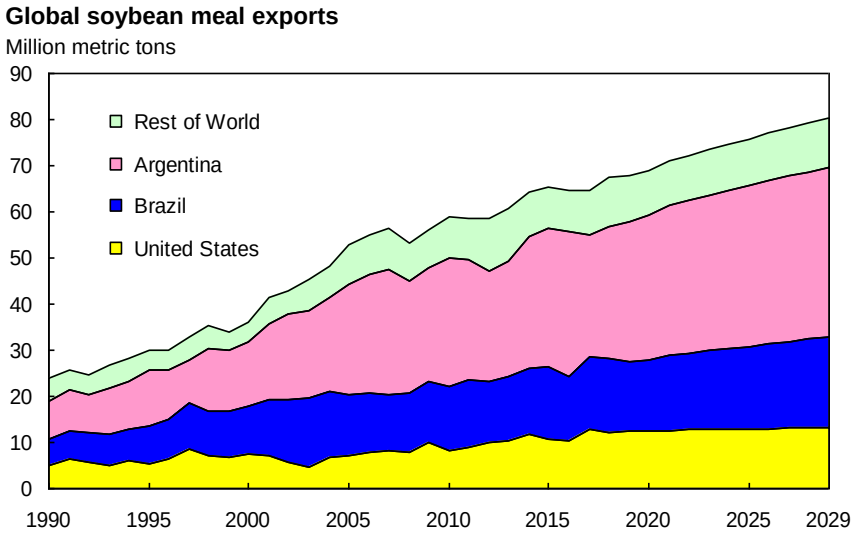
- The EU remains the world's largest soybean meal importer throughout the projection period, increasing 3.3 percent to 19.6 million tons by 2029/30. An abundant supply of low-cost rapeseed meal is expected to be available as a result of EU biodiesel production. However, nutritional considerations limit the inclusion of rapeseed meal in some livestock rations, which supports the continued use of soybean meal.

- The regions of Southeast Asia, North Africa, the Middle East, and Latin America are projected to become larger importers of soybean meal due to the increasing demand for livestock feed. Increasing poultry consumption and production is a major driving force, along with the lack of soybean crushing facilities. This fully describes the circumstances for Vietnam, which contributes the largest gain in world soybean meal imports (43.8 percent over the projection period), with an increase from 4.8 million tons in 2020/21 to 6.9 million tons by 2029/30. Indonesia, the Philippines, Thailand, and Malaysia increase to 15.5 million tons by 2029/30, adding 2.7 million tons to imports. Southeast Asia accounts for 42.0 percent of the projected increase in world soybean meal trade.

- Annual imports by countries in North Africa and the Middle East are projected to rise by 2.3 million tons, accounting for 20.0 percent of the increase in world trade. Iran, Egypt, Turkey, and Saudi Arabia are the largest importers for these two combined regions. In 2020/21, these four countries are expected to account for about 52.0 percent of the region's imports.

- Annual soybean meal imports by South American countries increase by 29.4 percent over the projection period from 5.8 million tons in 2020/21 to 7.5 million tons by 2029/30. Colombia, Peru, Ecuador, and Chile are among the largest importers. Venezuela imports have decreased by 80.0 percent, from 1.1 million tons in 2014/15 to 225,000 tons by 2019/20.

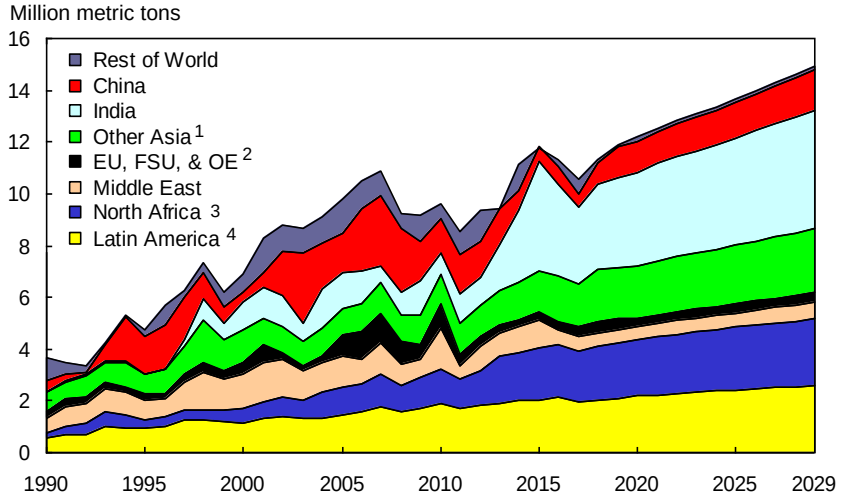
- Mexico's growing demand for protein feed is expected to boost its annual soybean meal imports from 2.0 million to 2.5 million tons by 2029/30. Canada's annual soybean meal imports increase from 0.1 to 1.2 million tons by 2029/30.



Argentina, Brazil, and the United States remain the world's three largest exporters of soybean meal. Together, their combined share of world exports rises slightly from 86.0 to 87.0 percent over the next decade. By 2029/30, Argentina, Brazil, and the United States account for 46.0, 25.0, and 16.0 percent, respectively, of the world soybean meal export market. The United States' share decreases by 1.6 percent over the projection period.

- Argentina has reduced the gap between export taxes on soybean products and export taxes on soybeans, a policy that had encouraged the development of a large oilseed-crushing capacity. Still, with Argentina's low costs of production for soybeans and its comparative advantage for soybean products, the country's soybean meal exports are projected to continue growing at 1.8 percent per year. Argentina's annual soybean meal exports are projected to rise by 5.5 million tons over the next decade, reaching 36.9 million tons by 2029/30.
- In Brazil, the rapid expansion of poultry and pork production boosts domestic soybean meal consumption and limits increases in soybean meal exports. Nonetheless, exports of soybean meal increase by 4.2 million tons (26.7 percent) over the projected decade. Brazil's soybean crushing capacity is expected to expand at a slower rate due to strong competition from Argentina in the international soybean meal market and robust demand for its soybean supply from China. Brazil's share of world soybean meal exports increases from 23 percent in 2020/21 to almost 25 percent by 2029/30.
- U.S. soybean meal exports are projected to increase slightly to 13.1 million tons by 2029/30. The U.S. share of world soybean meal exports declines from 17.9 percent in 2020/21 to 16.3 percent by 2029/30.
- India's soybean meal exports began to decline in 2013/14 as expanding domestic use and smaller harvests reduced export opportunities. Exports have remained more recently flat. Soybean meal exports increase slightly from 1.9 million tons in 2020/21 to 2.1 million tons by 2029/30. Feed use for poultry, egg, and milk production continues to constrain soybean meal export growth.
- The EU continues to be a small but steady exporter of soybean meal to Russia and other Eastern European countries, where livestock production is projected to grow significantly. Annual EU soybean meal exports hold steady at 350,000 tons through 2029/30.

Global soybean oil imports



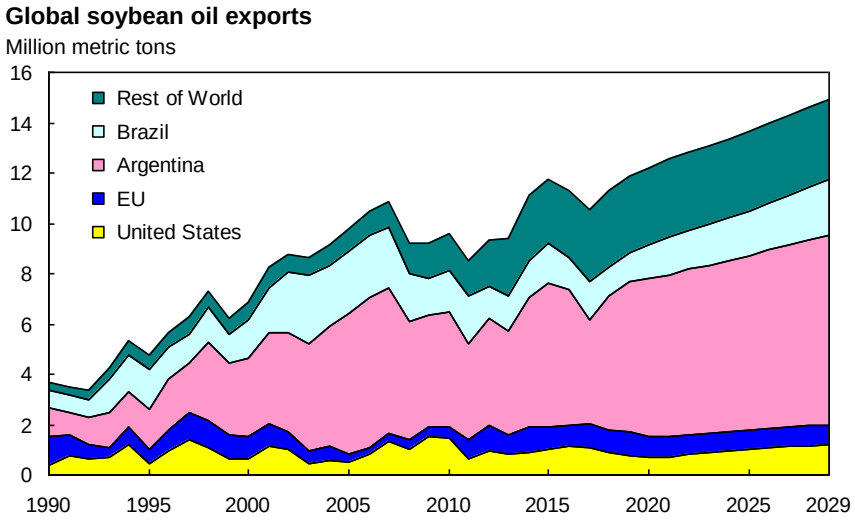
[1] Other Asia excluding India and China. [2] European Union, former Soviet Union, and Other Europe. [3] Includes Egypt. [4] Includes Mexico.

World soybean oil imports are projected to climb by 2.8 million tons (23 percent) over the projection period, reaching 14.9 million tons, bolstered by rising food and industrial use. Growth in world soybean oil trade is expected to continue to be constrained by competition with palm oil, the leading vegetable oil traded internationally.

- Although palm oil continues to account for the largest share of India's vegetable oil imports, India is the world's largest importer of soybean oil. India's soybean oil imports climb 26 percent to 4.6 million tons in 2029/30. Factors contributing to the growth of India's soybean oil imports include burgeoning demand for vegetable oils and limited area for expanding oilseed production. Low yields, associated with variable rainfall and low input use, also inhibit the growth of domestic oilseed production. Both Bangladesh and Pakistan increase soybean oil imports over the projection period from a combined 1.2 million tons to 1.5 million tons, despite a rapid expansion of domestic production.

- A rapid increase in China's soybean imports for crushing in recent years caused soybean oil imports to decline to 481,000 tons in 2017/18. China's soybean oil imports are projected to increase to 1.2 million tons by 2020/21 and continue to rise to 1.6 million tons by 2029/30. The Southeast Asia region is projected to increase imports by 91,000 tons to 362,000 tons by 2029/30. Malaysia, Vietnam, and the Philippines account for most of the soybean oil imports within Southeast Asia by 2029/30, at 132,000, 118,000, and 63,000 tons, respectively. Vietnam is expected to expand soybean crushing capacity, leading to slower growth in soybean oil imports.

- Income and population growth in North Africa, the Middle East, and Latin America contribute to gains in soybean oil demand and imports. The combined imports of Egypt and Iran are projected to increase by 90,000 tons to 470,000 tons over the projection period by 2029/30. The Other North Africa and South America regions both import 1.7 million tons in 2020/21, increasing by 236,000 and 251,000 tons, respectively, by 2029/30. Algeria, Morocco, and Egypt are the largest soybean oil importers in North Africa. In South America, the largest importers are Peru, Colombia, and Venezuela. The Central American and Caribbean regions increase imports from 0.5 million tons to 0.7 million tons by 2029/30. Mexico's annual imports increase slightly by 44,000 tons to 240,000 tons by 2029/30, as consumption gains are fulfilled mostly by domestic soybean crushers.



Argentina, Brazil, the EU, and the United States are the world's four leading soybean oil exporters. Their combined shipments are projected to account for 78 percent of world soybean oil exports during the coming decade. In 2029/30, Argentina, Brazil, and the United States are projected to account for 51, 15, and 8 percent of world soybean oil exports by 2029/30, respectively.

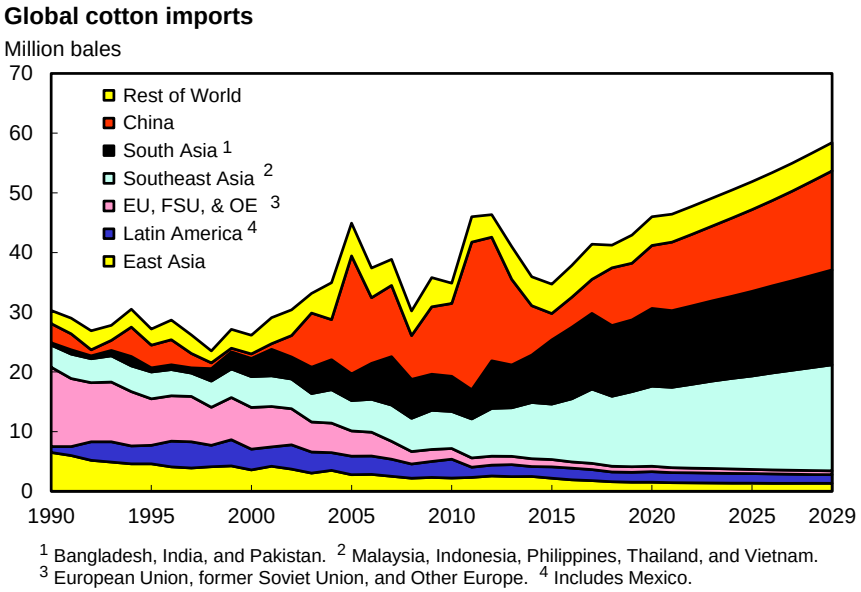
- Soybean oil exports from Argentina are projected to climb to 7.6 million tons by 2029/30, a 21-percent increase from 2020/21. Argentina's strength as a soybean oil exporter reflects the country's large crushing capacity and its small domestic market for soybean oil. Gains in Argentine soybean production due to extensive double-cropping, further adjustments in crop-pasture rotations, and expansion onto marginal lands in the northwest part of the country facilitate increased soybean crushing. Although Argentina's soybean oil exports rise, this growth is slowed as more soybean oil is used to produce biodiesel.

- Brazil's soybean oil exports in 2020/21 are 1.3 million tons, while the continued expansion of soybean production into new areas of cultivation plus productivity growth is expected to enable the country to increase soybean oil exports to 2.2 million tons by 2029/30. Over the coming decade, Brazil is expected to use more soybean oil for domestic biodiesel production.

- U.S. soybean oil exports rise over the projection period and reach 1.2 million tons in 2029/30. The United States is expected to remain the world's third-largest soybean oil exporter, with 8.1 percent of global trade by 2029/30.

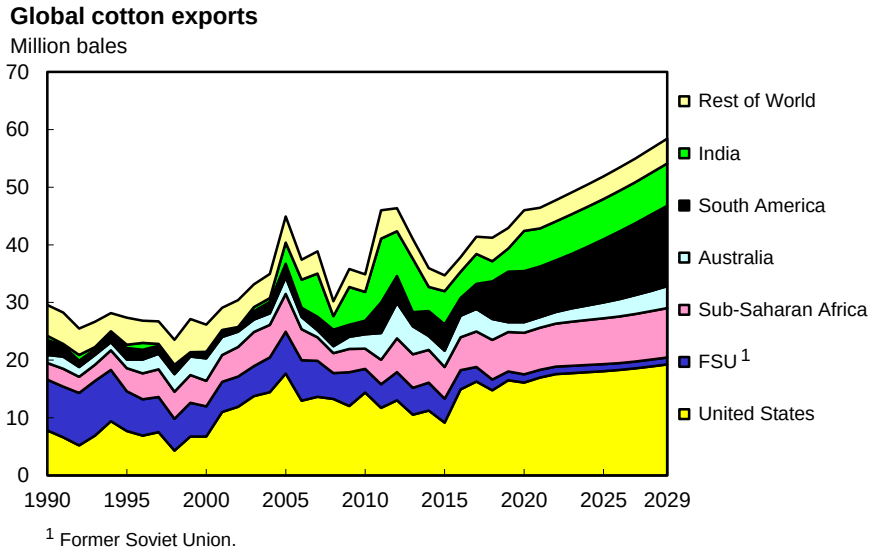
- EU soybean oil exports are stable near 0.8 million tons over the projection period, but have a decreasing share of global trade, from 7 percent to 5.2 percent by 2029/30. The FSU region maintains a stable volume of soybean oil exports at 0.9 million tons over the projection period.

- Soybean oil exports by South American countries other than Argentina and Brazil are projected to increase by 88,000 tons, with exports totaling 1.2 million metric tons by 2029/30. Paraguay and Bolivia are the largest soybean oil exporters in South America after Argentina and Brazil.



China's rebound in cotton imports is expected to help drive growth in world cotton trade, as world trade volume rises at a 2.7 percent annual growth rate between 2020/21 and 2029/30. China's return to a normal level of reserve stocks prompts a resumption of large imports. Projected world cotton trade surpasses the 46.4-million-bale record set in 2012/13 early in the projection period and reaches 58.4 million bales in 2029/30. Southeast Asia cotton imports increase by 32.5 percent by 2029/30, reaching 17.7 million bales.

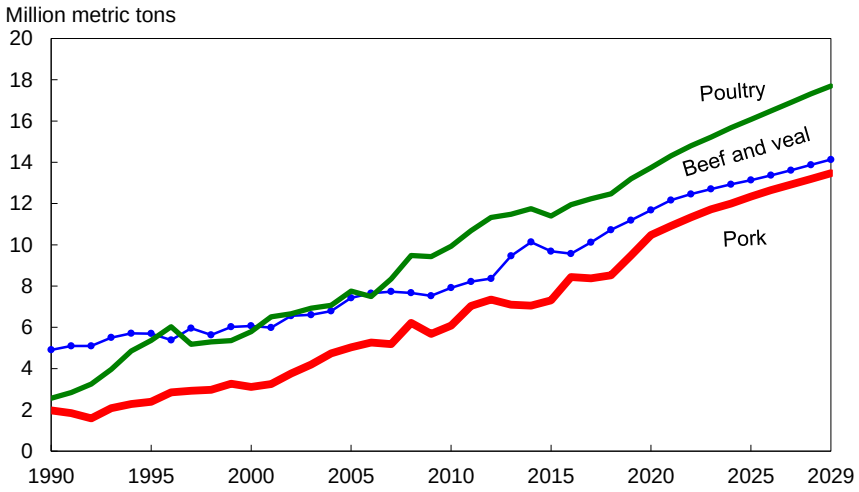
- China's cotton imports are expected to increase throughout the next decade with stronger growth in the first two years of the projection period. China's cotton imports are expected to expand 5.2 percent per year during the projection period. China increases imports by about 6.1 million bales, with imports at 16.6 million bales in 2029/30. The growth in China's cotton imports follows the completion of a years-long disposal of stockpiles accumulated under a cotton price-support program that operated until 2013. Imports are set to rebound as government stocks will no longer be a net source of supply to consumers and traders in China. While China's cotton use is expected to increase, shifts in textile production to Vietnam, Bangladesh, and India will increase their shares of global use.
- Vietnam is projected to remain the second-largest importer in 2020/21 as its textile industry grows rapidly, with imports reaching 12.1 million bales by 2029/30. Vietnam's cotton imports increased six-fold over the past 12 years and are projected to account for one-third of the world's increased imports during the projection period. Vietnam's textile sector and cotton imports are expected to grow 4.7 percent annually through 2029/30.
- Bangladesh, Indonesia, Pakistan, and Turkey are expected to be the third-, fourth-, fifth-, and sixth-largest cotton importers by 2029/30. Since the early 2000s, China was the largest importer, but Bangladesh became the world's largest cotton importer in 2015/16; however, China returned as the largest importer once again in 2018/19. Indonesia's cotton imports surpass Turkey's import level in 2019/20. Indonesia is the fourth-largest cotton importer throughout the projection period, with projected imports growing 1.0 percent annually, and approaching 4.0 million bales by 2029/30. Turkey's share of world consumption weakened recently, but imports are expected to increase slightly through the projection period to 3.4 million bales by 2029/30.
- Pakistan's cotton imports are projected to decrease and remain stable near 3.4 million bales. Pakistan's exports, on the other hand, are projected to slightly increase by 2029/30 to 0.3 million bales. Mexico, EU, Thailand, FSU, South Korea, Taiwan, and Japan all decrease imports slightly throughout the projection period, with a combined decrease of 820,000 bales by 2029/30.



Raw cotton production is expected to continue moving to countries with favorable resource endowments and advancing production technologies. The expanded cotton output is projected from traditional producers with large amounts of land suitable for cotton production, including Brazil, Sub-Saharan Africa, and India.

- The U.S. share of world cotton production has declined from the early 2000s (by 25 percent) with the spread of new technology around the world; however, throughout most of the baseline period, the U.S. share is expected to remain fairly stable (at 20 percent), similar to the recent 5-year average. The United States remains the world's leading cotton exporter, increasing exports (2 percent annually) to 19.3 million bales (upland and ELS cotton) by 2029/30. However, the U.S. share of world cotton trade falls to 33 percent by 2029/30, compared with 39.4 percent in 2016/17.
- Area planted to cotton in Brazil is projected to expand in the Mato Grosso region, with continuing yield growth as well. Brazil's cotton exports are projected to increase by 4.9 million bales by 2029/30, corresponding to a 5.2-percent annual growth rate, the largest projected export increase among the world's major exporters. Brazil became the world's second-ranking cotton exporter in 2018/19, surpassing India, and remains second through the projection period.
- India's cotton exports increase by 0.6 percent annually, reaching 7.4 million bales in 2029/30. Improved yields in India raised production and exports there earlier in the decade, but bollworm resistance and weather issues have hampered yields in recent years. India was the second-largest exporter for a decade until Brazil and Australia surpassed India in 2018/19. For the projection period, however, India is expected to be the world's third-largest cotton exporter behind the United States and Brazil.
- Exports from the 15 countries of the Economic Community of West African States are projected to experience sustained 2.4 percent annual growth in the next decade. Improvements in technical and financial infrastructure will help boost production and exports. Cotton exports from the other countries in Sub-Saharan Africa are projected to increase 1 percent annually. Sub-Saharan Africa is expected to add 1.36 million bales to trade and account for 11 percent of world trade over the projection period.
- Government policies in the major cotton-producing countries in Central Asia are promoting investment in textile industries and contributing to exports of textile products rather than exports of raw cotton. Exports of raw cotton decline throughout the projection period. FSU exports (entirely from Central Asia) decrease 1.9 percent annually, with only 1.2 million bales exported by 2029/30, far below the peak exports of 7.3 million bales in 2005/06.

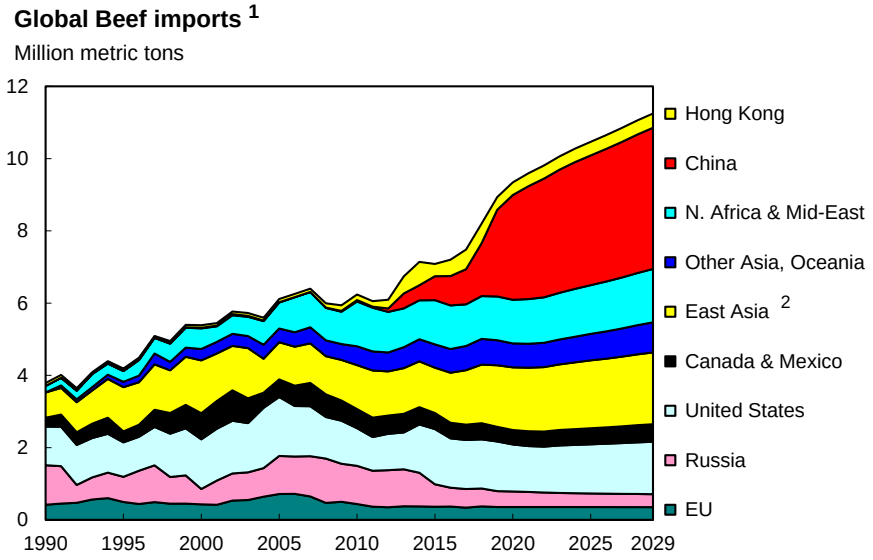
Global Meat exports [1]



[1] Major exporters, not world total (see beef, pork and poultry trade tables).

Growth in global meat consumption is projected to continue over the coming decade, leading many countries to increase meat exports. Poultry consumption rises the fastest, with a projected annual growth rate of 2.2 percent, followed by pork (1.6 percent) and beef (1.1 percent). Meat shipments by the major exporting countries rise by 2.6 percent per year, an increase of 9.3 million tons by 2029. Over the projection period, poultry exports rise by 3.9 million tons (2.9 percent), beef exports rise by 2.5 million tons (2.2 percent), and pork exports rise by 2.9 million tons (2.6 percent).

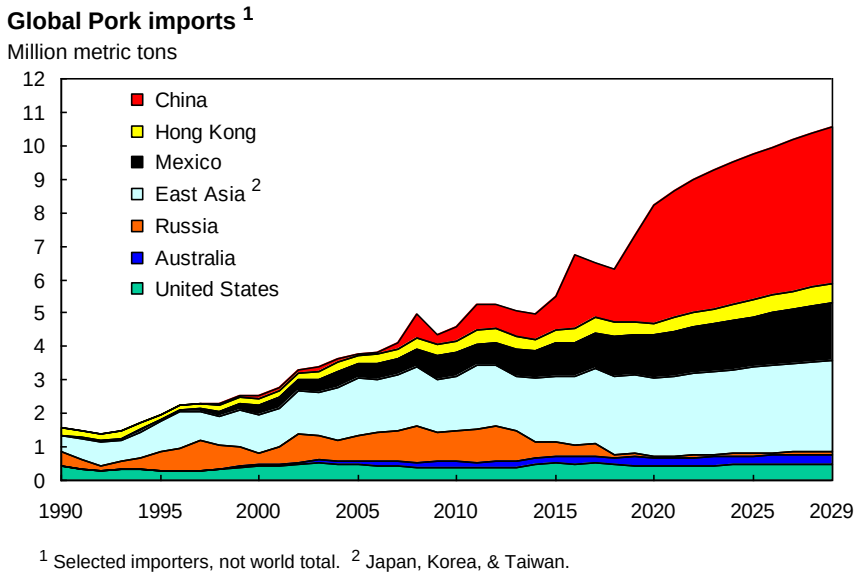
- Brazil is the largest exporter of poultry products, followed by the United States, the EU, and Thailand. Brazil's exports increase by 46.1 percent, reaching 6.05 million tons by 2029. Brazil accounts for 49.3 percent of the global increase in poultry exports, with a gain of 1.9 million tons. The United States increases exports by 16.9 percent over the projection period to 4.2 million tons by 2029. The third-largest exporter, the EU, increases 12.0 percent over the projection period, reaching 2.4 million tons by 2029. Thailand's projected poultry exports increase by 46.3 percent, reaching 1.6 million tons by 2029.
- Brazil has surpassed India over the past four years as the world's largest annual beef exporter. Brazil is projected to export 2.6 million tons of beef in 2020, increasing by 1.4 million tons to reach 4.0 million tons by 2029. Expanded access to existing markets for Brazilian beef enables it to outpace Indian beef exports through 2029. Indian beef exports increase from 1.70 million tons in 2020 to 2.08 million tons by 2029. Developing countries' demand for India's lower priced carabeef (from buffalos) is projected to continue rising rapidly. The United States is now the third-largest beef exporter and is expected to remain so through most of the projection period, providing mainly higher valued cuts from grain-fed beef to a number of countries. U.S. beef exports increase by 66,000 tons over the projection period, reaching 1.6 million tons by 2029. Australia is the fourth-largest beef exporter, with projected exports increasing to 1.6 million tons by 2029, adding 0.1 million tons to world exports. Australia's inventory has contracted due to drought-related liquidation, and export gains will be limited as the beef herd moves into the rebuilding phase under the assumption of normal weather.
- African Swine Fever in China and several other Asian countries has reduced projected pork supply, raised domestic prices, and prompted increasing meat imports. The major pork-exporting countries respond by increasing production and exports. The EU, the United States, Canada, and Brazil are the world's largest pork exporters. EU pork exports increase by 797,000 tons over the projection period, reaching 4.7 million tons by 2029. U.S. pork exports expand by 45.2 percent over the projection period, increasing from 3.3 million tons in 2020 to 4.8 million tons by 2029. Canada's pork exports reach 1.6 million tons by 2029, adding 257,000 tons over the projection period.



[1] Selected importers, not world total. [2] Japan, Korea, & Taiwan.

Between 2020 and 2029, major beef-importing countries are projected to increase imports by 2.0 million tons, reaching 12.3 million tons in 2029. Increased imports by lower and middle-income countries will fuel much of the increase in lower value grass-fed beef. Imports of grain-fed beef, mainly by higher income countries, are projected to rise slowly. China has the strongest growth in projected beef imports.

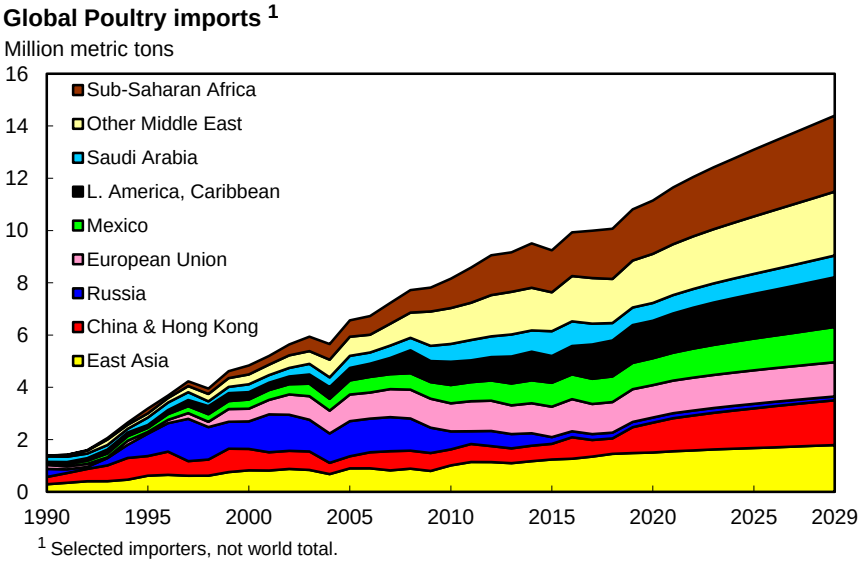
- Combined beef imports by China and Hong Kong are projected to increase 32.4 percent to 4.3 million tons by 2029 due to rising demand for beef that outpaces domestic production growth. High pork prices due to production shortfalls due to African Swine Fever result in greater consumption of substitute meats. This increase in imports accounts for the largest growth in quantity among major beef-importing countries. China's beef imports increase from 2.9 million tons in 2020 to 3.9 million tons by 2029. China became the world's largest beef importer in 2018, surpassing the U.S.
- Russian beef imports are projected to decrease from 430,000 tons in 2020 to 359,000 tons by 2029, due to declining consumption and policies supporting domestic beef production.
- U.S. beef imports of primarily grass-fed, lean beef for use in ground beef and processed products gradually rise throughout the projection period. Imports increase by 11.5 percent over the next decade. The United States is projected to remain the world's second-largest beef importer over the projection period, ending at 1.5 million tons.
- The Middle East and North Africa region (including Egypt), with fast population and income growth, is projected to increase beef imports from 1.2 million tons in 2020 to 1.5 million by 2029, at an average annual growth rate of 2.3 percent.
- Mexico will increase beef imports by 79,700 tons over the projection period. Much of these imports consist of higher valued, grain-fed beef from the United States. Mexico's beef imports will increase by 3.6 percent annually, from 210,000 tons in 2020 to 290,000 tons by 2029. Other Latin America will increase imports by 102,300 tons over the projection period, from 756,000 tons in 2020 to 858,000 tons by 2029, with an average annual increase of 1.4 percent.
- Southeast Asia countries maintain strong income growth, leading to an average annual growth rate of 2.9 percent increase in their beef imports, from 463,000 tons in 2020 to almost 599,000 tons by 2029. The Philippines, Indonesia, and Malaysia exhibit the largest increase in imports over the projection period in Southeast Asia. Other Asia and Oceania (excluding Southeast and East Asia) increases imports by 75,000 tons, a 31.9 percent increase over the projection period to 311,000 by 2029.



1 Selected importers, not world total. 2 Japan, Korea, & Taiwan.

Imports by major pork-importing countries are projected to continue to rise, increasing by 3.2 million tons (32.1 percent) from 2020 to 2029. China/Hong Kong, South Korea, Mexico, and the Philippines, exhibit the largest increase in pork imports over the projection period, accounting for 71.5 percent of the increase and adding a combined 2.3 million tons to world pork imports by 2029.

- China is projected to be the world's largest importer through 2029. Pork imports partially offset declines in domestic pork production due to African Swine Fever. Imports increase by 33.9 percent from 2020 to 2029 to 4.7 million tons, accounting for 37.2 percent of the increase in world pork imports. China and Hong Kong increase pork imports by almost 1.2 and 0.2 million tons, respectively, over the projected decade.
- Mexico becomes the world's second-largest pork importer by 2027, surpassing Japan. Imports climb from 1.3 million tons in 2020 to 1.7 million tons by 2029. Income, urbanization, and population growth are the primary drivers of Mexico's rising pork demand. Mexico accounts for 13.9 percent of the projected increase in world pork imports among major importers.
- Japan is projected to fall to the third-largest importer by 2027. Japan's annual pork imports increase by 114,000 tons over the projection period and reach 1.6 million tons by 2029. Japan's imports are expected to increase by 7.5 percent from 2020 through 2029, due to almost flat domestic production and slight growth in consumption.
- Both South Korea and the Philippines have lower pork production due to African Swine Fever, leading to stronger imports. South Korea also increases pork imports to satisfy demand for selected cuts, with imports rising by over 37.8 percent over the projection period to reach 965,000 tons, adding 265,000 tons to annual pork imports. The Philippines are projected to increase pork imports by 54.7 percent, from 350,000 tons in 2020 to 542,000 tons by 2029. Other Asia and Oceania increase imports by 53.0 percent, from 463,000 tons in 2020 to 708,000 tons by 2029.
- Russia's pork imports are projected to increase by 14.5 percent from 2020 to 2029, reaching 92,000 tons. Russia's pork imports have fallen substantially from 2012 through 2017, reflecting policies to stimulate domestic meat production and reduce reliance on imports.
- Increasing income and population growth drive strong demand for imported pork in Central America and the Caribbean. Imports rise by 98,000 tons, or 41.6 percent, over the coming decade, reaching 334,000 tons by 2029.



Annual poultry meat imports by the major importing countries are projected to increase by 3.94 million tons (30.2 percent), reaching 16.9 million tons by 2029. Substantial growth is expected from emerging market nations in Sub-Saharan Africa, the Middle East, Latin America, and Asia. This includes countries such as China, Mexico, the Philippines, South Africa, Japan, and Saudi Arabia. A decline in poultry meat imports is projected for Russia. Slow import growth is projected for Ukraine, EU, and Canada.

- Poultry meat imports by the regions of Africa and the Middle East are projected to grow by 44.8 percent and 25.0 percent, respectively, over the coming decade. By 2029, these regions together increase their poultry meat imports by 1.61 million tons. Projected gains in income and population boost demand, while production is limited in a number of countries, leading to increased imports.
- Higher projected incomes in Mexico, Central America, and the Caribbean lead to increased demand for poultry meats and greater imports. Imported poultry products remain less expensive than beef or pork, further stimulating demand. Mexico's poultry production continues to grow through the projection period, but at a slower rate than consumption, resulting in annual imports rising by about 322,000 tons (31.3 percent). Annual poultry imports by the Central American and Caribbean regions rise by 230,000 tons (29.9 percent), reaching 998,900 tons by 2029.
- Russia's substantial decline in poultry imports since 2014 is projected to continue, as imports fall steadily over the projection period to 146,000 tons (a 25.6-percent decrease from 2020). The projections assume that Russian policies will stimulate domestic production and thereby limit imports.
- China's rising poultry meat consumption is met primarily by domestic production, with imports accounting for about 5.7 percent of consumption by 2029. China's poultry imports increase by 62.8 percent, reaching almost 1.27 million tons by 2029. China is projected to be a net poultry importer through 2029. Projected exports increase by 9.7 percent to 483,000 tons by 2029.
- Higher valued, fully cooked poultry products tend to be imported by higher income countries in Asia, Europe, and the Middle East. Fully cooked products are projected to account for most poultry exports from China and Thailand. Thailand's poultry meat exports to the EU, Japan, and South Korea are expected to rise as a result of the reopening of those markets to importing uncooked chicken from Thailand. Thai poultry exports are projected to increase by 46.3 percent from 2020 to 2029, reaching 1.61 million tons.

Table 26. Coarse grains trade long-term projections

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
						Imports, million metric tons						
Importers												
Former Soviet Union[1]	1.1	0.9	1.0	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.4	1.4
Other Europe	0.9	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0
European Union[2]	26.0	22.0	23.1	22.5	22.6	23.0	23.1	23.2	23.3	23.4	23.5	23.6
Egypt	9.8	10.3	10.7	11.3	11.8	12.2	12.7	13.1	13.6	14.0	14.4	14.8
Iran	13.1	13.7	13.9	14.2	14.6	15.0	15.3	15.7	15.9	16.2	16.5	16.7
Saudi Arabia	10.6	12.5	12.9	13.2	13.5	13.9	14.2	14.5	14.8	15.1	15.4	15.7
Turkey	3.2	2.8	3.1	3.1	3.1	3.2	3.3	3.3	3.4	3.4	3.4	3.4
Other Middle East	6.8	7.5	7.7	7.9	8.0	8.1	8.2	8.4	8.4	8.5	8.6	8.6
Morocco	2.5	4.2	4.2	4.3	4.4	4.4	4.5	4.5	4.6	4.6	4.7	4.7
Other North Africa	7.8	7.4	7.7	8.1	8.4	8.6	8.8	9.0	9.2	9.3	9.5	9.6
West Africa (ECOWAS)[3]	0.8	0.8	0.9	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.3	1.3
Sub-Saharan Africa[4]	2.2	4.2	4.3	4.4	4.5	4.6	4.6	4.7	4.7	4.8	4.9	4.9
South Africa	1.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Japan	17.6	17.4	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6
South Korea	10.6	10.6	10.7	10.7	10.8	10.9	10.9	10.9	11.0	11.1	11.2	11.3
Taiwan	4.2	4.2	4.3	4.4	4.4	4.4	4.4	4.4	4.4	4.3	4.3	4.3
China	11.4	14.4	15.0	15.4	15.7	15.9	16.2	16.4	16.7	16.9	17.1	17.4
Indonesia	1.0	0.8	0.9	1.0	1.1	1.2	1.2	1.3	1.3	1.3	1.4	1.4
Malaysia	4.0	4.1	4.2	4.2	4.3	4.4	4.4	4.5	4.6	4.7	4.7	4.8
Philippines	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Thailand	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2	1.3	1.3
Vietnam	10.2	10.5	10.4	10.9	11.3	11.8	12.2	12.6	13.0	13.4	13.8	14.2
Bangladesh	1.5	1.6	1.8	2.0	2.2	2.4	2.6	2.7	2.9	3.0	3.2	3.4
India	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Other Asia & Oceania	1.4	1.3	1.3	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.6	1.6
Canada	2.8	1.0	1.0	1.0	1.0	0.9	1.0	1.0	1.1	1.1	1.1	1.1
Mexico	17.4	18.0	19.0	19.9	20.6	21.2	22.0	22.7	23.3	24.0	24.7	25.4
Central America & Caribbean	6.9	7.2	7.5	7.7	7.9	8.1	8.3	8.6	8.8	9.0	9.3	9.5
Brazil	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8
Other South America	13.4	14.0	14.8	15.2	15.7	16.2	16.6	17.0	17.5	17.9	18.3	18.7
Other foreign[5]	13.9	0.7	4.8	4.8	4.6	4.4	4.1	4.0	3.8	3.6	3.4	3.2
United States	3.3	4.2	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Total trade	209.3	201.2	211.5	215.8	220.3	224.7	228.9	232.9	236.9	240.7	244.5	248.3
						Exports, million metric tons						
Exporters												
European Union[2]	8.5	8.0	8.1	8.1	8.2	8.3	8.4	8.4	8.6	8.6	8.7	8.7
Other Europe	2.7	2.3	2.2	2.2	2.2	2.3	2.4	2.5	2.6	2.6	2.7	2.8
Russia	8.1	10.9	10.4	10.7	11.0	11.2	11.4	11.7	11.9	12.2	12.4	12.6
Ukraine	34.1	34.9	34.5	34.5	34.5	34.9	35.2	35.4	35.8	36.1	36.4	36.7
Other Former Soviet Union[6]	2.6	2.4	2.7	2.8	2.9	3.0	3.0	3.0	3.1	3.1	3.1	3.1
Canada	6.0	6.0	6.4	6.4	6.4	6.5	6.5	6.6	6.7	6.8	6.9	7.0
Argentina	39.4	36.6	39.4	40.2	40.7	41.2	41.5	41.8	42.3	42.7	43.0	43.3
Brazil	39.0	34.0	35.7	37.2	39.1	40.6	42.0	43.3	44.3	45.3	46.5	47.6
Other South America	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3
Australia	4.7	5.1	5.8	6.2	6.6	6.8	7.0	7.2	7.4	7.6	7.8	8.0
Other Asia and Oceania	3.6	3.6	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.6
South Africa	1.0	1.5	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.5
Other Africa[7]	1.2	1.0	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7
Other foreign	1.1	1.9	1.5	1.4	1.5	1.5	1.5	1.6	1.7	1.7	1.8	1.8
United States	55.0	50.9	56.0	57.3	58.6	59.9	61.1	62.4	63.7	64.9	66.2	67.5
						Percent						
U.S. trade share	26.3	25.3	26.5	26.6	26.6	26.6	26.7	26.8	26.9	27.0	27.1	27.2

[1]FSU-12. Includes intra-FSU trade.

[2]Excludes intra-EU trade.

[3]Economic Community of Western African States, 15 member countries (ECOWAS).

[4]Excludes ECOWAS and South Africa.

[5]Includes unaccounted, which can be negative.

[6]Covers FSU-12 except for Russia and Ukraine. Includes intra-FSU trade.

[7]Includes all African countries except South Africa.

The projections were completed in October 2019.

Table 27. Corn trade long-term projections

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
						Imports, million metric tons						
Importers												
European Union[1]	24.8	21.0	22.3	21.8	21.9	22.3	22.4	22.5	22.6	22.7	22.8	22.9
Former Soviet Union[2]	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7
Egypt	9.7	10.2	10.7	11.2	11.7	12.1	12.6	13.1	13.5	13.9	14.3	14.7
Morocco	2.3	3.0	3.0	3.1	3.2	3.2	3.3	3.3	3.4	3.4	3.5	3.5
Other North Africa	5.9	6.2	6.3	6.4	6.6	6.8	6.9	7.1	7.2	7.4	7.5	7.6
Iran	10.0	10.5	10.6	10.8	11.0	11.2	11.4	11.6	11.8	11.9	12.1	12.3
Saudi Arabia	3.8	4.0	4.1	4.4	4.5	4.7	4.9	5.0	5.2	5.3	5.5	5.6
Turkey	2.9	2.7	2.7	2.8	2.9	2.9	3.0	3.0	3.1	3.1	3.2	3.2
Other Middle East	4.4	4.9	5.0	5.1	5.2	5.3	5.3	5.4	5.4	5.5	5.5	5.5
Japan	15.8	15.6	15.8	15.8	15.8	15.8	15.8	15.8	15.7	15.7	15.7	15.7
South Korea	10.5	10.5	10.5	10.6	10.7	10.8	10.8	10.8	10.9	11.0	11.0	11.1
Taiwan	4.1	4.1	4.2	4.3	4.3	4.3	4.3	4.3	4.2	4.2	4.2	4.2
China	5.0	7.0	6.9	6.9	6.9	6.9	6.9	7.0	7.0	7.0	7.0	7.0
Indonesia	1.0	0.8	0.9	1.0	1.1	1.2	1.2	1.3	1.3	1.3	1.4	1.4
Malaysia	4.0	4.1	4.2	4.2	4.3	4.4	4.4	4.5	4.6	4.7	4.7	4.8
Philippines	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Thailand	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2	1.3	1.3
Vietnam	10.2	10.5	10.4	10.9	11.3	11.8	12.2	12.6	13.0	13.4	13.8	14.2
Other Asia & Oceania	1.5	1.4	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.7
Canada	2.8	1.0	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.1
Mexico	16.7	17.5	18.4	19.2	19.9	20.5	21.2	21.9	22.6	23.3	24.0	24.7
Central America & Caribbean	7.2	7.3	7.7	7.6	7.7	8.0	8.3	8.5	8.8	9.0	9.3	9.5
Brazil	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Other South America	12.6	13.2	14.0	14.4	14.8	15.3	15.7	16.1	16.5	16.9	17.3	17.7
South Africa	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
West Africa (ECOWAS)[3]	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.3	1.3
Sub-Saharan Africa[4]	1.6	3.4	3.5	3.6	3.6	3.7	3.7	3.8	3.8	3.8	3.9	3.9
Other foreign[5]	15.7	2.5	6.4	6.7	6.9	6.8	6.8	6.8	6.8	6.8	6.9	6.9
United States	0.7	1.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Total trade	177.9	166.6	174.7	178.0	181.6	185.4	188.8	192.1	195.4	198.7	201.9	205.1
						Exports, million metric tons						
Exporters												
European Union[1]	3.3	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2
Argentina	36.0	33.5	36.0	36.8	37.2	37.6	37.9	38.3	38.6	39.0	39.3	39.6
Brazil	39.0	34.0	35.7	37.2	39.1	40.5	42.0	43.3	44.3	45.3	46.5	47.6
Other South America	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1
South Africa	1.0	1.5	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.4	2.4	2.5
Other Africa	1.0	0.8	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5
Other Europe	2.7	2.2	2.2	2.1	2.1	2.3	2.3	2.4	2.5	2.6	2.6	2.7
Ukraine	30.3	30.0	29.6	29.5	29.4	29.8	30.0	30.2	30.5	30.8	31.0	31.2
Former Soviet Union[2]	3.7	5.7	4.8	4.9	4.9	5.0	5.0	5.0	5.1	5.2	5.3	5.3
Other foreign	6.2	6.7	6.3	6.1	6.1	6.2	6.3	6.4	6.4	6.5	6.5	6.6
United States	52.5	48.3	53.3	54.6	55.9	57.2	58.4	59.7	61.0	62.2	63.5	64.8
						Percent						
U.S. trade share	29.5	29.0	30.5	30.7	30.8	30.8	30.9	31.1	31.2	31.3	31.5	31.6

[1]Excludes intra-EU trade.

[2]FSU-11, excludes Ukraine. Includes intra-FSU trade.

[3]Economic Community of Western African States, 15 member countries (ECOWAS).

[4]Excludes South Africa and ECOWAS

[5]Includes unaccounted, which can be negative.

The projections were completed in October 2019.

Table 28. Sorghum trade long-term projections

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Importers						*Imports, million metric tons*						
Japan	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Mexico	0.6	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
South America	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Sub-Saharan Africa[1]	0.7	0.8	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0
China	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.0
Other[2]	0.9	0.7	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.6
Total trade	3.5	3.3	3.7	3.7	3.7	3.8	3.8	3.8	3.8	3.9	3.9	3.9
Exporters						*Exports, million metric tons*						
Argentina	0.3	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Australia	0.4	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Africa	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other foreign	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United States	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
						Percent						
U.S. trade share	67.1	76.6	69.6	67.9	67.7	67.3	66.9	66.5	66.1	65.8	65.6	65.3

[1]Includes South Africa.

[2]Includes unaccounted.

The projections were completed in October 2019.

Table 29. Barley trade long-term projections

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
						Imports, million metric tons						
Importers												
Former Soviet Union[1]	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7
Europe	0.3	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.8
Japan	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
China	5.5	6.5	7.2	7.5	7.8	7.9	8.1	8.3	8.5	8.6	8.8	9.0
Brazil	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8
Latin America[2]	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8
Saudi Arabia	6.8	8.5	8.7	8.8	9.0	9.2	9.3	9.4	9.6	9.8	10.0	10.1
Iran	3.1	3.2	3.3	3.4	3.6	3.7	3.9	4.0	4.2	4.3	4.3	4.4
Turkey	0.3	0.1	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Other Middle East	2.4	2.5	2.6	2.7	2.8	2.8	2.8	2.9	2.9	3.0	3.0	3.0
Other North Africa[3]	1.9	1.2	1.4	1.6	1.7	1.8	1.8	1.9	1.9	1.9	1.9	1.9
Other foreign[4]	1.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
United States	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total trade	24.7	28.2	30.0	30.8	31.6	32.3	33.0	33.6	34.3	34.8	35.3	35.9
						Exports, million metric tons						
Exporters												
European Union[5]	4.9	5.6	5.7	5.7	5.7	5.8	5.9	5.9	6.0	6.0	6.1	6.1
Argentina	3.1	3.0	3.1	3.1	3.2	3.2	3.2	3.3	3.3	3.3	3.4	3.4
Australia	4.0	4.5	5.0	5.4	5.8	6.0	6.2	6.3	6.5	6.7	6.9	7.1
Canada	2.3	2.5	3.0	3.0	3.0	3.1	3.1	3.2	3.3	3.4	3.5	3.6
Russia	4.7	5.6	5.7	5.9	6.1	6.3	6.5	6.7	6.9	7.1	7.2	7.3
Ukraine	3.6	4.8	4.8	4.9	4.9	4.9	5.0	5.1	5.1	5.1	5.2	5.2
Other Former Soviet Union[6]	1.9	1.9	2.3	2.4	2.5	2.6	2.6	2.6	2.7	2.7	2.7	2.7
Turkey	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other foreign	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
United States	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
						Percent						
U.S. trade share	0.4	0.2	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3

[1]Covers FSU-12. Includes intra-FSU trade.

[2]Includes Mexico.

[3]Excludes Morocco.

[4]Includes unaccounted.

[5]Excludes intra-EU trade.

[6]FSU-12 except for Russia and Ukraine. Includes intra-FSU trade.

The projections were completed in October 2019.

Table 30. Wheat trade long-term projections

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
						Imports, million metric tons						
Importers												
Iran	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4
Iraq	3.9	3.2	4.0	4.1	4.3	4.4	4.6	4.7	4.9	5.0	5.2	5.3
Turkey	6.4	6.0	6.2	6.4	6.6	6.7	6.8	6.9	6.9	6.9	6.9	6.9
Saudi Arabia	2.9	3.2	3.2	3.4	3.5	3.6	3.7	3.7	3.8	3.9	4.0	4.1
Other Middle East	10.9	11.2	11.7	11.9	12.1	12.2	12.5	12.7	12.9	13.1	13.3	13.5
Morocco	3.7	4.8	5.2	4.7	4.7	4.8	4.8	4.8	4.8	4.8	4.8	4.9
Egypt	12.3	12.5	12.9	13.4	13.7	14.1	14.3	14.6	14.9	15.1	15.4	15.7
Other North Africa	10.9	10.1	10.9	11.2	11.3	11.4	11.5	11.6	11.7	11.7	11.8	11.9
Nigeria	4.6	5.1	5.3	5.5	5.6	5.8	6.0	6.2	6.4	6.6	6.8	7.0
Other West Africa (ECOWAS)[1]	4.1	4.5	4.6	4.7	4.9	5.1	5.2	5.4	5.6	5.8	5.9	6.1
South Africa	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9
Other Sub-Saharan Africa[2]	11.8	14.2	14.6	15.0	15.5	15.9	16.4	16.9	17.3	17.7	18.1	18.7
Mexico	4.9	5.2	5.2	5.3	5.3	5.4	5.4	5.4	5.5	5.5	5.5	5.6
Cuba	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Central America & Caribbean	3.3	3.4	3.5	3.5	3.6	3.6	3.7	3.7	3.8	3.8	3.9	3.9
Brazil	7.0	7.7	7.7	7.8	7.9	8.0	8.0	8.1	8.1	8.1	8.1	8.1
Other South America	7.5	8.2	8.4	8.6	8.7	8.9	9.0	9.1	9.2	9.3	9.4	9.5
European Union[3]	5.8	5.5	5.5	5.6	5.6	5.6	5.7	5.7	5.8	5.8	5.8	5.9
Other Europe	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Former Soviet Union[4]	7.8	7.7	7.9	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2
China	3.1	3.2	3.4	3.5	3.6	3.8	3.9	4.0	4.1	4.3	4.3	4.5
Hong Kong	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Japan	5.7	5.9	5.8	5.8	5.7	5.7	5.7	5.7	5.6	5.6	5.6	5.6
South Korea	3.9	4.1	4.2	4.3	4.4	4.5	4.6	4.6	4.7	4.8	4.9	5.0
Taiwan	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.7
India	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bangladesh	4.7	6.0	6.4	6.6	6.7	6.8	6.9	7.1	7.2	7.4	7.5	7.6
Philippines	7.5	7.4	7.5	7.7	7.8	7.9	8.1	8.2	8.3	8.4	8.6	8.7
Indonesia	10.8	11.0	11.1	11.3	11.5	11.8	12.0	12.2	12.4	12.6	12.9	13.1
Malaysia	1.8	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.2
Thailand	2.9	3.1	3.2	3.3	3.4	3.4	3.5	3.6	3.6	3.7	3.8	3.9
Vietnam	3.1	3.7	3.9	4.0	4.2	4.3	4.5	4.7	4.8	5.0	5.2	5.3
Other Asia & Oceania	7.4	6.7	6.9	7.0	7.2	7.3	7.4	7.6	7.7	7.9	8.0	8.2
Other foreign[5]	4.4	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
United States	3.7	3.3	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Total trade	173.2	179.7	185.9	189.4	192.9	196.2	199.7	202.9	206.2	209.3	212.4	215.6
						Exports, million metric tons						
Exporters												
European Union[3]	23.3	28.0	29.0	30.2	31.3	32.4	33.5	34.6	35.7	36.8	37.9	39.0
Canada	24.4	24.5	24.8	25.0	25.3	25.5	25.8	26.1	26.3	26.5	26.8	27.0
Australia	9.0	9.5	14.7	15.6	16.2	16.5	16.6	16.8	17.0	17.1	17.2	17.3
Argentina	12.3	14.5	14.3	14.1	14.4	14.8	15.1	15.2	15.6	16.0	16.4	16.8
Russia	35.4	34.0	35.3	35.8	36.2	36.6	36.9	37.3	37.5	37.9	38.2	38.8
Ukraine	16.0	19.5	18.4	18.9	19.3	19.8	20.2	20.8	21.1	21.6	22.0	22.5
Other Former Soviet Union[6]	9.6	6.1	6.3	6.5	6.7	6.9	7.1	7.3	7.4	7.6	7.8	8.0
Other Europe	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4
India	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
China	1.0	1.3	1.4	1.4	1.4	1.4	1.5	1.5	1.6	1.6	1.7	1.7
Turkey	6.4	6.5	6.6	6.6	6.7	6.8	6.9	6.9	7.0	7.1	7.1	7.2
Other foreign	8.6	8.3	8.3	8.4	8.4	8.5	8.6	8.7	8.7	8.8	8.8	8.9
United States	25.5	25.9	25.2	25.2	25.2	25.2	25.9	25.9	26.5	26.5	26.5	26.5
						Percent						
U.S. trade share	14.7	14.4	13.5	13.3	13.1	12.8	12.9	12.7	12.9	12.7	12.5	12.3

[1]Economic Community of Western African States (ECOWAS) except Nigeria, 14 remaining member countries.

[2]Excludes South Africa, Nigeria, and other West Africa.

[3]Excludes intra-EU trade.

[4]FSU-12. Includes intra-FSU trade.

[5]Includes unaccounted, which can be negative.

[6]FSU-12 except for Russia and Ukraine. Includes intra-FSU trade.

The projections were completed in October 2019.

Table 31. Rice trade long-term projections

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
						Imports, million metric tons						
Importers												
Canada	0.40	0.40	0.40	0.41	0.41	0.42	0.42	0.42	0.43	0.43	0.43	0.44
Mexico	0.76	0.79	0.78	0.80	0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88
Cuba	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Central America & Caribbean	1.27	1.40	1.40	1.41	1.43	1.45	1.47	1.49	1.51	1.54	1.57	1.60
Brazil	0.90	1.10	1.17	1.15	1.12	1.10	1.07	1.05	1.03	1.00	0.97	0.95
Other South America	1.24	1.28	1.27	1.28	1.29	1.30	1.31	1.32	1.32	1.33	1.34	1.34
European Union[1]	2.10	2.05	2.06	2.08	2.10	2.12	2.14	2.16	2.18	2.20	2.22	2.24
Former Soviet Union[2]	0.60	0.59	0.58	0.57	0.57	0.57	0.56	0.55	0.55	0.55	0.54	0.54
Other Europe	0.13	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.15	0.15
Bangladesh	0.55	0.10	0.70	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
China	3.25	3.10	2.88	2.69	2.54	2.34	2.16	2.10	2.08	2.06	2.04	2.02
Japan	0.69	0.69	0.68	0.68	0.69	0.69	0.69	0.68	0.69	0.69	0.69	0.69
South Korea	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Indonesia	0.40	0.60	1.30	1.20	1.10	1.05	1.00	1.00	1.00	1.00	0.95	0.93
Malaysia	1.00	1.00	0.99	1.00	1.00	1.01	1.02	1.03	1.03	1.03	1.03	1.03
Philippines	3.57	2.70	2.78	2.87	2.96	3.02	3.10	3.16	3.19	3.24	3.29	3.35
Other Asia & Oceania	3.18	3.09	3.15	3.19	3.20	3.20	3.22	3.22	3.23	3.25	3.26	3.28
Iraq	1.20	1.15	1.16	1.18	1.20	1.22	1.25	1.29	1.33	1.38	1.42	1.47
Iran	1.20	1.15	1.29	1.34	1.37	1.39	1.41	1.43	1.44	1.45	1.48	1.50
Saudi Arabia	1.35	1.38	1.40	1.42	1.45	1.47	1.50	1.53	1.55	1.58	1.60	1.63
Other N. Africa & M. East	3.99	3.57	3.47	3.49	3.56	3.63	3.68	3.75	3.81	3.85	3.92	3.98
Nigeria	2.10	2.20	2.24	2.42	2.57	2.74	2.90	3.05	3.20	3.35	3.50	3.65
Other West Africa (ECOWAS)[3]	7.60	8.13	8.42	8.73	9.09	9.44	9.77	9.94	10.16	10.37	10.59	10.78
Other Sub-Saharan Africa[4]	4.21	4.38	4.52	4.75	4.95	5.13	5.31	5.51	5.65	5.81	5.99	6.17
South Africa	1.01	1.05	1.06	1.07	1.08	1.09	1.10	1.11	1.12	1.13	1.14	1.15
Other foreign[5]	0.77	2.03	1.99	2.22	2.16	2.13	2.14	2.13	2.12	2.11	2.10	2.09
United States	0.92	0.94	0.94	0.95	0.96	0.97	0.98	1.00	1.01	1.02	1.03	1.04
Total imports	45.28	45.88	47.68	48.86	49.65	50.35	51.06	51.79	52.52	53.27	54.02	54.78
Exporters						*Exports, million metric tons*						
Australia	0.10	0.02	0.05	0.10	0.13	0.15	0.17	0.19	0.21	0.23	0.25	0.27
Argentina	0.33	0.30	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42
Other South America	2.83	2.62	2.64	2.66	2.69	2.73	2.76	2.80	2.83	2.86	2.89	2.91
European Union[1]	0.32	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
China	2.77	3.30	3.60	3.83	4.06	4.27	4.51	4.72	4.91	5.15	5.34	5.60
India	11.80	11.80	12.20	12.30	12.30	12.40	12.50	12.59	12.70	12.80	12.90	13.00
Pakistan	4.10	4.00	3.97	4.10	4.15	4.15	4.15	4.16	4.16	4.18	4.21	4.24
Thailand	8.70	9.00	9.57	9.89	10.03	10.20	10.33	10.46	10.68	10.83	11.06	11.23
Vietnam	6.50	6.55	6.78	6.90	7.04	7.09	7.15	7.28	7.32	7.38	7.44	7.50
Burma	2.60	2.63	2.67	2.72	2.78	2.83	2.87	2.92	2.97	3.03	3.07	3.12
Cambodia	1.20	1.30	1.33	1.37	1.40	1.43	1.46	1.50	1.54	1.58	1.62	1.65
Egypt	0.02	0.10	0.20	0.25	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Other foreign	1.04	0.95	0.96	0.98	0.99	1.00	1.01	1.02	1.03	1.04	1.05	1.05
United States	2.97	3.02	3.08	3.13	3.14	3.14	3.18	3.18	3.18	3.19	3.19	3.19
Total exports	45.28	45.88	47.68	48.86	49.65	50.35	51.06	51.79	52.52	53.27	54.02	54.78
						Percent						
U.S. trade share	6.6	6.6	6.5	6.4	6.3	6.2	6.2	6.1	6.0	6.0	5.9	5.8

[1]Excludes intra-EU trade.

[2]FSU-12. Includes intra-FSU trade.

[3]Economic Community of Western African States (ECOWAS) except Nigeria, 14 remaining member countries.

[4]Excludes South Africa, Nigeria, and other West Africa.

[5]Includes unaccounted.

The projections were completed in October 2019.

Table 32. Soybean trade long-term projections

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
						Imports, million metric tons						
Importers												
European Union[1]	15.2	15.1	15.0	15.0	14.9	14.8	14.7	14.6	14.6	14.5	14.4	14.3
Former Soviet Union [2]	2.0	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4
Mexico	5.2	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8
Argentina	6.5	3.9	4.0	4.1	4.1	4.2	4.3	4.4	4.4	4.5	4.6	4.7
Other South America[3]	1.3	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.8	1.8
Central America & Caribbean	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
Egypt	3.4	3.5	3.6	3.9	4.0	4.2	4.3	4.4	4.6	4.7	4.8	5.0
Iran	2.0	1.9	2.0	2.1	2.2	2.2	2.3	2.4	2.5	2.6	2.7	2.7
Saudi Arabia	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9
Turkey	2.6	2.8	3.0	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8
Other Middle East	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Africa	0.8	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.1	1.1
Pakistan	2.5	2.6	2.7	2.8	2.9	3.0	3.2	3.3	3.4	3.5	3.7	3.8
China	83.0	85.0	86.1	88.2	90.2	93.1	96.4	99.7	103.0	106.0	109.3	112.5
Japan	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
South Korea	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6
Taiwan	2.7	2.9	2.9	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.2	3.2
Malaysia	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	1.0
Indonesia	2.7	3.0	2.9	3.0	3.1	3.2	3.3	3.3	3.4	3.5	3.6	3.7
Vietnam	2.2	2.5	2.5	2.5	2.6	2.7	2.7	2.8	2.9	3.0	3.0	3.1
Thailand	3.2	3.4	3.5	3.6	3.7	3.7	3.7	3.8	3.8	3.8	3.9	3.9
Other	6.5	5.3	5.7	5.8	5.9	6.0	6.0	6.1	6.2	6.3	6.4	6.5
Total imports	148.7	149.4	151.7	155.0	158.1	162.1	166.4	170.8	175.0	179.0	183.3	187.5
Exporters						*Exports, million metric tons*						
Argentina	8.2	8.0	7.5	7.1	7.0	7.2	7.4	7.6	8.1	8.5	9.0	9.4
Brazil	75.4	76.5	75.7	77.2	78.0	80.3	83.1	85.9	88.7	91.4	94.3	97.4
Other South America[4]	8.3	8.3	8.5	8.5	8.6	8.7	8.8	9.0	9.1	9.2	9.4	9.5
Ukraine	2.5	1.9	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.5	2.6	2.6
Canada	5.3	4.6	4.5	4.7	4.8	4.9	5.1	5.2	5.3	5.5	5.6	5.8
Other foreign	1.6	1.7	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
United States	47.6	48.3	51.6	53.6	55.7	57.0	58.0	58.9	59.6	60.1	60.7	61.0
Total exports	148.7	149.4	151.7	155.0	158.1	162.1	166.4	170.8	175.0	179.0	183.3	187.5
						Percent						
U.S. trade share	32.0	32.3	34.0	34.6	35.2	35.2	34.8	34.5	34.1	33.6	33.1	32.5

[1]Excludes intra-EU trade.

[2]FSU-12. Includes intra-FSU trade.

[3]South America, excludes Argentina.

[4]South America, excludes Argentina and Brazil.

The projections were completed in October 2019.

Table 33. Soybean meal trade long-term projections

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
						Imports, million metric tons						
Importers												
European Union[1]	18.3	19.0	19.0	19.3	19.4	19.4	19.4	19.5	19.6	19.6	19.6	19.6
Russia	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3
Other Former Soviet Union[2]	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2
Other Europe	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Canada	1.0	1.1	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2
Japan	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
South Korea	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.2
Indonesia	4.6	4.7	4.9	5.0	5.2	5.3	5.4	5.5	5.6	5.8	5.8	6.0
Malaysia	1.6	1.7	1.7	1.8	1.8	1.9	1.9	2.0	2.0	2.0	2.1	2.1
Philippines	3.0	3.1	3.2	3.4	3.5	3.5	3.6	3.7	3.8	3.8	3.9	4.0
Thailand	2.9	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.3	3.4	3.5	3.5
Vietnam	4.9	4.6	4.8	5.0	5.3	5.5	5.7	6.0	6.2	6.4	6.7	6.9
Other Asia & Oceania	1.7	1.9	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.3	2.4	2.4
Mexico	1.9	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.3	2.4	2.4	2.5
Central America & Caribbean	2.4	2.5	2.5	2.6	2.6	2.6	2.7	2.7	2.7	2.8	2.8	2.8
South America	5.3	5.5	5.8	6.1	6.3	6.5	6.7	6.9	7.0	7.2	7.4	7.5
Egypt	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.1	1.1	1.1	1.2
Iran	2.7	2.4	1.7	1.8	1.8	1.9	2.0	2.0	2.1	2.2	2.2	2.3
Saudi Arabia	1.1	1.2	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3
Turkey	0.7	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0
Other Middle East[3]	1.4	1.5	1.6	1.7	1.7	1.8	1.8	1.8	1.8	1.9	1.9	1.9
Other North Africa[4]	2.4	2.5	2.6	2.7	2.8	2.8	2.9	2.9	3.0	3.1	3.1	3.2
Other	6.1	4.9	5.7	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Total imports	67.3	68.0	69.0	70.9	72.2	73.5	74.5	75.8	77.0	78.2	79.2	80.4
						Exports, million metric tons						
Exporters												
Argentina	28.6	30.3	31.3	32.5	33.2	33.9	34.4	34.9	35.6	35.9	36.3	36.9
Brazil	15.9	15.2	15.6	16.2	16.7	17.1	17.4	17.9	18.3	18.9	19.4	19.8
Other South America	4.2	4.2	4.3	4.3	4.4	4.4	4.5	4.6	4.7	4.8	4.8	4.9
China	1.0	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6
India	2.4	1.9	1.9	1.9	1.8	1.8	1.8	1.9	1.9	2.0	2.0	2.1
European Union[1]	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4
Other foreign	2.6	2.7	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.6	2.6	2.7
United States	12.3	12.4	12.3	12.6	12.7	12.8	12.9	13.0	13.0	13.1	13.1	13.1
Total exports	67.3	68.0	69.0	70.9	72.2	73.5	74.5	75.8	77.0	78.2	79.2	80.4
						Percent						
U.S. trade share	18.3	18.3	17.9	17.8	17.6	17.4	17.3	17.1	16.9	16.7	16.5	16.3

[1]Excludes intra-EU trade.

[2]Covers FSU-12 minus Russia. Includes intra-FSU trade.

[3]Middle East excluding Saudi Arabia, Iran, and Turkey.

[4]North Africa excluding Egypt.

The projections were completed in October 2019.

Table 34. Soybean oil trade long-term projections

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
						Imports, million metric tons						
Importers												
China	0.8	1.2	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.5	1.6	1.6
India	3.3	3.5	3.6	3.8	3.9	3.9	4.0	4.1	4.2	4.4	4.5	4.6
Bangladesh	1.0	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2
Pakistan	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3
South East Asia	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4
Other Asia & Oceania	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6
Mexico	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Central America & Caribbean	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7
South America	1.4	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.7
Iran	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Egypt	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4
Other North Africa[1]	1.4	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.7
European Union[2]	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Other	1.1	0.9	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.3
Total imports	11.3	11.9	12.2	12.5	12.8	13.1	13.3	13.7	14.0	14.3	14.6	14.9
						Exports, million metric tons						
Exporters												
Argentina	5.4	6.0	6.2	6.4	6.6	6.7	6.8	6.9	7.1	7.3	7.4	7.6
Brazil	1.1	1.2	1.3	1.5	1.6	1.6	1.7	1.8	1.9	2.0	2.1	2.2
Other South America	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2
European Union[2]	0.9	1.0	0.8	0.8	0.8	0.7	0.7	0.7	0.8	0.8	0.8	0.8
Former Soviet Union -12	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8
Other foreign	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2
United States	0.9	0.8	0.7	0.7	0.8	0.9	1.0	1.0	1.1	1.1	1.2	1.2
Total exports	11.3	11.9	12.2	12.5	12.8	13.1	13.3	13.7	14.0	14.3	14.6	14.9
						Percent						
U.S. trade share	8.1	6.6	5.8	5.8	6.4	6.8	7.3	7.6	7.8	7.8	8.0	8.1

[1]Excludes Egypt.

[2]Excludes intra-EU trade.

The projections were completed in October 2019.

Table 35. All cotton trade long-term projections

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
						Imports, million bales						
Importers												
European Union[1]	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5
Former Soviet Union[2]	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Mexico	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.7
Japan	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
South Korea	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
China	9.6	9.5	10.5	11.5	12.0	12.5	13.1	13.7	14.3	15.0	15.8	16.6
Indonesia	3.1	3.3	3.6	3.6	3.6	3.6	3.7	3.7	3.8	3.8	3.9	3.9
Vietnam	6.9	7.5	8.0	8.1	8.6	9.2	9.7	10.2	10.7	11.2	11.6	12.1
Thailand	1.1	1.0	1.1	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9
Pakistan	2.8	3.1	3.6	3.4	3.4	3.4	3.3	3.3	3.4	3.4	3.4	3.4
India	1.8	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.9	2.0	2.0
Bangladesh	7.2	7.3	7.7	7.7	8.0	8.3	8.6	9.0	9.3	9.7	10.1	10.5
Taiwan	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Other Asia & Oceania	0.9	0.9	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Turkey	3.5	3.2	3.3	3.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.4
Other	0.9	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	1.9
Total imports	41.2	42.9	46.0	46.4	47.7	49.1	50.5	51.9	53.4	55.0	56.7	58.4
						Exports, million bales						
Exporters												
Former Soviet Union[2]	1.9	1.5	1.4	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2
Australia	3.6	1.7	1.8	1.8	2.0	2.3	2.5	2.8	3.0	3.3	3.5	3.8
Argentina	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6
Brazil	6.0	8.3	8.4	8.3	8.5	8.9	9.6	10.4	11.2	11.8	12.6	13.3
Other Latin America	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Pakistan	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
India	3.5	4.0	7.0	6.6	6.8	6.9	6.9	7.0	7.0	7.1	7.2	7.4
Egypt	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
West Africa (ECOWAS)[3]	4.9	4.7	5.0	5.1	5.3	5.5	5.6	5.7	5.8	5.9	6.1	6.2
Other Sub-Saharan Africa[4]	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3
Other foreign	3.2	2.8	2.8	2.7	2.8	2.9	2.9	3.0	3.1	3.1	3.2	3.3
United States	14.8	16.5	16.1	17.0	17.6	17.7	17.9	18.1	18.3	18.6	18.9	19.3
Total exports	41.2	42.9	46.0	46.4	47.7	49.1	50.5	51.9	53.4	55.0	56.7	58.4
						Percent						
U.S. trade share	35.8	38.4	35.0	36.6	36.8	36.1	35.5	34.8	34.3	33.8	33.3	33.0

[1]Excludes intra-EU trade.

[2]Covers FSU-12, including intra-FSU trade.

[3]Economic Community of West African States, 15 countries (ECOWAS)

[4]Includes South Africa.

The projections were completed in October 2019.

Table 36. Beef trade long-term projections

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
						Imports, thousand metric tons, carcass weight						
Importers												
Japan	865	880	890	893	896	900	904	904	902	904	904	906
South Korea	582	635	645	657	672	690	711	736	754	774	797	818
Taiwan	176	190	200	209	217	225	233	240	247	253	259	265
Indonesia	94	98	102	104	105	106	108	110	112	115	119	122
Malaysia	215	210	195	195	195	197	199	202	204	206	209	211
Philippines	195	160	130	124	124	129	137	147	156	166	178	189
China	1,467	2,400	2,900	3,125	3,286	3,410	3,511	3,592	3,673	3,754	3,835	3,909
Hong Kong	541	350	350	358	364	367	372	377	382	388	391	395
Other Asia and Oceania	208	225	236	242	249	257	265	275	283	293	303	311
European Union[1]	373	355	355	355	355	355	354	354	353	352	352	351
Other Europe	119	125	127	130	131	133	134	136	138	139	142	144
Russia	495	440	430	418	402	390	383	376	371	366	364	359
Saudi Arabia	134	140	145	147	151	155	159	163	167	170	174	178
Other Middle East[2]	666	674	655	668	679	695	712	722	741	756	774	792
Egypt	300	310	320	330	337	347	358	366	375	385	395	405
Other Africa[3]	157	173	165	168	171	173	175	177	178	180	182	184
Other Latin America[4]	596	696	756	764	776	791	803	816	825	837	847	858
Mexico	202	205	210	219	226	237	243	252	258	268	280	290
Canada	245	200	190	191	191	192	193	193	194	195	196	196
United States	1,360	1,374	1,302	1,270	1,270	1,315	1,338	1,361	1,383	1,406	1,429	1,451
Major importers	8,990	9,840	10,303	10,565	10,795	11,064	11,294	11,497	11,696	11,907	12,129	12,333
Exporters						*Exports, thousand metric tons, carcass weight*						
Australia	1,662	1,657	1,442	1,467	1,477	1,488	1,498	1,509	1,524	1,532	1,542	1,547
New Zealand	633	650	651	657	661	668	675	677	680	688	691	697
Former Soviet Union[5]	306	279	275	284	288	293	298	302	305	309	311	315
India	1,556	1,600	1,700	1,749	1,787	1,826	1,872	1,910	1,956	1,993	2,039	2,083
Other Asia	182	192	203	207	209	209	211	214	218	221	225	228
European Union[1]	351	360	350	350	349	348	348	347	347	346	345	344
Argentina	507	700	775	810	822	833	848	862	877	892	907	922
Brazil	2,083	2,250	2,600	2,855	3,018	3,166	3,312	3,448	3,596	3,750	3,894	4,032
Other Latin America[6]	1,076	1,058	1,100	1,115	1,131	1,138	1,148	1,155	1,167	1,176	1,182	1,193
Mexico	310	355	390	416	433	446	454	463	469	473	476	481
Canada	502	570	590	592	596	600	605	609	615	620	627	634
United States	1,434	1,418	1,499	1,565	1,588	1,588	1,565	1,542	1,520	1,520	1,542	1,565
Major exporters	10,602	11,089	11,575	12,064	12,357	12,604	12,833	13,039	13,271	13,517	13,781	14,039

[1]Excludes intra-EU trade.

[2]Excludes Saudi Arabia trade.

[3]Excludes Egypt trade.

[4]Excludes Mexico Trade.

[5]FSU-12. Includes intra-FSU trade.

[6]Excludes Argentina and Brazil Trade.

The projections were completed in October 2019.

Table 37. Pork trade long-term projections

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
						Imports, thousand metric tons, carcass weight						
Importers												
Japan	1,481	1,510	1,515	1,525	1,535	1,551	1,565	1,578	1,590	1,603	1,617	1,629
China	1,561	2,600	3,500	3,801	4,000	4,155	4,246	4,341	4,439	4,535	4,607	4,688
Hong Kong	423	350	375	411	434	457	477	497	517	535	552	570
South Korea	753	700	700	759	792	816	840	865	888	911	938	965
Philippines	286	265	350	375	401	425	448	469	487	504	523	542
Australia	216	260	240	232	239	245	251	257	263	268	273	279
Other Asia & Oceania	402	435	463	498	539	577	607	632	652	672	692	708
Russia	87	130	80	77	80	81	82	83	87	89	91	92
Other Former Soviet Union[1]	153	150	155	160	164	169	173	177	182	187	191	196
Other South America[2]	311	375	419	443	470	495	519	548	574	599	627	654
Mexico	1,188	1,225	1,275	1,320	1,367	1,417	1,471	1,521	1,571	1,621	1,671	1,721
Central America & Caribbean	234	236	236	246	255	265	276	287	299	310	323	334
Canada	233	250	225	230	234	239	244	249	254	258	263	267
United States	473	434	415	426	444	452	462	471	479	485	492	500
Major importers	7,801	8,920	9,948	10,502	10,955	11,343	11,660	11,972	12,279	12,575	12,859	13,146
						Exports, thousand metric tons, carcass weight						
Exporters												
Brazil	730	875	1,050	1,073	1,104	1,130	1,155	1,178	1,202	1,226	1,250	1,275
Other South America[2]	204	242	272	279	286	288	291	309	317	325	334	342
Canada	1,331	1,315	1,300	1,343	1,371	1,400	1,428	1,456	1,483	1,503	1,528	1,558
Mexico	178	210	240	252	264	273	283	295	305	313	321	329
European Union[3]	2,934	3,450	3,900	4,001	4,083	4,167	4,273	4,357	4,445	4,528	4,615	4,698
China	203	130	100	92	90	92	93	93	94	94	96	97
United States	2,665	2,985	3,311	3,576	3,827	4,056	4,159	4,319	4,464	4,579	4,694	4,808
Major exporters	8,245	9,207	10,173	10,617	11,026	11,406	11,682	12,007	12,310	12,569	12,837	13,106

[1]Former Soviet Union excluding Russia. Includes intra-FSU trade.

[2]Excludes Argentina and Brazil.

[3]Excludes intra-EU trade.

The projections were completed in October 2019.

Table 38. Poultry trade long-term projections[1]

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
						Imports, thousand metric tons, ready to cook						
Importers												
Russia	220	201	196	191	189	184	180	174	167	158	152	146
Ukraine	132	138	138	141	143	143	143	143	143	144	144	144
Other Former Soviet Union[2]	455	463	475	487	497	507	516	523	530	538	544	551
European Union[3]	1,170	1,253	1,240	1,248	1,260	1,265	1,273	1,283	1,288	1,295	1,303	1,310
Canada	173	168	173	176	179	182	184	187	189	191	193	196
Mexico	981	1,008	1,029	1,067	1,113	1,150	1,183	1,215	1,243	1,276	1,312	1,351
Central America & Caribbean	787	819	769	804	841	866	887	906	927	949	974	999
South America	589	627	666	698	723	753	778	802	826	851	874	902
Japan	1,075	1,091	1,101	1,130	1,149	1,173	1,187	1,199	1,213	1,229	1,245	1,257
South Korea	163	185	200	215	225	234	244	253	262	272	282	292
Taiwan	217	209	205	209	211	216	220	224	227	232	237	241
Hong Kong	218	334	362	390	406	419	426	432	438	440	442	444
China	372	655	780	874	930	981	1,034	1,085	1,139	1,183	1,226	1,270
Vietnam	73	88	98	110	118	128	136	144	152	161	169	178
Philippines	324	319	404	449	484	521	556	590	616	644	671	697
Other Asia & Oceania	461	493	511	531	551	571	592	613	635	655	675	696
Saudi Arabia	667	672	679	703	715	732	749	766	784	801	817	832
Iraq	527	556	581	597	611	627	642	660	680	700	720	740
Other Middle East	1,102	1,166	1,219	1,259	1,302	1,335	1,370	1,406	1,438	1,470	1,496	1,526
Egypt	58	75	80	90	101	113	123	134	145	155	167	177
Other North Africa	83	87	92	96	99	102	104	107	109	111	114	117
West Africa (ECOWAS)[4]	515	569	599	645	669	695	715	741	766	789	813	833
South Africa	550	575	586	619	646	674	699	731	752	775	798	821
Other Sub-Saharan Africa	856	814	854	909	955	998	1,042	1,082	1,125	1,168	1,210	1,253
Major importers	11,768	12,565	13,037	13,635	14,117	14,569	14,983	15,399	15,793	16,186	16,578	16,973
Exporters						*Exports, thousand metric tons, ready to cook*						
European Union[3]	1,969	2,139	2,169	2,213	2,248	2,285	2,305	2,330	2,356	2,377	2,406	2,429
Russia	130	148	170	259	269	278	288	298	305	314	320	324
Ukraine	317	400	450	463	470	484	502	519	536	551	563	577
Other Former Soviet Union[2]	182	189	200	204	209	215	220	225	229	234	238	242
Brazil	3,785	3,950	4,142	4,348	4,601	4,791	5,030	5,227	5,435	5,640	5,862	6,052
Argentina	124	155	158	160	163	169	174	176	181	186	189	192
Other South America	168	200	228	240	250	263	273	283	295	308	319	329
Canada	151	148	154	147	149	152	154	156	158	160	162	164
China	447	445	440	437	439	443	447	455	461	469	476	483
Thailand	836	991	1,101	1,190	1,261	1,327	1,380	1,427	1,476	1,522	1,570	1,611
Turkey	424	431	437	440	447	456	464	473	483	492	502	510
United States	3,522	3,552	3,624	3,718	3,800	3,870	3,936	3,998	4,058	4,118	4,177	4,236
Major exporters	12,055	12,748	13,273	13,819	14,306	14,734	15,173	15,568	15,973	16,369	16,783	17,148

[1]Broilers and turkeys only.

[2]Other Former Soviet Union -12 excluding Russia and Ukraine. Includes intra-FSU trade.

[3]Excludes intra-EU trade.

[4]Economic Community of West African States, 15 member countries (ECOWAS).

The projections were completed in October 2019.

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